DRAFT INITIAL STUDY and ENVIRONMENTAL CHECKLIST

FOR

PARKSIDE RESIDENTIAL PROJECT

July 2022

Lead Agency:
City of Lakeport

Lead Agency Contact:
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I. PROJECT SUMMARY

Date: **July 2022**

Project Title: Parkside Residential Project

Lead Agency: City of Lakeport

Contact: Jenni Byers, Community Development Director
City of Lakeport
Community Development Department
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Applicant: Peter Schellinger
Waterstone Residential
1270 Airport Blvd
Santa Rosa, CA 95403
(415) 710-4115

Location: The proposed Parkside Residential Project (Project) site is in the central-west portion of the City of Lakeport, located at 1310 Craig Avenue, on APN 005-030-51. The property is approximately 15.16 acres, with access from Fenway Avenue and Yankee Avenue. Single-family residences are located to the south and southeast of the site, with vacant land to the east, north, and south. Forbes Creek runs across the northern edge of the parcel.

Coastal Zone: No

Affected Parcel(s): 005-030-51

City of Lakeport General Plan Land Use Designation: Residential (see Figure 3)

City of Lakeport Zoning Designation: R-1, Low-Density Residential (see Figure 4)

Anticipated Permits and Approvals:

1) City of Lakeport approval of the Draft Initial Study/Mitigated Negative Declaration
2) City of Lakeport General Plan Amendment Residential to High Density Residential
3) City of Lakeport Zone Change R-1 to R-3
4) City of Lakeport Planned Development Combining District
5) City of Lakeport Tentative Subdivision Map

Tribal Cultural Resources: Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

On March 28, 2022, in response to request for notification of projects pursuant to Assembly Bill 52 (Public Resources Code 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 5097.94), the City of Lakeport provided notification and provided 90-days to request consultation to the Scotts Valley Band of Pomo Indians and Big Valley Band of Pomo Indians regarding the Parkside Residential Project (proposed project). Additionally, the City of Lakeport sent a "Request for Review" to both the Big Valley Band of Pomo Indians and the Scotts Valley Band of Pomo Indians in a letter dated October 19, 2021 with a request for response by November 2, 2021. As of the date of this Initial Study, no responses or other communications have been received from the Native community regarding the project.

CEQA Requirement:

The proposed project is subject to the requirements of the California Environmental Quality Act (CEQA). The Lead Agency is the City of Lakeport. The purpose of this Initial Study (IS) is to provide a basis for determining whether to prepare an Environmental Impact Report (EIR) or a Negative Declaration. This IS is intended to satisfy the requirements of the CEQA (Public Resources Code, Div. 13, Sec. 21000-21177) and the State CEQA Guidelines (California Code of Regulations, Title 14, Sec 15000-15387).

CEQA encourages lead agencies and applicants to modify their projects to avoid significant adverse impacts (CEQA Section 20180(c)(2) and State CEQA Guidelines Section 15070(b) (2)).

Section 15063(d) of the State CEQA Guidelines states that an IS shall contain the following information in brief form:

1) A description of the project including the project location
2) Identification of the environmental setting
3) Identification of environmental effects by use of a checklist, matrix, or other method, provided that entries on a checklist or other form are briefly explained to provide evidence to support the entries
4) Discussion of means to mitigate significant effects identified, if any
5) Examination of whether the project would be consistent with existing zoning, plans, and other applicable land use controls
6) The name of the person or persons who prepared and/or participated in the Initial Study

II. LOCATION AND PROJECT SETTING

The Project site is located within the central-west portion of the City of Lakeport, approximately one mile west of Clear Lake and a quarter mile west of State Route 29. The proposed site is located at 1310 Craig Avenue, on APN 005-030-51. The property is approximately 15.16-acres, with access from Fenway Avenue and Yankee Avenue.

Single-family residences are located to the south and southeast of the site, with vacant land to the east, north, and south. Forbes Creek runs across the northern edge of the parcel. The Project site is at an elevation of 1367–1377 feet above mean sea level, with 0-10% slope. The site currently consists of vacant, fallowed land, which previously supported orchards, but has been mass graded and compacted in preparation of Phase II and Phase III of the previously approved Parkside Subdivision. Additionally, the site is disced annually for weed abatement.

The site was originally evaluated in 2005 for a 96-lot subdivision which has since been partially constructed. The vacant, undeveloped portion of the site is proposed for an increase in density, which has triggered the City to re-evaluate the Project.

III. PROJECT DESCRIPTION

This Initial Study examines the potential environmental impacts of proposed modifications to the Parkside Residential Project (Project) (APP 2021-31) that consists of the following:

- Adoption of the Project Mitigated Negative Declaration
- Adoption of the Mitigation Monitoring and Reporting Program
- Approval of a General Plan Amendment, changing the site designation from Residential to High Density Residential
- Approval of a Zone Change from R-1 to R-3
- Approval of a Planned Development Combining District
- Approval of a Tentative Subdivision Map

The original Schellinger Subdivision 96-lot single family residential was approved in 2005 (SCH 2005072123) and included three phases. Phase 1 consisted of 35 lots. Of those, 14 were constructed with homes and 20 lots remain vacant but available for development. The Project consists of a modification to the remaining property for construction and development of a mixed residential project in the City of Lakeport. The Project includes the following components:

- 176 total dwelling units:
    - 48 Attached Single Family Dwellings
    - 128 Multi Family Dwellings, in several 6-, 8-, or 12-unit two story buildings
- Community Facilities Leasing Office
- Related parking and landscaping
- Internal access roads.

Site Circulation and Access
The site has been designed with two points of ingress and egress. One of these points connects at Yankee Avenue along the eastern edge of the Project and the other access point connects at Fenway Avenue on the southern edge. The Project will be responsible for construction of internal roadways as well as for potential improvements to surrounding roadways to accommodate the Project.

Infrastructure
The Project will require connection to various City-operated systems such as for sewer, water and storm drain facilities. The Project will be responsible for construction of connection points to the City's existing infrastructure. The Project also includes improvements and landscaping along the frontage roads and within the site itself.

It is anticipated that the Project would begin development in 2023.

IV. ENVIRONMENTAL EFFECTS

An environmental checklist follows this section and addresses all potential adverse effects resulting from the proposed project. No significant adverse effects are expected from any of the proposed activities.

V. 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"** or "**Potentially Significant Unless Mitigation Incorporated**" as indicated by the checklists on the following pages.

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

An explanation for all checklist responses is included, and all answers consider the whole action involved and the following types of impacts: off-site and on-site; cumulative and project-level; indirect and direct; and construction and operational. The explanation of each issue identifies (a) the threshold of significance, if any, used to evaluate each question; and (b) the mitigation measure identified, if any, to reduce the impact to less than significance. All mitigation measures required for the project are provided in the Mitigation Monitoring and Reporting Program (MMRP) (see Appendix A).

In the checklist the following definitions are used:

"**Potentially Significant Impact**" means there is substantial evidence that an effect may be significant.

"**Potentially Significant Unless Mitigation Incorporated**" means the incorporation of one or more mitigation measures can reduce the effect from potentially significant to a less than significant level.

"**Less Than Significant Impact"** means that the effect is less than significant, and no mitigation is necessary to reduce the impact to a lesser level.

"**No Impact"** means that the effect does not apply to the proposed project, or clearly will not impact nor be impacted by the proposed project.

DETERMINATION: (To be completed by the Lead Agency on the basis of this initial evaluation)

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

J. M. Byers — 7/6/22

Signature — Date

Jennifer M. Byers, Community Development Director

Name and Title

I. **AESTHETICS**. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) In 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 point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Thresholds of Significance: The project would have a significant effect on aesthetics if it would have a substantial adverse effect on a scenic vista; substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway; substantially degrade the existing visual character or quality of public views of the site and its surroundings (if the project is in a non-urbanized area) or conflict with applicable zoning and other regulations governing scenic quality (if the project is in an urbanized area); or create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

DISCUSSION

The proposed project area is located in an area developed with residential and commercial uses. Land area in the project vicinity is designated as Residential, High Density Residential, or Open Space Parkland under the City of Lakeport General Plan, with the land directly southwest being outside the City of Lakeport's City Limit Boundary.[1] The land directly north, east, and south is zoned R-1 Low Density Residential by the City and the parcels directly west are zoned OS Open Space.[2] The project area is currently vacant and does not contain important visual landmarks or areas of scenic interest. There are no General Plan designated scenic viewpoints in the project area.

IMPACT ANALYSIS

[1] City of Lakeport General Plan Map. https://www.cityoflakeport.com/Planning/General%20Plan%20Map.pdf. Accessed February 2022.
[2] City of Lakeport, Lakeport Zoning Map. https://www.cityoflakeport.com/Planning/Lakeport%20Zoning%20Map.pdf. Accessed February 2022.

I.a-b) The proposed Project is not located within a City- or County-mapped or designated scenic vista or within a scenic resources area. Review of view corridors for the City of Lakeport defines those views that need protecting are those views of Clear Lake and Mount Konocti to the east. The location of the project west of State Route 29, would not impact those view corridors. The project will not substantially damage scenic resources within a State scenic highway. The Project site is located approximately 0.2 miles west of State Route 29 which is designated as an Eligible State scenic highway but is not a Designated scenic highway.[3] Therefore, the project would have a less than significant impact.

I.c) The project developments would consist of developing a residential subdivision that includes a total of 51 lots, with 48 lots for 45 Single Family Dwellings and three lots for one Multi-Family Dwelling. The proposed developments are consistent with the current zoning of the Project area, R-1 (Low Density Residential). The project would require an Architectural and Design Review that would review the visual character of the structures and ensure the development is consistent with the City of Lakeport Development Standards. The development of the proposed project reflects an urbanized area, near residential land use.

Site construction will include single family and two story multi-family residences, internal access roads, lighting, and site landscaping. The architectural design of all the structures related to the proposed project, includes a wide variety of building materials and colors that incorporate the architectural style of the adjacent single family residential neighborhood, and reflects the natural area, further reducing the visual impact of the project. The proposed project does not conflict with any local zoning regulations and would not detract from the scenic quality of the area; therefore, the project would have less than significant impact.

I.d) The proposed project would include wall mounted lighting on each of the buildings for those residences, as well as lighting for the parking and walkways. Nighttime lighting is necessary to provide and maintain safe, secure, and attractive environments.

The City of Lakeport encourages incorporation of those principals identified by the Dark Sky Association, that reduces light pollution. The City has developed conditions of approval that implement those dark sky principles, that include reduction of offsite glare as well as requiring all outdoor lighting be downlit. With the implementation of that standard lighting condition, the project would not have substantial light or glare that would affect day or nighttime views in the area. Therefore the impact will be ***less than significant.***

MITIGATION MEASURES

No mitigation required.

FINDINGS

The proposed project would have a **Less Than Significant Impact** on Aesthetics.

[3] Caltrans California State Scenic Highway System Map. https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa. Accessed June 2022.

II. AGRICULTURE AND FORESTRY RESOURCES. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g), timberland (as defined by PRC section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forestland to non-forest use?	☐	☐	☐	☒

Thresholds of Significance: The project would have a significant effect on agriculture and forestry resources if it would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (hereafter "farmland"), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural uses; conflict with existing zoning for agricultural use or a Williamson Act contract; conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g), timberland (as defined by PRC section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)); Result in the loss of forest land or conversion of forest land to non-forest use; or 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 forestland to non-forest use.

DISCUSSION

The proposed Project site is approximately 15.16 acres and located in the western portion of City of Lakeport, within Lake County. It is identified as Residential under the City's 2025 General Plan (see General Plan Figure 1) and zoned as Low Density Residential (R-1) under the City's Zoning Ordinance. The Project site is currently undeveloped and vacant land. The site does not currently contain agricultural or forestry uses. The area immediately north, east, and west surrounding the Site is designated as Residential, with the area to the west as Open Space Parkland, with the land currently vacant.

IMPACT ANALYSIS

II.a-e) Under the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP), the Project site consists of Unique Farmland, Farmland of Local Importance, and Grazing Land, with no portion of the Site under a Williamson Act contract. The Project site is identified as Residential under the City's 2025 General Plan (see General Plan Figure 1) and zoned as Low Density Residential (R-1) under the City's Zoning Ordinance. Therefore, the project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. No portion of the Site is designated, zoned, or utilized for agricultural or forestry use, so the Project will not conflict with existing zoning for agricultural use or forest land, timberland, or timberland zoned Timberland Production, no impact would occur.

Additionally, the project would not result in the loss of forest land or conversion of forest land to non-forest use, as the project area is not designated or zoned as timberland or forest land, but rather designated as Residential and zoned as Low Density Residential (R1). The project would not involve other changes in the existing environment or result in conversion of farmland to non-agricultural use or conversion of forestland to non-forest use. No impact would occur.

MITIGATION MEASURES

No mitigation required.

FINDINGS

The proposed project would have a **Less Than Significant Impact** on Agricultural and Forestry Resources.

III. AIR QUALITY. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☒	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Thresholds of Significance: The project would have a significant effect on air quality if it would conflict with or obstruct implementation of applicable air quality plans; 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; expose sensitive receptors to substantial pollutant concentrations; or result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

DISCUSSION

The proposed Project consists of the construction and development of a single and multifamily residential subdivision in the City of Lakeport. The project site is located on 15.16 acre vacant lot located west of the intersection of Wrigley Street and Yankee Avenue. The project includes construction of 48 single family dwellings and 128 multi family dwellings. The Project also includes development of access roadways, related street lighting, parking, and landscaping.

An Air Quality, Health Risk Analysis, Greenhouse Gas and Energy Technical Memorandum was performed on behalf of the proposed Project by Johnson, Johnson and Miller Air Quality Consulting Services (report date April 06, 2022). The following discussion and impact analysis are directly referencing this technical report (see Appendix B for full report and references).

Environmental Setting

The City of Lakeport lies within the Lake County Air Basin and the Lake County Air Quality Management District (LCAQMD) on the western shore of Clear Lake. Summers are typically warm and dry, with an average annual high temperature of 94 degrees Fahrenheit. Winters are cool and wet, with an average annual low temperature of 30 degrees Fahrenheit. The prevailing wind is westerly, with occasional strong gusty winds in winter. During autumn and winter, nighttime radiational cooling between storm periods often leads to formation of inversions and ground fog, especially in canyon basins near Lakeport. Inversions occur in conjunction with masses of very stable air, which tend to not move vertically and can become trapped in the lower and sheltered areas. Considerable air stagnation can occur if the inversion condition continues for several days. The inversion may persist until the onset of a Pacific storm. More intense heating at the surface in spring will generally initiate convection and good ventilation. In summer, region wide elevated inversions may be present, restricting the layer in which mixing and dilution of surface air may occur.

Criteria Air Pollutants

The Federal Clean Air Act (FCAA) establishes the framework for modern air pollution control. The FCAA, enacted in 1970 and amended in 1990, directs the United States Environmental Protection Agency (EPA) to establish ambient air quality standards. These standards are divided into primary and secondary standards. The primary standards are set to protect human health, and the secondary standards are set to protect environmental values, such as plant and animal life. The FCAA requires the EPA to set National Ambient Air Quality Standards for the six criteria air pollutants. These pollutants include particulate matter (PM), ground-level ozone, carbon monoxide (CO), sulfur oxides, nitrogen oxides, and lead.

Toxic Air Contaminants

A toxic air contaminant (TAC) is an air pollutant not included in the California Ambient Air Quality Standards, but TACs are considered hazardous to human health. Toxic air contaminants are defined by

the California Air Resources Board (CARB) as those pollutants that, "may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health."

The health effects associated with TACs are generally assessed locally rather than regionally. Toxic air contaminants can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; TACs can also cause short-term acute effects such as eye watering, respiratory irritation, running nose, throat pain, and headaches. For evaluation purposes, TACs are separated into carcinogens and noncarcinogens. Carcinogens are assumed to have no safe threshold below which health impacts would not occur, and the cancer risk is expressed as excess cancer cases per one million exposed individuals (typically over a lifetime of exposure).

TACs of concern assessed in this analysis include DPM, benzene, and asbestos.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, childcare centers, playgrounds, retirement homes, convalescent homes, hospitals, and medical clinics.

Air Quality Standards

The Clean Air Act requires states to develop a general plan to attain and maintain the standards in all areas of the country and a specific plan to attain the standards for each area designated nonattainment. These plans, known as State Implementation Plans or SIPs, are developed by state and local air quality management agencies and submitted to EPA for approval.

The SIP for the State of California is administered by the CARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's SIP incorporates individual federal attainment plans for each regional air district. SIPs are prepared by the regional air district and sent to CARB to be approved and incorporated into the California SIP. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms.

The CARB also administers the California Ambient Air Quality Standards (CAAQS) for the 10 air pollutants designated in the California Clean Air Act. The 10 state air pollutants include the six federal criteria pollutant standards listed above as well as visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The federal and state ambient air quality standards are summarized in Table 1.

Table 1: California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
Ozone	1 Hour	0.09 ppm (180 µg/m^3)	—	Same as Primary Standard
	8 Hour	0.070 ppm (137 µg/m^3)	0.070ppm (137 µg/m^3)	
Respirable Particulate Matter	24 Hour	50 µg/m^3	150 µg/m3	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m^3	—	
Fine Particulate Matter	24 Hour	—	35 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	
Carbon Monoxide	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	—
	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	—
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)	—	—
Nitrogen Dioxide	1 Hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)	—
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary Standard
Sulfur Dioxide	1 Hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)	—
	3 Hour	—	—	0.5 ppm (1300 µg/m^3)
	24 Hour	0.04 ppm (105 µg/m^3)	0.14 ppm (for certain areas)	—
	Annual Arithmetic Mean	—	0.030 ppm (for certain areas)	—
Lead	30-Day Average	1.5 µg/m^3	—	—
	Calendar Quarter	—	1.5 µg/m^3	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 µg/m^3	
Visibility-Reducing Particles	8 Hour	See Footnote 1	No National Standards	
Sulfates	24 Hour	25 µg/m^3		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)		

Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary

Notes:

1 - In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

µg/m3 =micrograms per cubic meter

mg/m3 = milligrams per cubic meter

ppm = parts per million

CARB = California Air Resources Board

Source: Bay Area Air Quality Management District (BAAQMD). 2017. Air Quality Standards and Attainment Status. Website: https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status. Accessed March 23, 2022.

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the project area. Table 2 summarizes 2018 through 2020 published monitoring data, which is the most recent 3-year period available. The table displays data from the Lakeport – S. Main Street Station (located approximately 1.43 miles southeast of the project site), which is the closest monitoring station to the project site with data available. The data shows that during the past few years, the project area has exceeded the standards for PM_{10} (state and national) and $PM_{2.5}$ (state and national). The data in the table reflects the concentration of the pollutants in the air, measured using air monitoring equipment. This differs from emissions, which are calculations of a pollutant being emitted over a certain period. No recent monitoring data for Lake County or the Lake County Air Basin was available for CO, NO_2, or SO_2. Generally, no monitoring is conducted for pollutants that are no longer likely to exceed ambient air quality standards.

Table 2: Air Quality Monitoring Summary

Air Pollutant	Averaging Time	Item	2018	2019	2020
Ozone[1]	1 Hour	Max 1 Hour (ppm)	0.080	0.060	0.080
		Days > State Standard (0.09 ppm)	0	0	0
	8 Hour	Max 8 Hour (ppm)	0.063	0.054	0.063
		Days > State Standard (0.07 ppm)	0	0	0
		Days > National Standard (0.075 ppm)	0	0	0
Carbon monoxide (CO)	8 Hour	Max 8 Hour (ppm)	ND	ND	ND
		Days > State Standard (9.0 ppm)	ND	ND	ND
		Days > National Standard (9 ppm)	ND	ND	ND
Nitrogen dioxide (NO_2)	Annual	Annual Average (ppm)	ND	ND	ND
	1 Hour	Max 1 Hour (ppm)	ND	ND	ND
		Days > State Standard (0.18 ppm)	ND	ND	ND
Sulfur dioxide (SO_2)	Annual	Annual Average (ppm)	ND	ND	ND
	24 Hour	Max 24 Hour (ppm)	ND	ND	ND

Air Pollutant	Averaging Time	Item	2018	2019	2020
		Days > State Standard (0.04 ppm)	ND	ND	ND
Inhalable coarse particles (PM_{10})[1]	Annual	Annual Average (µg/m^3)	ID	10.1	19.8
	24 Hour	24 Hour (µg/m^3)	**180.1**	21.9	**126.6**
		Days > State Standard (50 µg/m^3)	ID	0.0	**23.0**
		Days > National Standard (150 µg/m^3)	**6.1**	0.0	0.0
Fine particulate matter ($PM_{2.5}$)[1]	Annual	Annual Average (µg/m^3)	9.3	3.1	9.3
	24 Hour	24 Hour (µg/m^3)	**157.9**	8.3	**111.5**
		Days > National Standard (35 µg/m^3)	**18.8**	0.0	**23.0**

Notes:
> = exceed ppm = parts per million µg/m^3 = micrograms per cubic meter
ID = insufficient data ND = no data max = maximum
Bold = exceedance
State Standard = California Ambient Air Quality Standard
National Standard = National Ambient Air Quality Standard
[1] Lakeport – S. Main Street Station
Source: California Air Resources Board (CARB). 2021. Lakeport – S. Main Street Station. Website: https://www.arb.ca.gov/adam/trends/trends1.php. Accessed March 1, 2022.
[2] Lakeport – S. Main Street Station
Source: California Air Resources Board (CARB). 2021. Top 4 Summary: Select Pollutant, Years, & Area. Website: https://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed March 1, 2022.

The health impacts of the various air pollutants of concern can be presented in a number of ways. The clearest of these is comparable with the state and federal ozone standards. If concentrations are below the standard, it is safe to say that no significant health impact would occur to anyone. When concentrations exceed the standard, impacts will vary based on the amount by which the standard is exceeded. The EPA developed the Air Quality Index (AQI) as an easy-to-understand measure of health impacts compared with concentrations in the air. Table 3 provides a description of the health impacts of ozone at different concentrations.

Table 3: Air Quality Index and Health Effects from Ozone

Air Quality Index/ 8-hour Ozone Concentration	Health Effects Description
AQI 51–100—Moderate	**Sensitive Groups:** Children and people with asthma are the groups most at risk.
Concentration 55–70 ppb	**Health Effects Statements:** Unusually sensitive individuals may experience respiratory symptoms.
	Cautionary Statements: Unusually sensitive people should consider limiting prolonged outdoor exertion.
AQI 101–150—Unhealthy for Sensitive Groups	**Sensitive Groups:** Children and people with asthma are the groups most at risk.

Air Quality Index/ 8-hour Ozone Concentration	Health Effects Description
Concentration 71–85 ppb	**Health Effects Statements:** Increasing likelihood of respiratory symptoms and breathing discomfort in active children and adults and people with respiratory disease, such as asthma.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
AQI 151–200—Unhealthy	**Sensitive Groups:** Children and people with asthma are the groups most at risk.
Concentration 86–105 ppb	**Health Effects Statements:** Greater likelihood of respiratory symptoms and breathing difficulty in active children and adults and people with respiratory disease, such as asthma; possible respiratory effects in general population.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
AQI 201–300—Very Unhealthy	**Sensitive Groups:** Children and people with asthma are the groups most at risk.
Concentration 106–200 ppb	**Health Effects Statements:** Increasingly severe symptoms and impaired breathing likely in active children and adults and people with respiratory disease, such as asthma; increasing likelihood of respiratory effects in general population.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.
Source: Air Now. 2016. AQI Calculator: AQI to Concentration. Website: https://www.airnow.gov/aqi/aqi-calculator/. Accessed March 1, 2022.	

The AQI for the 8-hour ozone standard is based on the current NAAQS of 70 parts per billion (ppb). Based on the AQI scale for the 8-hour ozone standard, the project area experienced zero days in the last three years that would have violated the 70-ppb standard. The highest reading was 63 ppb in 2018 and 2020 (AQI 77).

Another pollutant of concern due to associated health impacts is $PM_{2.5}$. An AQI of 100 or lower is considered moderate and would be triggered by a 24-hour average concentration of 12.1 to 35.4 µg/m^3. An AQI of 101 to 105 or 35.5-55.4 µg/m^3 is considered unhealthful for sensitive groups. When concentrations reach this amount, it is considered an exceedance of the federal $PM_{2.5}$ standard. The monitoring station nearest the project exceeded the standard on approximately 41.8 days in the three-year period spanning from 2018 to 2020. The highest number of exceedances was recorded in 2020 with 23.0 days over the standard. People with respiratory or heart disease, the elderly, and children are the groups most at risk. Unusually sensitive people should consider reducing prolonged or heavy exertion. The AQI of 151 to 200 is classified as unhealthy for everyone. This AQI classification is triggered when $PM_{2.5}$

concentration ranges from 55.4 to 150.4 µg/m^3. At this concentration, there is increasing likelihood of respiratory symptoms in sensitive individuals, aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease, and in the elderly. People with respiratory or heart disease, the elderly, and children should limit prolonged exertion. Everyone else should reduce prolonged or heavy exertion. The highest concentration recorded at the Lakeport – S. Main Street Station monitoring station in the last three years was 157.9 µg/m^3 (AQI 208) in 2018. At this concentration, there is significant aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; significant increase in respiratory effects in general population. Sensitive groups should avoid all physical activity outdoors, move activities indoors, or reschedule to a time when air quality is better. Everyone else should avoid prolonged or heavy exertion, consider moving activities indoors, or reschedule to a time when air quality is better. The relationship of the AQI to health effects in shown in Table 4.

Table 4: Air Quality Index and Health Effects of Particle Pollution

Air Quality Index/ $PM_{2.5}$ Concentration	Health Effects Description
AQI 51–100—Moderate	**Sensitive Groups:** Some people who may be unusually sensitive to particle.
Concentration 12.1–35.4 µg/m^3	**Health Effects Statements:** Unusually sensitive people should consider reducing prolonged or heavy exertion.
	Cautionary Statements: Unusually sensitive people: Consider reducing prolonged or heavy exertion. Watch for symptoms such as coughing or shortness of breath. These are signs to take it easier.
AQI 101–150—Unhealthy for Sensitive Groups	**Sensitive Groups:** Sensitive groups include people with heart or lung disease, older adults, children, and teenagers.
Concentration 35.5–55.4 µg/m^2	**Health Effects Statements:** Increasing likelihood of respiratory symptoms in sensitive individuals, aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease, and the elderly.
	If you have heart disease: Symptoms such as palpitations, shortness of breath, or unusual fatigue may indicate a serious problem. If you have any of these, contact your health care provider.
AQI 151–200—Unhealthy	**Sensitive Groups:** Everyone
Concentration 55.5–150.4 µg/m^3	**Health Effects Statements:** Increased aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; increased respiratory effects in general population.
	Cautionary Statements: Sensitive groups: Avoid prolonged or heavy exertion. Consider moving activities indoors or rescheduling. Everyone else: Reduce prolonged or heavy exertion. Take more breaks during outdoor activities.
AQI 201–300—Very Unhealthy	**Sensitive Groups:** Everyone

Air Quality Index/ $PM_{2.5}$ Concentration	Health Effects Description
Concentration 150.5–250.4 µg/m^3	**Health Effects Statements:** Significant aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; significant increase in respiratory effects in general population.
	Cautionary Statements: Sensitive groups: Avoid all physical activity outdoors. Move activities indoors or reschedule to a time when air quality is better. Everyone else: Avoid prolonged or heavy exertion. Consider moving activities indoors or rescheduling to a time when air quality is better.
Source: Air Now. 2016. AQI Calculator: AQI to Concentration. Website: https://www.airnow.gov/aqi/aqi-calculator/. Accessed March 23, 2022.	

Federal and state air quality laws require identification of areas not meeting the ambient air quality standards. These areas must develop regional air quality plans to eventually attain the standards. Under both federal and state Clean Air Act, the Lake County Air Basin is in attainment for all ambient air quality standards; therefore, the LCAQMD has not been required to develop any regional air quality plans.[4,5]

Thresholds of Significance

Project-level Thresholds

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the proposed project must be evaluated.

This analysis uses the air quality significance thresholds contained in Appendix G of the CEQA Guidelines, effective December 28, 2018. A significant impact would occur if the proposed project would:

a) Conflict with or obstruct implementation of the applicable air quality plan.
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard.
c) Expose sensitive receptors to substantial pollutant concentrations.
d) Create objectionable odors affecting a substantial number of people.

The City of Lakeport has not established specific CEQA significance thresholds. Where available guidance provided by the applicable air district can be used to make significance determinations for the CEQA questions listed above; however, LCAQMD does not provide published thresholds for use by lead agencies in Lake County. Since the LCAQMD has no project-level thresholds of significance for the LCAB, the project's incremental increase for air pollutant emissions of concern is compared against quantitative

[4] Lake County Air Quality Management District. 2021. Lake County Air Quality Management District, Lake County, California Official Website. Website: https://www.lcaqmd.net/. Accessed March 1, 2022.

[5] City of Lakeport. 2008. Draft Environmental Impact Report. Website: https://www.cityoflakeport.com/Planning/Draft%20EIR%20General%20Plan%20Update/Draft-EIR---General-Plan-Update---City-o-116200865514PM.pdf. Accessed March 1, 2022.

thresholds of significance from the BAAQMD in this analysis. While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, the BAAQMD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions in accordance with the Appendix G requirements. If a Lead Agency finds that a project has the potential to exceed these air pollution thresholds, according to the BAAQMD, the project should be considered to have significant air quality impacts.

Air pollutant emissions have regional effects and localized effects. This analysis assesses the regional effects of the project's criteria pollutant emissions in comparison to BAAQMD thresholds of significance for short-term construction activities and long-term operation of the project. Localized emissions from project construction and operation are also assessed using concentration-based thresholds that determine if the project would result in a localized exceedance of any ambient air quality standards or would make a cumulatively considerable contribution to an existing exceedance.

The primary pollutants of concern during project construction and operation are ROG, NO_X, PM_{10}, and $PM_{2.5}$. Ozone is a secondary pollutant that can be formed miles away from the source of emissions through reactions of ROG and NO_X emissions in the presence of sunlight. Therefore, ROG and NO_X are termed ozone precursors. Although the LCAB is currently in attainment of all state and federal air quality standards, if the project emits a substantial quantity of ozone precursors, the project may contribute to an exceedance of the ozone standard. PM_{10}, and $PM_{2.5}$ were also addressed, as substantial project emissions may contribute to an exceedance for these pollutants as well.

The BAAQMD has adopted significance thresholds for construction-related and operational emissions. These thresholds will be identified and addressed in the appropriate section of this document.
Project construction would involve the use of diesel-fueled vehicles and equipment that emit DPM, which is considered a TAC. Once operational, the gasoline dispensing facility would be a source of benzene. The following project-specific health risk significance thresholds are applied in this analysis:

- Maximum Incremental Cancer Risk: >=10 in 1 million.
- Hazard Index (project increment) >=1.0.

IMPACT ANALYSIS

III.a) Federal and state air quality laws require identification of areas not meeting the ambient air quality standards. These areas must develop regional air quality plans to eventually attain these standards. Under both federal and state Clean Air Act, the Lake County Air Basin is in attainment for all ambient air quality standards; therefore, the LCAQMD has not been required to develop any regional air quality plans.[6,7]. A key purpose of the LCAQMD is to enforce local, state, and federal air quality laws, rules and regulations in order to meet the Ambient Air Quality Standards and protect the public from air toxics through

[6] Lake County Air Quality Management District. 2021. Lake County Air Quality Management District, Lake County, California Official Website. Website: https://www.lcaqmd.net/. Accessed March 1, 2022.
[7] City of Lakeport. 2008. Draft Environmental Impact Report. Website: https://www.cityoflakeport.com/Planning/Draft%20EIR%20General%20Plan%20Update/Draft-EIR---General-Plan-Update---City-o-116200865514PM.pdf Accessed March 1, 2022.

regulation. Projects that comply with applicable rules and regulations would not conflict or obstruct LCAQMD's ability to remain in attainment with air quality standards.

There are currently no applicable air quality plans in the Lake County Air Basin for the proposed project to conflict with. Thus, the impact is considered less than significant.

III.b) Since the LCAQMD has no project-level thresholds of significance for the LCAB, thresholds of significance from the BAAQMD will be used for this analysis.

In developing thresholds of significance for air pollutants, the BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Project construction and operational impacts are assessed separately below.

Construction Emissions

Construction activities associated with development of the proposed project would include site preparation, grading, building construction, paving, and architectural coatings. Emissions from construction-related activities are generally short-term in duration but may still cause adverse air quality impacts. During construction, fugitive dust would be generated from earth-moving activities. Exhaust emissions would also be generated from off-road construction equipment and construction-related vehicle trips. Emissions associated with construction of the proposed project are discussed below.

Construction Fugitive Dust (PM_{10} and $PM_{2.5}$)

During construction (grading), fugitive dust (PM_{10} and $PM_{2.5}$) would be generated from site grading and other earth-moving activities. Most of this fugitive dust will remain localized and be deposited near the project site.

The BAAQMD does not have a quantitative threshold for fugitive dust. The BAAQMD's Air Quality Guidelines recommend that projects determine the significance for fugitive dust through application of best management practices (BMPs). Therefore, impacts related to fugitive dust from the construction of the proposed project would be potentially significant without the inclusions of sufficient dust control measures. Mitigation Measure (MM) AIR-1 requires the inclusion of BMPs recommended by the BAAQMD to reduce potential impacts related to fugitive dust emissions from use of construction equipment. With incorporation of MM AIR-1, short-term construction impacts associated with violating an air quality standard or contributing substantially to an existing or projected air quality violation would be less than significant.

Construction Emissions: ROG, NO_X, PM_{10} (exhaust), $PM_{2.5}$ (exhaust)

Table 8 provides the construction emissions estimate for the proposed project. Please refer to the Modeling Parameters and Assumptions section of this technical memorandum for details regarding assumptions used to estimate construction emissions. The duration of construction activity and associated

equipment represent a reasonable approximation of the expected construction fleet as required pursuant to CEQA guidelines.

Table 5: Construction Annual and Daily Average Emissions (Unmitigated Average Daily Rate)

Parameter	Air Pollutants			
	ROG	**NO_X**	**PM_{10} (Exhaust)**	**$PM_{2.5}$ (Exhaust)**
Site Preparation	0.02	0.17	0.01	0.01
Grading	0.06	0.65	0.03	0.02
Paving	0.02	0.12	0.01	0.01
Building Construction (2022)	0.15	0.89	0.04	0.04
Building Construction (2023)	0.33	1.91	0.08	0.08
Architectural Coating	5.40	0.01	<0.01	<0.01
Total Emissions from All Construction Activities (2022-2023)				
Total Project Construction Emissions (tons/year)	5.96	3.75	0.16	0.15
Total Emissions (pounds/year)	11,926	7,502	318	297
Average Daily Emissions (pounds/day)[1]	**30.35**	**19.09**	**0.81**	**0.76**
Significance Threshold (pounds/day)	**54**	**54**	**82**	**54**
Exceeds Significance Threshold?	**No**	**No**	**No**	**No**

Notes:
[1] Calculated by dividing the total number of pounds by the total 393 working days of construction for the entire construction period.
Calculations use unrounded numbers.
lbs = pounds
NO_X = oxides of nitrogen
PM_{10} = particulate matter 10 microns in diameter
$PM_{2.5}$ = particulate matter 2.5 microns in diameter
ROG = reactive organic gases
Source: CalEEMod Output (Attachment A).

As shown in Table 5, estimated emissions from construction of project would not exceed any applicable threshold and would be less than significant.

Operational Emissions

As previously discussed, the pollutants of concern include ROG, NO_X, PM_{10}, and $PM_{2.5}$. Full buildout of the project is anticipated to occur in 2023, immediately following the earliest anticipated completion of all phases of construction. Emissions were assessed for full buildout operations in the 2023 operational year. The 2023 operational year was chosen as it would be the best representation of the project as it is the year the project will become fully operational, thus generating the full amount of expected operational

activity. The BAAQMD Criteria Air Pollutant Significance thresholds were used to determine impacts. Operational annual and daily emissions are shown in Table 6 and Table 7, respectively.

Table 6: Operational Annual Emissions for Full Buildout (Unmitigated)

	Tons per Year			
Emissions Source	**ROG**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Area	1.93	0.08	0.01	0.01
Energy	0.01	0.09	0.01	0.01
Mobile (Motor Vehicles)	1.54	2.47	1.96	0.54
Waste	0.00	0.00	0.00	0.00
Water	0.00	0.00	0.00	0.00
Total Project Annual Emissions	**3.48**	**2.64**	**1.98**	**0.56**
Thresholds of Significance	**10**	**10**	**15**	**10**
Exceeds Significance Threshold?	**No**	**No**	**No**	**No**

Notes:
NO_X = oxides of nitrogen
$PM_{2.5}$ = particulate matter 2.5 microns or less in diameter
PM_{10} = particulate matter 10 microns or less in diameter
ROG = reactive organic gases
Source: CalEEMod Output (Appendix B).

Table 1: Operational Average Daily Emissions (Unmitigated)

	Tons per Year			
Emissions Source	**ROG**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Total Project Annual Emissions[1] (tons/year)	3.48	2.64	1.98	0.56
Total Project Annual Emissions[2] (lbs/year)	6,969	5,277	3,968	1,127
Average Daily Emissions[3] (lbs/day)	19.09	14.46	10.87	3.09
Average Daily Emission Thresholds (lbs/day)	**54**	**54**	**82**	**54**
Exceeds Significance Threshold?	**No**	**No**	**No**	**No**

Notes:
[1] Tons per year are shown in 6.
[2] Pounds per year were calculated using the unrounded annual project operational emissions.
[3] The average daily operational emissions were estimated based on the total annual emissions divided by 365 days (365 days was used in the calculations to represent a typical year; however, there are 366 days in 2024).
lbs = pounds
NO_X = oxides of nitrogen
$PM_{2.5}$ = particulate matter 2.5 microns or less in diameter
PM_{10} = particulate matter 10 microns or less in diameter

Emissions Source	Tons per Year			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
ROG = reactive organic gases Source: CalEEMod Output (Appendix B).				

As shown in Table 6 and Table 7, the proposed project would not result in net operational-related air pollutants or precursors that would exceed the applicable thresholds of significance. Therefore, project operations would not be considered to have the potential to generate a significant quantity of air pollutants; long-term operational impacts associated with the project's criteria pollutant emissions would be less than significant. To further reduce potential impacts, Mitigation Measure AIR-1 shall be implemented.

MITIGATION MEASURES

MM AIR-1 During construction activities, the following Best Management Practices (BMPs) shall be implemented to control dust:

- Exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- All roadways, driveways, and sidewalks shall be paved as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly visible sign shall be posted with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours of a complaint or issue notification.

III.c) Since the LCAQMD has no project-level thresholds of significance for the LCAB, thresholds of significance from the BAAQMD are used this analysis.

This discussion addresses whether the proposed project would expose sensitive receptors to substantial pollutant concentrations. The localized pollutants that could impact sensitive receptors include: NOA, construction-generated fugitive dust (PM_{10} and $PM_{2.5}$), construction generated DPM, CO hotspots, and operational-related TACs. Project construction and operational impacts are assessed separately below.

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, the following are land uses where sensitive receptors are typically located:

- Long-term health care facilities
- Rehabilitation centers
- Convalescent centers
- Hospitals
- Retirement homes
- Residences
- Schools, playgrounds, and childcare centers

As a residential development project, the proposed project itself would be considered a sensitive receptor once operational. Therefore, for the purposes of the Health Risk Assessment (HRA), sensitive receptors associated with future on-site activities were not included as part of the construction HRA. Most emissions during construction are generated during the site preparation and grading phases when heavy equipment is used to prepare the land for construction. It is anticipated that there will be times where construction activities overlap may overlap with project operations. Off-site residential receptors were included as part of the construction HRA. Receptors were placed bordering the project site in all directions in order to assess potential impacts to existing and planned receptors.

Project as a Source - Construction

Construction Fugitive Dust

During construction, fugitive dust (PM_{10} and $PM_{2.5}$) would be generated from site grading and other earth-moving activities. Most of this fugitive dust will remain localized and be deposited near the project site; however, projects that would generate fugitive dust from construction activities have the potential to expose sensitive receptors if sensitive receptors are located near where construction activities could occur.

The BAAQMD does not have a quantitative threshold for fugitive dust. The BAAQMD's Air Quality Guidelines recommend that projects determine the significance for fugitive dust through application of best management practices (BMPs). In accordance with the BAAQMD's guidelines on thresholds of significance for fugitive dust, the project would not be considered significant were BMPs to be followed during buildout of the project. Therefore, impacts related to fugitive dust from the construction of the proposed project would be potentially significant without the inclusions of sufficient dust control measures. As discussed in Response III.b, the proposed project would implement MM AIR-1 and implement BMPs recommended by the BAAQMD to reduce potential impacts related to fugitive dust emissions from use of the construction equipment. MM AIR-1 requires the inclusion of BMPs recommended by the BAAQMD to reduce potential impacts related to fugitive dust emissions from use of construction equipment.

Impacts related to construction fugitive dust would be less than significant with incorporation of MM AIR-1.

Construction-Generated DPM

A project-level assessment was conducted of the potential community health risk and health hazard impacts on surrounding sensitive receptors resulting from the emissions of TACs during construction. A summary of the assessment is provided below, while the detailed assessment is provided in Attachment B of the memorandum.

Construction activity using diesel-powered equipment emits DPM, a known carcinogen. Diesel particulate matter includes exhaust PM_{10} and exhaust $PM_{2.5}$. A 10-year research program demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk.[8] Health risks from TACs are a function of both concentration and duration of exposure. Construction diesel emissions are temporary, affecting an area for a period of weeks or months. Additionally, construction-related sources are mobile and transient in nature.

The health risk assessment evaluated DPM (represented as exhaust PM_{10}) emissions generated during construction of the proposed project and the related health risk impacts for sensitive receptors located within 1,000 feet of the project boundary. According to the BAAQMD, a project would result in a significant impact if it would individually expose sensitive receptors to TACs resulting in an increased cancer risk greater than 10.0 in one million, an increased non-cancer risk of greater than 1.0 on the hazard index (chronic or acute).

The project site is located within 1,000 feet of existing and planned sensitive receptors that could be exposed to diesel emission exhaust during the construction period. As a residential development project, the project itself would be considered a sensitive receptor land use once operational. The project would have the potential for construction and operations to overlap. To estimate the potential cancer risk associated with construction of the proposed project from equipment exhaust (including DPM), a dispersion model was used to translate an emission rate from the source location to concentrations at the receptor locations of interest (i.e., receptors at a nearby hospital). A maximally exposed individual receptor (MEIR) was determined for each phase of construction through the use of the dispersion modeling. Risks from all construction activities were calculated for the MEIR location identified in each scenario.

Locations of the MEIR in each construction phase are summarized below and are shown in Attachment B of the memorandum.

Table 8 presents a summary of the proposed project's construction cancer risk and chronic non-cancer hazard impacts at the MEIR prior to the application of any equipment mitigation.

[8] California Air Resources Board (CARB). 2015. The Report on Diesel Exhaust. Website: https://ww2.arb.ca.gov/sites/default/files/classic/toxics/dieseltac/de-fnds.htm. Accessed March 1, 2022.

Table 8: Unmitigated Health Risks from Project Construction to Off-Site Receptors

Scenario	Health Impact Metric	Carcinogenic Inhalation Health Risk in One Million	Chronic Inhalation Hazard Index[4]
Risks and Hazards the Phase 1 MEIR[1]			
Total project construction	Risks and Hazards at the MEIR: Infants	22.76	0.024
	Risks and Hazards at the MEIR: Child	4.45	0.024
	Risks and Hazards at the MEIR: Adult	0.59	0.024
Highest From Any Scenario			
Total project construction	Risks and Hazards at the MIR (Infant Scenario)	22.76	0.024
	Applicable Threshold of Significance	**10**	**1**
	Exceeds Individual Source Threshold?	Yes	No

Notes:
Maximally Exposed Individual Receptor (MEIR)
[1] UTM for MEIR: 505914.38, 4320536.14
[2] Chronic non-cancer hazard index was estimated by dividing the annual DPM concentration (as PM_{10} exhaust) by the REL of 5 $\mu g/m^3$.
Source: Attachment B.

As shown in Table 8, estimated health risks from elevated DPM concentrations during construction of the proposed project would exceed the applicable cancer risk significance threshold in at least one scenario. This represents a potentially significant construction TAC exposure impact. Therefore, mitigation is required to reduce the impact during the construction period to below a level of significance.

MM AIR-2 requires the project applicant, project sponsor, or construction contractor to provide documentation to the City of Lakeport that all off-road diesel-powered construction equipment greater than 75 horsepower meet EPA or CARB Tier 4 Final off-road emissions standards. Table 9 shows the health risks and non-cancer hazard index for construction with implementation of Tier 4 Final mitigation, as required by MM AIR-2.

Table 9: Mitigated Health Risks from Project Construction to Off-Site Receptors

Scenario	Health Impact Metric	Carcinogenic Inhalation Health Risk in One Million	Chronic Inhalation Hazard Index[4]
Risks and Hazards the MEIR[1]			
Total project construction	Risks and Hazards at the MEIR: Infants	2.70	0.003
	Risks and Hazards at the MEIR: Child	0.53	0.003
	Risks and Hazards at the MEIR: Adult	0.07	0.003
Highest From Any Scenario			

Scenario	Health Impact Metric	Carcinogenic Inhalation Health Risk in One Million	Chronic Inhalation Hazard Index[4]
Total project construction	Risks and Hazards at the MIR (Infant Scenario)	2.7	0.003
	Applicable Threshold of Significance	**10**	**1**
	Exceeds Individual Source Threshold?	No	No

Notes:
Maximally Exposed Individual Receptor (MEIR)
1 UTM for MEIR (mitigated scenario): 505914.38, 4320536.14*
* The MEIR for the unmitigated and mitigated scenarios were independently determined to be at the same receptor location.
2 Chronic non-cancer hazard index was estimated by dividing the annual DPM concentration (as PM_{10} exhaust) by the REL of 5 µg/m^3.
Source: Attachment B.

As noted in Table 9, calculated health metrics from the proposed project's construction DPM emissions would not exceed the cancer risk significance threshold or non-cancer hazard index significance threshold at the MEIR with incorporation of MM AIR-2. Therefore, the proposed project would not result in a significant impact on nearby sensitive receptors from TACs during construction.

Naturally Occurring Asbestos

The California DOC and the United States Geological Survey (USGS) have published a guide for generally identifying areas that are likely to contain NOA. Although there are areas likely to contain NOA in Lake County and within Lakeport itself, there are no NOA areas located in the immediate vicinity of the project area. Therefore, there is no impact.[9]

Project as a Source – Operation

CO Hotspot

Localized high levels of CO (CO hotspot) are associated with traffic congestion and idling or slow-moving vehicles. The BAAQMD recommends a screening analysis to determine if a project has the potential to contribute to a CO hotspot. The screening criteria identifies when site-specific CO dispersion modeling is necessary. The project would result in a less than significant impact to air quality for local CO if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans; or
- The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; or
- The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

[9] United States Geological Survey (USGS). 2011. Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California. Website: https://pubs.usgs.gov/of/2011/1188/. Accessed March 1, 2022.

According to the Traffic Study prepared for the project by Ruettgers & Schuler Civil Engineers (Appendix E), the project would generate approximately 101 trips during the a.m. peak hour and 125 trips during the p.m. peak hour and would not substantially increase traffic volumes on nearby roadways above 44,000 vehicles per hour.[10] Furthermore, the adjacent roadways are not located in an area where vertical and/or horizontal mixing, or the free movement of the air mass, is substantially limited by physical barriers such as large bridge overpasses or urban or natural canyon walls. Therefore, the project would not significantly contribute to an existing or projected CO hotspot. Impacts are less than significant.

Toxic Air Contaminants

The proposed project would develop 48 single-family detached dwelling units and 128 low rise multifamily housing dwelling units and would not generate substantial on-site TAC emissions during operation. As described in the Traffic Study, the project is expected to generate 1,410 average daily trips. The proposed project would primarily generate trips associated with residents and visitors traveling to and from the project site. The daily travel trips to and from the project site would primarily be generated by passenger vehicles. Because nearly all passenger vehicles are gasoline-combusted, the proposed project would not generate significant amount of DPM emissions during operation. Therefore, the proposed project would not result in significant health impacts to nearby sensitive receptors from emissions project-generated trips during operation.

Operations—The Project's Potential to Locate Sensitive Receptor Near Existing Sources of TACs

As a residential project, the project would locate sensitive receptors to a site where future project residents could be subject to existing sources of TACs at the project site. However, the California Supreme Court concluded in *California Building Industry Association v. BAAQMD* that agencies subject to CEQA are not required to analyze the impact of existing environmental conditions on a project's future users or residents. Furthermore, there are no notable existing long-term sources TACs (as identified in ARB's Land Use Handbook) that would warrant additional analysis.

As such, implementation of Mitigation Measure AIR-2 will ensure that related impacts remain less than significant.

MITIGATION MEASURES

MM AIR-2 Before a construction permit is issued for the proposed project, the project applicant, project sponsor, or construction contractor shall submit construction emissions minimization plans to the City of Lakeport for review and approval. The construction emissions minimization plans shall provide reasonably detailed compliance with the following requirements:

(1) Where portable diesel engines are used during construction, all off-road equipment with engines greater than 75 horsepower shall have engines that meet either EPA or CARB Tier 4 Final off-road emission standards except as otherwise specified herein. If engines

[10] Ruettgers & Schuler Civil Engineers. 2022. Residential Development City of Lakeport. April 2022. See Appendix E.

that comply with Tier 4 Final off-road emission standards are not commercially available, then the construction contractor shall use the next cleanest piece of off-road equipment (e.g., Tier 4 Interim) that is commercially available. For purposes of this project design feature, "commercially available" shall mean the equipment at issue is available taking into consideration factors such as (i) critical-path timing of construction; and (ii) geographic proximity to the project site of equipment. If the relevant equipment is determined by the project applicant to not be commercially available, the contractor can confirm this conclusion by providing letters from at least two rental companies for each piece of off-road equipment that is at issue.

III.d) Since the LCAQMD has no project-level thresholds of significance for the LCAB, thresholds of significance from the BAAQMD will be used for this analysis.

As stated in the BAAQMD Air Quality Guidelines, odors are generally regarded as an annoyance rather than a health hazard and the ability to detect odors varies considerably among the populations and overall is subjective. The BAAQMD identifies two situations that create a potential for odor impact. The first occurs when a new odor source is located near an existing sensitive receptor. The second occurs when a new sensitive receptor locates near an existing source of odor. According to the *CBIA v. BAAQMD* ruling, impacts of existing sources of odors on the project are not subject to CEQA review. Therefore, the project's potential to emit odor is assessed below.

The BAAQMD does not have a recommended odor threshold for construction activities. However, the BAAQMD recommends screening criteria that are based on distance between types of sources known to generate odor and the receptor. For projects within the screening distances, the BAAQMD has the following threshold for project operations:

An odor source with five (5) or more confirmed complaints per year averaged over three years is considered to have a significant impact on receptors within the screening distance shown in the BAAQMD's guidance (see Table 11).

The BAAQMD's 2017 Air Quality Guidelines provide a table with odor screening distances recommended by BAAQMD for a variety of land uses. Projects that would site an odor source or a receptor farther than the applicable screening distance, shown in Table 11 below, would not likely result in a significant odor impact.

Table 2: Screening Levels for Potential Odor Sources

Odor Generator	Distance
Wastewater Treatment Plant	2 miles
Wastewater Pumping Facilities	1 mile
Sanitary Landfill	2 miles
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	2 miles

Odor Generator	Distance
Chemical Manufacturing	2 miles
Fiberglass Manufacturing	1 mile
Painting/Coating Operations	1 mile
Rendering Plant	2 miles
Coffee Roaster	1 mile
Food Processing Facility	1 mile
Confined Animal Facility/Feed Lot/Dairy	1 mile
Green Waste and Recycling Operations	1 mile
Source: Bay Area Air Quality Management District (BAAQMD). 2017. Air Quality Standards and Attainment Status. Website: https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status. Accessed March 1, 2022.	

Project Construction and Project Operation

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies. Project operations would not be anticipated to produce odorous emissions, as the project would not be considered an odor generator based on the land uses shown in Table 11. Construction activities associated with the proposed project could result in short-term odorous emissions from diesel exhaust associated with construction equipment. However, these emissions would be intermittent and would dissipate rapidly from the source. In addition, this diesel-powered equipment would only be present onsite temporarily during construction activities. Therefore, construction would not create objectionable odors affecting a substantial number of people from use of diesel-powered equipment. In addition, burning is not allowed as a means of disposal for waste material from construction debris and would not be a source of odors during construction of proposed project. As there would not be conditions under which the project would have the potential to expose a substantial number of people to odors emitted from construction or operations of the project, and the impact would be less than significant.

FINDINGS

The proposed project would have a **Less Than Significant Impact with Mitigation Incorporated** on Air Quality.

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

Thresholds of Significance: CEQA defines "significant effect on the environment" as "a substantial, or potentially substantial, adverse change in the environment" (California Public Resource Code § 21068). Under CEQA Guidelines Section 15065, a Project's effects on biological resources are deemed significant where the Project would do the following:

a) Substantially reduce the habitat of a fish or wildlife species,
b) Cause a fish or wildlife population to drop below self-sustaining levels,
c) Threaten to eliminate a plant or animal community, or
d) Substantially reduce the number or restrict the range of a rare or endangered plant or animal.

In addition to the Section 15065 criteria, Appendix G within the CEQA Guidelines includes six additional impacts to consider when analyzing the effects of a project. Under Appendix G, a project's effects on biological resources are deemed significant where the project would do any of the following:

e) 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 CDFW or USFWS;
f) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS;
g) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
h) 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;
i) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
j) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

These criteria were used to determine whether the potential effects of the Project on biological resources qualify as significant.

DISCUSSION

The proposed Project consists of the construction and development of a 15.16-acre single and multifamily residential subdivision in the City of Lakeport. Project development also includes development of access roadways, related street lighting, parking, and landscaping. The site historically has supported orchards but in 2006, the orchards were removed and the entire site was graded.[11] The site currently supports vacant land that is routinely disked for weed control. On-site vegetation includes native trees such as cottonwood, willow and live oak, and nonnative annuals and perennials such as black mustard, yellow star-thistle, foxtail and Himalayan blackberry.

A Biological Resources Evaluation for the Project (Biological Report) was prepared by Colibri Ecological Consulting, LLC on March 2022 (see Appendix C for full report and references), to assess whether the Project will affect protected biological resources pursuant to California Environmental Quality Act (CEQA) guidelines. Such resources include species of plants or animals listed or proposed for listing under the Federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA) as well as those covered under the Migratory Bird Treaty Act (MBTA), the California Native Plant Protection Act, and various other sections of California Fish and Game Code (CFGC). The biological resource evaluation also addresses Project-related impacts to regulated habitats, which are those under the jurisdiction of the United States Army Corps of Engineers (USACE), State Water Resources Control Board (SWRCB), or California Department of Fish and Wildlife (CDFW).

[11] Based on Historic Google Earth imagery.

One field reconnaissance survey of the Project site was conducted by Colibri Senior Scientist on February 23, 2022. The survey area was evaluated for the presence of regulated habitats, including lakes, streams, and other waters using methods described in the *Wetlands Delineation Manual* and regional supplement (USACE 1987, 2008) and as defined by the CDFW (https://www.wildlife.ca.gov/conservation/lsa) or under the Porter-Cologne Water Quality Control Act. The following discussion and impact analysis are directly referencing this Biological Report.

Searching the CNPS inventory of rare and endangered plants of California yielded 33 species (CNPS 2022, App C of Appendix C), five of which have a rank of 2B, and 28 of which have a rank of 1B (Table 1 of Appendix C). None of those species are expected to occur on or near the Project site due to lack of habitat (Table 1 of Appendix C).

A total of 12 plant species (five native and seven nonnative), 12 bird species, and one mammal species were observed during the survey (Table 2 of Appendix C).

IMPACT ANALYSIS

IV.a) The USFWS species list for the Project included five species listed as threatened, endangered, or candidate under the FESA (USFWS 2022a, Table 1, App A of Appendix C). Of those five species, none are expected to occur on or near the Project site due to either (1) the lack of habitat, (2) the Project site being outside the current range of the species, or (3) the presence of development that would otherwise preclude occurrence (Table 1 of Appendix C). As identified in the species list, the Project site does not occur in USFWS-designated or proposed critical habitat for any species (USFWS 2022a, App A of Appendix C).

Searching the CNDDB for records of special-status species from the Lakeport 7.5-minute USGS topographic and the eight surrounding quads produced 263 records of 71 species (Table 1, App B of Appendix C). Of those 71 species, 24 are not given further consideration because they are not CEQA-recognized as special-status species or are considered extirpated in California (App B of Appendix C). Of the remaining 47 species, 17 are known from within 5 miles of the Project site (Table 1, Figure 4 of Appendix C). Of those species, only the Clear Lake hitch (*Lavinia exilicauda chi* – SE) could occur on or near the Project site (Table 1 of Appendix C). Forbes Creek along the northern border of the Project site could provide spawning and juvenile foraging habitat for this species. However, Forbes Creek has been heavily modified in and around its connection to Clear Lake and drains into the lake through a heavily urbanized area. The petition to list this species under the CESA cited no evidence of this species in Forbes Creek for several years prior to 2013. Therefore, the potential for this species to occur is low. As no development activities are anticipated to impact Forbes Creek, no impacts to this species are expected, and no mitigation measures are warranted.

IV.b-c) Forbes Creek is within 50 feet of the northern edge of the Project site. As a stream in California, it is under the regulatory jurisdiction of the CDFW; as a potential surface water in California, it may be under the regulatory jurisdiction of the SWRCB; and as a potential tributary of Clear Lake, it may be under the regulatory jurisdiction of the USACE. In addition, an unnamed drainage ditch, which is a tributary of Forbes Creek, is within 50 feet of the Project site; however, no impacts to these features are anticipated due to the distance between the Project and water feature.

This Project, which will result in temporary and permanent impacts to agricultural land cover, will not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS as no riparian habitat or other sensitive natural community was present in the survey area. The Project will also not have a substantial adverse effect on state or federally protected wetlands (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means as no impacts to wetlands will occur.

IV.d)

The Project could impede the use of nursery sites for native birds protected under the MBTA and CFGC. Migratory birds are expected to nest on and near the Project site. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment or loss of reproductive effort can be considered take under the MBTA and CFGC. Loss of fertile eggs or nesting birds, or any activities resulting in nest abandonment, could constitute a significant effect if the species is particularly rare in the region.

Construction activities such as excavating, trenching, and grading that disturb a nesting bird on the Project site or immediately adjacent to the construction zone could constitute a significant impact. Mitigation Measure BIO-1 is included in the conditions of approval to reduce the potential effect to a less-than-significant level. Therefore, with mitigation measure BIO-1incorporated, the proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service, and a less than significant impact would occur.

IV.e-f) The Project will not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance as no trees or biologically sensitive areas will be impacted. The Project will also not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan as no such plan has been adopted. With implementation of Mitigation Measure BIO-1 and compliance with City policies, the proposed project would have a less than significant impact to biological resources.

MITIGATION MEASURES

BIO-1: Protect nesting birds.

1. To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August.
2. If it is not possible to schedule construction between September and January, pre-construction surveys for nesting birds shall be conducted by a qualified biologist to ensure that no active nests will be disturbed during the implementation of the Project. A pre-construction survey shall be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has otherwise failed for non-construction related reasons.

FINDINGS

The proposed project would have a **Less Than Significant Impact with Mitigation Incorporated** on Biological Resources.

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

Thresholds of Significance: The project would have a significant effect on cultural resources if it would cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5; cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5; or disturb any human remains, including those interred outside of formal cemeteries.

DISCUSSION:

A records search was conducted by the Northwest Information Center (NWIC) for the proposed Project on April 20, 2022 by reviewing pertinent NWIC base maps that reference cultural resources records and reports, historic-period maps, and literature for Lake County, which included a review of all study reports on file within a one-quarter mile radius of the project area (NWIC File No. 21-1389) (see Appendix D). The

records search showed that there has been one cultural resource study, S-31281, that covers approximately 100% of the proposed project area (Flaherty 2005). This Project area contains no recorded archaeological resources. The State Office of Historic Preservation Built Environment Resources Directory (OHP BERD) lists no recorded buildings or structures within or adjacent to the proposed project area. In addition to these inventories, the NWIC base maps show no recorded buildings or structures within the proposed project area. While the proposed project area is described as within the tribal territory of the Kulanapo, there were no specific references to Native American resources in or adjacent to the proposed Project area found in the ethnographic literature (Barrett 1908:18, Stewart 1935).

There was no evidence of prehistoric or historic period cultural resources present within the project area. The project, as presently designed, would have no impact to important cultural resources from implementation of the project. With the high probability of finding cultural resources on the site the City would recommend two measures in the event of inadvertent discovery of cultural resources or human remains during project implementation (see Mitigation Measures CULT-1 and CULT-2, below).

IMPACT ANALYSIS

V.a-b) As set forth in Section 5024.1(c) of the Public Resources Code, in order for a cultural resource to be deemed "important" under CEQA and thus eligible for listing on the California Register of Historic Resources (CRHR), it must meet at least one of the following criteria:

1. is associated with events that have made a significant contribution to the broad patterns of California History and cultural heritage; or
2. is associated with the lives of persons important to our past; or
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possess high artistic value; or
4. has yielded or is likely to yield, information important to prehistory or history (ALTA, 2019).

As provided in the NWIC Records search (Appendix D), no cultural resources are documented within the project APE. In addition, review of historic registers and inventories indicate that no historical landmarks or points of interest are present within the project area, nor are there any National Register-listed or eligible properties within a half-mile radius of the project area. No impact would occur.

V.b-c) As discussed above, no cultural resources are documented within the project APE. Review of historical literature and maps gave no indication of historic-period activity within the proposed project area. The 1938 and 1951 Lakeport USGS 15-minute topographic quadrangle fail to depict any buildings or structures. With this information in mind, there is a low potential for unrecorded historic-period archaeological or built environment resources to be within the proposed project area. The project, as presently designed, is not anticipated to have an adverse effect on cultural resources. However, the City provides two recommendations, which prescribe protocol to follow in the event of advertent discovery of cultural resources or human remains and are included as Mitigation Measures CUL-1 and CUL-2, below. With mitigation incorporated, a less than significant impact would occur.

MITIGATION MEASURES

CUL-1: If previously unidentified cultural resources are encountered during project implementation, any persons on-site shall avoid altering the materials and their stratigraphic context. A qualified professional archaeologist shall be contacted to evaluate the situation. Project personnel shall not collect cultural resources. [Prehistoric resources include, but are not limited to, chert or obsidian flakes, projectile points, mortars, pestles, and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic resources include stone or abode foundations or walls; structures and remains with square nails; and refuse deposits or bottle dumps, often located in old wells or privies.]

CUL-2: If human remains are encountered on-site, all work must stop in the immediate vicinity of the discovered remains and the County Coroner and a qualified archaeologist must be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American and prehistoric, the Native American Heritage Commission (NAHC) must be contacted by the Coroner so that a "Most Likely Descendant" can be designated and further recommendations regarding treatment of the remains is provided.

FINDINGS

The proposed project would have a **Less Than Significant Impact with Mitigation Incorporated** on Cultural Resources.

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

Thresholds of Significance: The project would have a significant effect on energy if it would result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation; or require or result in the construction of new water or wastewater facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

DISCUSSION

An Air Quality, Health Risk Analysis, Greenhouse Gas and Energy Technical Memorandum was performed on behalf of the proposed Project by Johnson, Johnson and Miller Air Quality Consulting Services (report date April 06, 2022). The following discussion and impact analysis are directly referencing this memorandum (see Appendix B for full report and references).

Pacific Gas and Electric Company (PG&E) provides electricity and natural gas service to the City. Upon buildout of the project site, electricity to the project site would be provided by PG&E. All electricity infrastructure would be located underground and would tie-in to existing infrastructure. In 2020, approximately 85 percent of the electricity PG&E supplied was from GHG-free sources including nuclear, large hydroelectric, and eligible renewable sources of energy.[12]

The energy requirements for the proposed project were determined using the construction and operational estimates generated from the Air Quality Analysis (refer to Attachment A of Appendix B for related CalEEMod output files). The calculation worksheets for diesel fuel consumption rates for off-road construction equipment and on-road vehicles are provided in Attachment C of Appendix B. Short-term construction energy consumption is discussed below.

Short-Term Construction

Off-Road Equipment

The proposed project is anticipated to begin construction as early as July 1, 2022 and last approximately 18 months. For modeling purposes, construction was assumed to be completed on December 1, 2023. Table 12 provides estimates of the project's construction fuel consumption from off-road construction equipment for the entire project, categorized by construction activity.

[12] Pacific Gas & Electric (PG&E). 2021. Corporate Sustainability Report 2021. Website: https://www.pgecorp.com/corp_responsibility/reports/2021/pf04_renewable_energy.html. Accessed February 1, 2022.

Table 3: Construction Off-Road Fuel Consumption

Project Component	Construction Activity	Fuel Consumption (gallons)
Lakeport Parkside Residential Project	Site Preparation	705
	Grading	3,878
	Paving	844
	Building Construction	17,387
	Architectural Coating	124
Total		**22,938**
Note: Totals may not appear to sum correctly due to rounding Source: Energy Consumption Calculations (Attachment C of Appendix B).		

As shown in Table 12, construction activities associated with the proposed project would be estimated to consume approximately 22,938 gallons of diesel fuel. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of the state. Therefore, it is expected that construction fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

On-Road Vehicles

On-road vehicles for construction workers, vendors, and haulers would require fuel for travel to and from the site during construction.

Table 13: Construction On-Road Fuel Consumption

Project Component	Construction Activity	Total Annual Fuel Consumption (gallons)
Lakeport Parkside Residential Project	Site Preparation	160
	Grading	2,060
	Paving	276
	Building Construction	36,895
	Architectural Coating	389
Total		**39,780**
Notes: Total calculated after rounding fuel usage from each construction activity to the nearest whole number. Several assumptions related to the construction trips were selected to provide a conservative estimate of emissions that would also result in a conservative estimate of annual fuel consumption (see Attachments A and C). Source: Energy Consumption Calculations (Attachment C).		

As shown in Table 13, construction trips are estimated to consume approximately 39,780 gallons of gasoline and diesel fuel combined. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of the state. Therefore, it is expected that construction fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

Long-Term Operations

Transportation Energy Demand

Table 14 provides an estimate of the daily and annual fuel consumed by vehicles traveling to and from the proposed project. These estimates were derived using the same assumptions used in the operational air quality analysis for the proposed project.

Table 14: Long-Term Operational Vehicle Fuel Consumption

Vehicle Type	Percent of Vehicle Trips	Daily VMT	Annual VMT	Average Fuel Economy (miles/gallon)[1]	Total Daily Fuel Consumption (gallons)	Total Annual Fuel Consumption (gallons)
Passenger Cars (LDA)	45.6	6,557	2,393,342	30.96	211.8	77,310
Light Trucks and Medium Duty Vehicles (LDT1, LDT2, MDV)	41.7	5,991	2,186,831	22.42	267.3	97,553
Light-Heavy to Heavy-Heavy Diesel Trucks (LHD1, LHD2, MHDT, HHDT)	7.9	1,133	413,373	11.46	98.8	36,072
Motorcycles (MCY)	3.8	547	199,836	35.70	15.3	5,598
Other (OBUS, UBUS, SBUS, MH)	1.0	137	50,006	6.71	20.4	7,451
Total	**100%**	**14,365**	**5,243,394**	**—**	**613.7**	**223,983**

Notes:
Percent of Vehicle Trips and VMT provided by CalEEMod.
"Other" consists of buses and motor homes.
VMT = vehicle miles traveled
Source: Energy Consumption Calculations (Attachment C of Appendix B).

As shown above, daily vehicular fuel consumption is estimated to be 613.7 gallons of gasoline and diesel fuel combined. Annual consumption is estimated at 223,983 gallons.

In terms of land use planning decisions, the proposed project would constitute development within an established community and would not be opening a new geographical area for development such that it would draw mostly new trips or substantially lengthen existing trips. In addition, the vehicle fleet mix would be typical of other residential development in the region. For these reasons, it would be expected that vehicular fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than for any other similar land use activities in the region.

Building Energy Demand

As shown in Table 15 and Table 16, the proposed project is estimated to demand 912,902 kilowatt-hours (kWh) of electricity and 1,867,137 1,000-British Thermal Units (kBTU) of natural gas, respectively, on an

annual basis (based on the CalEEmod output files (see Appendix B). The proposed Project would be built according to code and would generate on-site renewable energy from inclusion of rooftop solar panels on the single-family residential development.

Table 15: Long-Term Electricity Usage

Land Use	Size (DU)	Total Electricity Demand (kWh/year)
Multifamily Development	128	530,994
Single-family Development	48	381,908
Total Project		**912,902**

Notes:
DU = Dwelling Units
kWh = kilowatt hour
The estimates above represent total estimated electricity consumption on an annual basis from operations of the proposed project.
Source: Energy Consumption Calculations (Attachment C of Appendix B).

Table 16: Long-Term Natural Gas Usage

Land Use	Size (DU)	Total Natural Gas Demand (kBTU/year)
Multifamily Development	128	1,327,000
Single-family Development	48	534,137
Total Project		**1,861,137**

Notes:
DU = Dwelling Units
kBTU = 1,000 British Thermal Units
Source: Energy Consumption Calculations (Attachment C of Appendix B).

IMPACT ANALYSIS

VI.a) This impact addresses the energy consumption from both the short-term construction and long-term operations are discussed separately below.

Construction Energy Demand

As summarized in Table 12 and Table 13, the proposed project would require 22,938 gallons of diesel fuel for construction off-road equipment and 39,780 gallons of gasoline and diesel for on-road vehicles during construction. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of the state. Therefore, it is expected that construction fuel consumption associated with the proposed project

would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region, and as such, impacts would be less than significant.

Long-Term Energy Demand

Building Energy Demand

Buildings and infrastructure constructed pursuant to the proposed project would comply with the versions of CCR Titles 20 and 24, including California Green Building Standards (CALGreen), that are applicable at the time that building permits are issued. The proposed project is estimated to demand 912,902 kWh of electricity per year and 1,861,137 kBTU of natural gas per year. This would represent an increase in demand for electricity and natural gas. It should be noted that these estimates were prepared assuming compliance with existing rules and regulations and may not reflect project design features that could further reduce the proposed project energy demand.

It would be expected that building energy consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than for any other similar buildings in the region. Current state regulatory requirements for new building construction contained in the 2016 CALGreen and Title 24 standards would increase energy efficiency and reduce energy demand in comparison to existing commercial structures, and therefore would reduce actual environmental effects associated with energy use from the proposed project. Additionally, the CALGreen and Title 24 standards have increased efficiency standards through each update. The proposed project would be built in accordance with regulations in effect at the time building permits are issues and would generate on-site renewable energy from inclusion of rooftop solar panels.

Therefore, while the proposed project would result in increased electricity and natural gas demand, the electricity and natural gas would be consumed more efficiently and would be typical of residential development. If buildout of the project is delayed, compliance with future building code standards would result in increased energy efficiency. Based on the above information, the proposed project would not result in the inefficient or wasteful consumption of electricity or natural gas, and impacts would be less than significant.

Transportation Energy Demands

The daily vehicular fuel consumption is estimated to be 613.7 gallons of both gasoline and diesel fuel. Annual consumption is estimated at 223,983 gallons. The proposed project would constitute development within an established community and would not be opening a new geographical area for development such that it would draw mostly new trips or substantially lengthen existing trips. The proposed project would be well positioned to accommodate existing population and anticipated growth in the City of Lakeport. Furthermore, the proposed project is located within two mile of multiple land uses, including office and commercial developments. In addition, vehicles accessing the project site would be typical of other residential uses in the region. A Traffic Impact Analysis was also completed for the project (see Appendix E), which concluded that all roadway segments within the scope of the study currently operate above LOS D during peak hours prior to, and with the addition of project traffic through the year 2042. VMT analysis indicated that the project will not create a significant traffic impact. For these reasons, it would be expected that vehicular fuel consumption associated with the proposed project would not be any

more inefficient, wasteful, or unnecessary than for any other similar land use activities in the region, and impacts would be less than significant.

VI.b) The City's General Plan includes Policy CD 2.7 to promote energy efficiency through the siting and design of new buildings. Additionally, General Plan objectives C-5 and C-6 reduce the reliance on nonrenewable energy sources in existing and new commercial, industrial, and public structures through implementation of energy resource policies to encourage the use of renewable energy and decrease energy demand.[13] These policies and objectives are not applicable to the proposed residential development project. However, the proposed project would not impede or conflict with any of the energy objectives or policies of the General Plan. The proposed project would constitute development within an established community and would not be opening a new geographical area for development such that it would draw mostly new trips, or substantially lengthen existing trips. The proposed project would be well positioned to accommodate existing population. The proposed project would comply with the versions of CCR Titles 20 and 24, including CALGreen, that are applicable at the time that building permits are issued and with all applicable City measures. Part 11, Chapter 4 and 5, of the State's Title 24 energy efficiency standards establishes mandatory measures for residential and nonresidential buildings. Examples of these mandatory measure include solar, electric vehicle (EV) charging infrastructure, bicycle parking, energy efficiency, water efficiency and conservation, and material conservation and resource efficiency.

The proposed project would be required to comply with mandatory measures for new residential development. In addition, the proposed project includes cluster homes and multi-family development, consistent with General Plan objective CD 1 and Policy CD 1.1. The project would locate housing near convenient access to jobs and would provide connectivity within the project site. Compliance with these aforementioned mandatory measures and project design features would ensure that the proposed project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing energy use or increasing the use of renewable energy. Therefore, operational energy efficiency and renewable energy standards consistency impacts would be less than significant.

For the above reasons, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant. A Traffic Impact Analysis was also completed for the project (see Appendix E).

MITIGATION MEASURES

No mitigation required.

FINDINGS

The proposed project would have a **Less Than Significant Impact** on Energy Resources.

[13] City of Lakeport. 2009. General Plan 2025. Website: https://www.cityoflakeport.com/Planning/Lakeport%20General%20Plan%202025/City-of-Lakeport-General-Plan-2025_Augus-8312009103657PM.pdf. Accessed March 1, 2022.

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

Thresholds of Significance: The project would have a significant effect on geology and soils if it would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: 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, strong seismic ground shaking, seismic-related ground failure, including liquefaction, or landslides; result in substantial soil erosion or the loss of topsoil; 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; be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property; 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; or directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

DISCUSSION

As previously discussed, the project would be located west of Wrigley Street. The proposed project involves the development of a 176 single- and multifamily residential subdivision on an approximately 15.16-acre parcel. The Project would also include on-site roadways accessing those residential units, with parking and landscaping distributed around the property, as well as serving each proposed parcel.

Seismicity

The City of Lakeport is situated in an active earthquake area and the potential exists for a seismic event in the future. While the City is not in an active fault zone, the Maacama Fault Zone lies west of the City and the Big Valley, Konocti Bay, and Red Road Fault Zones lie to the south of the City.[14] , No major potentially damaging earthquakes have occurred within the past 200 years along any faults within Lake County.

The majority of faults in Lake County are located in the Cobb Mountain and Hopland Grade areas, running southeasterly to the southern County line. The southeastern portion of the County also appears to have considerable earthquake faults. There are also active faults within the vicinity of the City of Lakeport, including the San Andreas Fault, located approximately 30 miles (48 km) to the west, and the Healdsburg Fault, located approximately 15 miles (24 km) to the west. These faults have been responsible for moderate to major earthquakes in the past. The maximum earthquake magnitudes that can come from these fault lines are 8.25 for the San Andreas fault and 6.75 for the Healdsburg fault (Earth Metrics Inc., 1989). The largest earthquake to affect the City was the 1906 San Francisco earthquake, which had a magnitude of 8.3. Although shaking was severe, overall damage in Lakeport was minor and generally limited to the fall of decorative masonry and chimneys.

Landslides

Landslides are a notable geologic constraint to development in the Lakeport Planning Area. The landslide potential of an area is a function of the area's hydrology, geology, and seismic characteristics. Clay soils, which underlie many hillsides in Lakeport, are particularly susceptible to sliding. Although landslides generally occur in areas with steep slopes, they may occur on slopes with a grade of 20 percent or less in geologically unstable areas. Since zones of moderate to high landslide potential exist in Lakeport, soils tests carried out by a registered soil engineer or geologist are essential wherever landslide potential is indicated or suspected. Foundations for structures built in areas with steep slopes in excess of 20 percent must be carefully engineered to avoid increasing landslide risk (City General Plan, 2009).

Sediments and Soils

The Lakeport area is located on a sediment-filled valley next to Clear Lake. Exposed materials within the area are limited to serpentinite and quaternary sediments. These sediments are described as poorly consolidated to unconsolidated mixtures of sand, silt, clay, and gravel derived from older rock in the

[14] California Department of Conservation. AQ Zapp: California Earthquake Hazards Zone Application. https://maps.conservation.ca.gov/cgs/EQZApp/app/. Accessed June, 2022.

adjacent mountains. Because of the low strength of the quaternary sediments, they are subject to rapid erosion and shallow slumping.

The Lakeport region is composed of a variety of geological features. For example, oak woodlands occur in inland valleys and foothills usually with a hard pan or rocky soil between 4 and 20 feet deep. Additionally, chaparral communities occur in the inland foothills on dry slopes and ridges with shallow soils and are often found on serpentine soils. There are a number of areas in Lake County that contain serpentine rock and soils, including areas within the Lakeport Planning Area. These areas have been mapped and identified to contain regulated amounts of asbestos, and, unless adequately mitigated, the disturbance of serpentine soils will release asbestos into the air and water. The areas mapped within the Lakeport Planning Area (refer to Figure 19, Serpentine Rock and Soils, in the City's General Plan) are mostly within the southern and central portions of the City of Lakeport, with smaller areas scattered throughout the northern part of the City.

IMPACT ANALYSIS

VII.a.i) The purpose of the Alquist-Priolo Earthquake Fault Zoning Act is to mitigate the hazard of surface faulting by preventing the construction of buildings used for human occupancy over an area with known faults. Unlike damage from ground shaking, which can occur at great distances from the fault, impacts from fault rupture are limited to the immediate area of the fault zone where the fault breaks along the grounds surface. The Site does not overlap a fault line or zone (MTA, 2011). Impacts from fault rupture would not be expected to occur within the project area and since the proposed project entails construction of single and multifamily residential housing, and those structures would be required to meet building code requirements that will address fault rupture occurrence and subsequent ground shaking.

VII.a.ii) The project area is located about 9 miles east of the Maacama Fault, 34 miles east of the San Andreas Fault, and 7 miles northwest of the Big Valley Fault. The Project is not situated in an Earthquake Fault Zone area. However, the proposed project site may have a moderate chance of experiencing ground shaking within the next 50 years (Branum et al., 2016). As noted above, the City of Lakeport is situated in an active earthquake area and is vulnerable to seismic activity and the associated secondary impacts of shaking. However, all development, including the project, is subject to the latest version of the California Building Code (CBC) standards, as well as Title 24 of the California Administrative Code, which would minimize any potential geological risks. Therefore, a less than significant impact would occur.

VII.a.iii-iv) The proposed site has a generally flat topography, which would preclude the likeliness of a landslide. Specific construction practices on the property would make the potential of liquefaction or landslides negligible. As a result, the project would not be situated on or within an area of potential liquefaction or landslides, and no impact would occur.

VII.b) The proposed project may require excavation and groundbreaking activities to develop the residential subdivision and associated storm drains and roadways. Under the proposed project, pursuant to Policy LU 7.4 of the City's General Plan and the General Construction Activity Stormwater Permit (Construction General Permit Order 2009-0009-DWQ) (discussed further under Section IX, Hydrology and Water Quality, below), the project contractor would be required to implement stormwater Best

Management Practices (BMPs) such as straw bales, fiber rolls, and/or silt fencing structures to assure the minimization of erosion resulting from construction and to avoid runoff into sensitive habitat areas, limit ground disturbance to the minimum necessary, and stabilize disturbed soil areas as soon as feasible after construction is completed. With implementation of appropriate BMPs, the proposed project would not result in substantial soil erosion or the loss of topsoil and a less than significant impact would occur.

VII.c) As previously discussed, the Site and immediate vicinity is not within an area of potential major liquefaction or landslides and is generally flat in nature (less than 10 percent slope). Additionally, the Site is not located within a mapped Alquist-Priolo special studies zone. While Lakeport is located in a highly active earthquake area, the proposed project development is minimal and would not induce landslides, lateral spreading, subsidence, liquefaction, or collapse. Therefore, the project would have a less than significant impact.

VII.d) There are three soil types underlying the project Site. Wappo loam is moderately well drained with very slow permeability, while Still loam soil is well drained with moderately slow permeability. These soils are generally defined as non-expansive. Cole variant clay loam is somewhat poorly drained with slow permeability and some expansive properties. Since the proposed residential development and roadway improvements would be designed and graded in accordance with the latest version of the CBC, the potential for the project to be susceptible to expansive soils would be minimized and a less than significant impact would occur.

VII.e) Development of the proposed project does not include septic tanks or alternative wastewater disposal systems. The project area would tie into city sewer connections for the residences. Therefore, no impact would not occur from development of the project.

VII.f) No paleontological resources or unique geologic features have been identified in the project area and the likelihood of them being present in this area is considered very low. However, the potential exists for unique paleontological resources or site or unique geological features to be encountered within the project area, as ground-disturbing construction activities, including grading and excavation, would be required for the proposed project. With incorporation of Mitigation Measure GEO-1 below, which provides specific requirements in the event any fossil(s) are encountered during construction of the proposed project, a less than significant impact would occur.

MITIGATION MEASURES

GEO-1: In the event that fossils or fossil-bearing deposits are discovered during project construction, the contractor shall notify a qualified paleontologist to examine the discovery and excavations within 50 feet of the find shall be temporarily halted or diverted. The area of discovery shall be protected to ensure that fossils are not removed, handled, altered, or damaged until the Site is properly evaluated, and further action is determined. The paleontologist shall document the discovery as needed, in accordance with Society of Vertebrate Paleontology standards (Society of Vertebrate Paleontology 1995), evaluate the potential resource, and assess the significance of the finding under the criteria set forth in CEQA Guidelines Section 15064.5. The paleontologist shall notify the appropriate agencies to determine

procedures that would be followed before construction is allowed to resume at the location of the find. If the project proponent determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project based on the qualities that make the resource important. The plan shall be submitted to the City of Lakeport for review and approval prior to implementation.

FINDINGS

The proposed project would have a **Less Than Significant Impact with Mitigation Incorporated** on Geology and Soils.

VIII. **GREENHOUSE GAS EMISSIONS**. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions (GHG), either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Thresholds of Significance: The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on GHGs, the type, level, and impact of emissions generated by the project must be evaluated.

The following GHG significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

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

Project-level Thresholds

Section 15064.4(b) of the CEQA Guidelines' amendments for GHG emissions states that a lead agency may take into account the following three considerations in assessing the significance of impacts from GHG emissions.

- Consideration #1: The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting.
- Consideration #2: Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- Consideration #3: The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an Environmental Impact Report (EIR) must be prepared for the project.

Newhall Ranch

In the California Supreme Court decision in the *Center for Biological Diversity et al. vs. California Department of Fish and Wildlife, the Newhall Land and Farming Company* (62 Cal.4th 204 [2015], and known as the Newhall Ranch decision), the Supreme Court was concerned that new development may need to reduce GHG emissions more than existing development to demonstrate it is meeting its fair share of reductions. New development does do more than its fair share through compliance with enhanced regulations, particularly with respect to motor vehicles, energy efficiency, and electricity generation. If no additional reductions are required from an individual project beyond that achieved by regulations, then the amount needed to reach the 2020 target is the amount of GHG emissions a project must reduce to comply with Statewide goals.

The State's regulatory program implementing the 2008 Scoping Plan is now fully mature. All regulations envisioned in the Scoping Plan have been adopted by the responsible agencies and the effectiveness of those regulations have been estimated by the agencies during the adoption process and then are tracked to verify their effectiveness after implementation. The Governor Brown, in the introduction to Executive Order B-30-15, states "California is on track to meet or exceed the current target of reducing greenhouse gas emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32)." The progress was evident in emission inventories prepared by CARB, which showed that the State inventory dropped below 1990 levels for the first time in 2016.[15] The 2017 Scoping Plan Update includes projections indicating that the State will meet or exceed the 2020 target with adopted regulations.[16] The State now projects that it will meet the 2020 target and achieve continued progress towards meeting the 2017 Scoping Plan target for 2030.

DISCUSSION

An Air Quality, Health Risk Analysis, Greenhouse Gas and Energy Technical Memorandum was performed on behalf of the proposed Project by Johnson, Johnson and Miller Air Quality Consulting Services (report date April 6, 2022). The following discussion and impact analysis are directly referencing this memorandum (see Appendix B for full report and references).

Environmental Setting

Greenhouse gases and climate change are cumulative global issues. The CARB and EPA regulate GHG emissions within the State of California and the U.S., respectively. Meanwhile, the CARB has the primary regulatory responsibility within California for GHG emissions. Local agencies can also adopt policies for GHG emission reduction.

Many chemical compounds in the Earth's atmosphere act as GHGs as they absorb and emit radiation within the thermal infrared range. When radiation from the sun reaches the earth's surface, some of it is reflected into the atmosphere as infrared radiation (heat). Greenhouse gases absorb this infrared

[15] California Air Resources Board (CARB). 2018. Climate Pollutants Fall Below 1990 Levels for the First Time. Website: https://ww2.arb.ca.gov/news/climate-pollutants-fall-below-1990-levelsfirst-time. Accessed March 1, 2022.
[16] California Air Resources Board (CARB). 2017. The 2017 Climate Change Scoping Plan Update, the Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target. January 17, 2017. Website: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf . Accessed March 1, 2022.

radiation and trap the heat in the atmosphere. Over time, the amount of energy from the sun to the earth's surface should be approximately equal to the amount of energy radiated back into space, leaving the temperature of the earth's surface roughly constant. Many gases exhibit these "greenhouse" properties. Some of them occur in nature (water vapor, carbon dioxide [CO_2], methane [CH_4], and nitrous oxide [N_2O]), while others are exclusively human made (like gases used for aerosols).

The principal climate change gases resulting from human activity that enter and accumulate in the atmosphere are listed below.

Carbon Dioxide

Carbon dioxide enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

Methane

Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and agricultural practices and the decay of organic waste in municipal solid waste landfills.

Nitrous Oxide

Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

Fluorinated Gases

Hydrofluorocarbons, perfluorinated chemicals, and sulfur hexafluoride are synthetic, powerful climate-change gases that are emitted from a variety of industrial processes. Fluorinated gases are often used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent climate-change gases, they are sometimes referred to as high global warming potential gases.

Emissions Inventories and Trends

According to the CARB's recent GHG inventory for the state, released 2021, California produced 418.2 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) in 2019. The major source of GHGs in California is transportation, contributing approximately 39.7 percent of the state's total GHG emissions in 2019.[17] This puts total emissions at 12.8 $MMTCO_2e$ below the 2020 target of 431 million metric tons. California statewide GHG emissions dropped below the 2020 GHG limit in 2016 and have remained below the 2020 GHG limit since then.

Potential Environmental Impacts

[17] California Air Resources Board (CARB). 2021. California Greenhouse Gas Emissions for 2000 to 2019. Website: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf. Accessed. March 1, 2022.

For California, climate change in the form of warming has the potential to incur and exacerbate environmental impacts, including but not limited to changes to precipitation and runoff patterns, increased agricultural demand for water, inundation of low-lying coastal areas by sea-level rise, and increased incidents and severity of wildfire events.[18] Cooling of the climate may have the opposite effects. Although certain environmental effects are widely accepted to be a potential hazard to certain locations, such as rising sea level for low-lying coastal areas, it is currently infeasible to predict all environmental effects of climate change on any one location.

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial and manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. A project's GHG emissions are at a micro-scale relative to global emissions but could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact.

Regulatory Requirements

California has adopted statewide legislation addressing various aspects of climate change and GHG emissions mitigation. Much of this legislation establishes a broad framework for the state's long-term GHG reduction and climate change adaptation program. The governor has also issued several executive orders (EOs) related to the state's evolving climate change policy. Of particular importance are AB 32 and SB 32, which outline the state's GHG reduction goals of achieving 1990 emissions levels by 2020 and a 40 percent reduction below 1990 emissions levels by 2030.

In the absence of federal regulations, control of GHGs is generally regulated at the state level and is typically approached by setting emission reduction targets for existing sources of GHGs, setting policies to promote renewable energy and increase energy efficiency, and developing statewide action plans.

GHG Threshold Applied in the Analysis

The City of Lakeport adopted their most recent General Plan (City of Lakeport General Plan 2025) in 2009, which includes city-wide goals and strategies for reducing GHG emissions. The 2025 General Plan does not identify thresholds for determining the significance of GHG emissions during construction or operation of individual development projects.[19] The City of Lakeport has not adopted a GHG reduction plan. In addition, the City has not completed the GHG inventory, benchmarking, or goal-setting process required to identify a reduction target and take advantage of the streamlining provisions contained in the CEQA Guidelines amendments adopted for SB 97 and clarifications provided in the CEQA Guidelines amendments adopted on December 28, 2018. Furthermore, there are no recommendations provided by the LCAQMD for projects in the LCAB. As such, there are not formally adopted or recommended project-level thresholds of significance provided by either the LCAQMD or the City of Lakeport. In the absence of

[18] Moser et al. 2009. Moser, Susie, Guido Franco, Sarah Pittiglio, Wendy Chou, Dan Cayan. 2009. The Future Is Now: An Update on Climate Change Science Impacts and Response Options for California. Website: http://www.susannemoser.com/documents/CEC-500-2008-071_Moseretal_FutureisNow.pdf. Accessed March 1, 2022.

[19] City of Lakeport. 2009. General Plan 2025. Website: https://www.cityoflakeport.com/Planning/Lakeport%20General%20Plan%202025/City-of-Lakeport-General-Plan-2025_Augus-8312009103657PM.pdf. Accessed March 1, 2022.

an adopted numeric GHG emissions threshold consistent with the State's 2030 target, the project's GHG emissions impact determination is based on the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The project's GHG emissions are provided for informational purposes only.

IMPACT ANALYSIS

VIII.a) The proposed project may contribute to climate change impacts through its contribution of GHGs. The proposed project would generate a variety of GHGs during construction, including several defined by AB 32, such as CO_2, CH_4, and N_2O from the exhaust of equipment, construction hauling trips, and worker commuter trips.

In the absence of an adopted numeric GHG emissions threshold consistent with the State's 2030 target, the project's GHG emissions impact determination is based on the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The project's GHG emissions are provided for informational purposes only.

Quantification of Greenhouse Gas Emissions for Informational Purposes

Construction Emissions

Construction emissions would be generated from the exhaust of construction equipment, material delivery trips, and worker commuter trips. Detailed construction assumptions are provided in Modeling Parameters and Assumptions section of this technical memorandum. Construction-generated GHGs were quantified and are disclosed in Attachment A of the Appendix B. $MTCO_2e$ emissions during construction of the project are summarized below in Table 17.

Table 4: Construction Greenhouse Gas Emissions

Project Construction (2022-2023)	**$MTCO_2e$**
Site Preparation	18
Grading	103
Paving	23
Building Construction (2022)	220
Building Construction (2023)	512
Architectural Coating	6
Total Construction $MTCO_2e$	**882**
Emissions Amortized Over 30 Years[1]	**29**
Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent [1] Construction GHG emissions are amortized over the 30-year lifetime of the project. Source: CalEEMod Output (Attachment A of Appendix B).	

During the construction of the proposed project, approximately 882 $MTCO_2e$ would be emitted. Neither the City of Lakeport, the LCAQMD, nor the BAAQMD have an adopted thresholds of significance for

construction related GHG emissions. Because impacts from construction activities occur over a relatively short-term period, they contribute a relatively small portion of the overall lifetime project GHG emissions. In addition, GHG emission reduction measures for construction equipment are relatively limited. Therefore, a standard practice is to amortize construction emissions over the anticipated lifetime of a project, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies. In the absence of a construction emission threshold, emissions were quantified for informational purposes only. The total emissions generated during construction were amortized based on the life of the development (30 years) and added to the operational emissions to determine the total emissions from the project, as shown below.

Operational Emissions

Operational or long-term emissions occur over the life of the project. The operational emissions for the proposed project are shown in Table 18. Sources for operational emissions include the following:

- Motor Vehicles: These emissions refer to GHG emissions contained in the exhaust from the cars and trucks that would travel to and from the project site.
- Natural Gas: These emissions refer to the GHG emissions that occur when natural gas is burned on the project site. Natural gas uses include heating water, space heating, dryers, stoves, or other uses.
- Indirect Electricity: These emissions refer to those generated by offsite power plants to supply electricity required for the project.
- Water Transport: These emissions refer to those generated by the electricity required to transport and treat the water to be used on the project site.
- Waste: These emissions refer to the GHG emissions produced by decomposing waste generated by the project. These include waste removed from car interiors during the cleaning process; waste generated in the restrooms; and waste generated from the operations of the facility.

Detailed modeling results and more information regarding assumptions used to estimate emissions are provided in Attachment A of Appendix B. Operational emissions are provided in Table 18.

Table 18: Operational Greenhouse Gas Emissions at Project Buildout

Source Category	$MTCO_2e$
Area	79
Energy Consumption	150
Mobile	2,017
Solid Waste Generation	54
Water Usage	19
Amortized Construction Emissions[1]	29
Total	**2,348**
Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent	

Source Category	$MTCO_2e$
[1] Construction GHG emissions are amortized over the 30-year lifetime of the project. Source: CalEEMod Output (Attachment A of Appendix B).	

Table 19: Operational Greenhouse Gas Emissions in the 2030 Operational Year

Source Category	$MTCO_2e$
Area	79
Energy Consumption	146
Mobile	1,597
Solid Waste Generation	54
Water Usage	19
Amortized Construction Emissions[1]	29
Total	**1,924**
Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent [1] Construction GHG emissions are amortized over the 30-year lifetime of the project. Source: CalEEMod Output (Attachment A of Appendix B).	

As previously noted, the project's estimated emissions were estimated for disclosure purposes. However, significance for GHG emissions is analyzed by assessing the project's compliance with Consideration No. 3 regarding consistency with adopted plans to reduce GHG emissions. As discussed in detail below, the project would not conflict with any applicable plan, policy or regulation of an agency adopted to reduce the emissions of GHGs. As such, the project's generation of GHG emissions would not result in a significant impact on the environment.

Impact Analysis (Project's Compliance with Consideration No. 3 Regarding Consistency with Adopted Plans to Reduce GHG Emissions)

The following analysis assesses the project's compliance with Consideration No. 3 regarding consistency with adopted plans to reduce GHG emissions. As discussed above, the City of Lakeport has not adopted a GHG reduction plan. In addition, the City has not completed the GHG inventory, benchmarking, or goal-setting process required to identify a reduction target and take advantage of the streamlining provisions contained in the CEQA Guidelines amendments adopted for SB 97 and clarifications provided in the CEQA Guidelines amendments adopted on December 28, 2018. There are no other local plans adopted for the purposes of reducing GHG emissions that contain measures that are applicable to development projects. Since no other local or regional Climate Action Plan is in place, the project is assessed for its consistency with CARB's adopted Scoping Plans. This would be achieved with an assessment of the project's compliance with Scoping Plan measures contained in the 2017 Scoping Plan Update.

Greenhouse Gas Emissions Estimation Summary and Greenhouse Gas Impact Analysis

Greenhouse Gas Impact Analysis

The following analysis assesses the proposed project's compliance with Consideration No. 3 regarding consistency with adopted plans to reduce GHG emissions. The proposed Project is assessed for its consistency with CARB's adopted Scoping Plans. This would be achieved with an assessment of the proposed project's compliance with Scoping Plan measures contained in the 2017 Scoping Plan Update.

Consistency with SB 32

The 2017 Climate Change Scoping Plan Update (2017 Scoping Plan) includes the strategy that the State intends to pursue to achieve the 2030 targets of Executive Order S-3-05 and SB 32. The 2017 Scoping Plan includes the following summary of its overall strategy for reaching the 2030 target:

- SB 350
    - Achieve 50 percent Renewables Portfolio Standard (RPS) by 2030.
    - Doubling of energy efficiency savings by 2030.
- Low Carbon Fuel Standard (LCFS)
    - Increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020).
- Mobile Source Strategy (Cleaner Technology and Fuels Scenario)
    - Maintaining existing GHG standards for light- and heavy-duty vehicles.
    - Put 4.2 million zero-emission vehicles (ZEVs) on the roads.
    - Increase ZEV buses, delivery and other trucks.
- Sustainable Freight Action Plan
    - Improve freight system efficiency.
    - Maximize use of near-zero emission vehicles and equipment powered by renewable energy.
    - Deploy over 100,000 zero-emission trucks and equipment by 2030.
- Short-Lived Climate Pollutant (SLCP) Reduction Strategy
    - Reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030.
    - Reduce emissions of black carbon 50 percent below 2013 levels by 2030.
- SB 375 Sustainable Communities Strategies
    - Increased stringency of 2035 targets.
- Post-2020 Cap-and-Trade Program
    - Declining caps, continued linkage with Québec, and linkage to Ontario, Canada.
    - CARB will look for opportunities to strengthen the program to support more air quality co-benefits, including specific program design elements. In Fall 2016, CARB staff described potential future amendments including reducing the offset usage limit, redesigning the allocation strategy to reduce free allocation to support increased technology and energy investment at covered entities and reducing allocation if the covered entity increases criteria or toxics emissions over some baseline.
- By 2018, develop Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

Table 20 provides an analysis of the project's consistency with the 2017 Scoping Plan Update measures.

Table 20: Consistency with SB 32 2017 Scoping Plan Update

Scoping Plan Measure	Project Consistency
SB 350 50% Renewable Mandate. Utilities subject to the legislation will be required to increase their renewable energy mix from 33% in 2020 to 50% in 2030.	**Consistent**: The project will purchase electricity from a utility subject to the SB 350 Renewable Mandate SB 100 Renewable Mandate. SB 100 revised the Renewable Portfolio Standard goals to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. The specific provider for the City of Lakeport and the proposed project is Pacific Gas and Electric Company (PG&E).
SB 350 Double Building Energy Efficiency by 2030. This is equivalent to a 20 percent reduction from 2014 building energy usage compared to current projected 2030 levels.	**Not Applicable**. This measure applies to existing buildings. Renovations to existing buildings are not proposed as part of the proposed project, which includes the development of new residential uses. New structures are required to comply with Title 24 Energy Efficiency Standards that are expected to increase in stringency until residential housing achieves zero net energy.
Low Carbon Fuel Standard. This measure requires fuel providers to meet an 18 percent reduction in carbon content by 2030.	**Consistent**. Vehicles accessing the project site will use fuel containing lower carbon content as the fuel standard is implemented.
Mobile Source Strategy (Cleaner Technology and Fuels Scenario). Vehicle manufacturers will be required to meet existing regulations mandated by the LEV III and Heavy-Duty Vehicle programs. The strategy includes a goal of having 4.2 million ZEVs on the road by 2030 and increasing numbers of ZEV trucks and buses.	**Consistent**. The project is residential in nature and would not engage in vehicle manufacturing; however, vehicles would access the project site during project operations. Future project occupants and visitors can be expected to purchase increasing numbers of more fuel efficient and zero emission cars and trucks each year. The 2016 CALGreen Code requires electrical service in new single-family housing to be EV charger-ready. Home deliveries will be made by increasing numbers of ZEV delivery trucks.
Sustainable Freight Action Plan. The plan's target is to improve freight system efficiency 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030. This would be achieved by deploying over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.	**Not Applicable**. The measure applies to owners and operators of trucks and freight operations. However, deliveries that would be made to the future businesses are expected to be made by increasing number of ZEV delivery trucks.
Short-Lived Climate Pollutant (SLCP) Reduction Strategy. The strategy requires the reduction of SLCPs by 40 percent from 2013 levels by 2030	**Consistent.** Sources of black carbon are already regulated by the CARB and air district criteria pollutant and toxic regulations that control fine particulate emissions from diesel engines and other

Scoping Plan Measure	Project Consistency
and the reduction of black carbon by 50 percent from 2013 levels by 2030.	combustion source. The project residences would not include hearths or would include only electric or natural gas hearths; natural gas hearths produce very little black carbon compared to woodburning fireplaces and heaters.
SB 375 Sustainable Communities Strategies. Requires Regional Transportation Plans to include a sustainable communities strategy for reduction of per capita vehicle miles traveled.	**Not Applicable**. The project does not consist of a proposed regional transportation plan; therefore, this measure is not applicable to the proposed project.
Post-2020 Cap-and-Trade Program. The Post 2020 Cap-and-Trade Program continues the existing program for another 10 years. The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers.	**Consistent.** The post-2020 Cap-and-Trade Program indirectly affects people who use the products and services produced by the regulated industrial sources when increased cost of products or services (such as electricity and fuel) are transferred to the consumers. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the program's first compliance period.
Natural and Working Lands Action Plan. The CARB is working in coordination with several other agencies at the federal, state, and local levels, stakeholders, and with the public, to develop measures as outlined in the Scoping Plan Update and the governor's Executive Order B-30-15 to reduce GHG emissions and to cultivate net carbon sequestration potential for California's natural and working land.	**Not Applicable**. The project consists of residential development and will not be considered natural or working lands.
Source: California Air Resources Board (CARB). 2017. The 2017 Climate Change Scoping Plan Update. January 20. Website: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf. Accessed March 1, 2022.	

Regarding goals for 2050 under Executive Order S-3-05, at this time it is not possible to quantify the emissions savings from future regulatory measures, as they have not yet been developed; nevertheless, it can be anticipated that operation of the project would comply with whatever measures are enacted that state lawmakers decide would lead to an 80 percent reduction below 1990 levels by 2050. In its 2008 Scoping Plan, CARB acknowledged that the "measures needed to meet the 2050 are too far in the future to define in detail." In the First Scoping Plan Update; however, CARB generally described the type of activities required to achieve the 2050 target: "energy demand reduction through efficiency and activity changes; large scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and rapid market penetration of efficiency and clean energy

technologies that requires significant efforts to deploy and scale markets for the cleanest technologies immediately." The 2017 Scoping Plan provides an intermediate target that is intended to achieve reasonable progress toward the 2050 target.

Accordingly, taking into account the proposed project's emissions, project design features, and the progress being made by the State towards reducing emissions in key sectors such as transportation, industry, and electricity, the project would be consistent with State GHG Plans and would further the State's goals of reducing GHG emissions to 1990 levels by 2020, 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050, and does not obstruct their attainment. Impacts would be less than significant.

VIII.b) The analysis contained above under VIII a) evaluates whether the project would not conflict with any applicable plan, policy, or regulation of an agency adopted to reduce the emissions of GHGs. As discussed under VIII a) above, the project would not conflict with any applicable plan, policy, or regulation of agency to reduce. As such, project impacts in this regard would be less than significant.

MITIGATION MEASURES

No mitigation required.

FINDINGS

The proposed project would have a **Less Than Significant Impact** on Greenhouse Gas Emissions.

IX. HAZARDS AND HAZARDOUS MATERIALS. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

Thresholds of Significance: The project would have a significant effect on hazards and hazardous materials if it were to 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; emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school; be located on a site which is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment; result in a safety hazard or excessive noise for people residing or working in the project area if 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; or impair the implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan; or expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

DISCUSSION

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or has characteristics defined as hazardous by a federal, state, or local agency. Chemical and physical properties such as toxicity, ignitability, corrosiveness, and reactivity cause a substance to be considered hazardous. These properties are defined in the California Code of Regulations (CCR), Title 22, §66261.20-66261.24. A "hazardous waste" includes any hazardous material that is discarded, abandoned, or will be recycled. Therefore, the criteria that render a material hazardous also cause a waste to be classified as hazardous (California Health and Safety Code, §25117).

The proposed Project involves construction and operation of a 176-unit single and multifamily residential development including associated storm drains, on-site roadways accessing those commercial uses, with parking and landscaping distributed around the property, as well as serving each proposed parcel. The project would be located west of Wrigley Street, with access from Fenway Street and Yankee Avenue. Construction activities would be short-term and limited in nature and may involve limited transport, storage, use, or disposal of hazardous materials. Some examples of hazardous materials handling include fueling and servicing construction equipment on-site, grading, mixing and pouring of concrete and asphalt, and the transport of fuels, lubricating fluids, and solvents. These types of materials are not acutely hazardous, and all storage, handling, and disposal of these materials are regulated.

IMPACT ANALYSIS

IX.a) Proposed Project construction activities may involve the use and transport of hazardous materials. These materials may include fuels, oils, mechanical fluids, and other chemicals used during construction. Transportation, storage, use, and disposal of hazardous materials during construction activities would be required to comply with applicable federal, State, and local statutes and regulations. Compliance would ensure that human health and the environment are not exposed to hazardous materials. In addition, the Project would be required to comply the National Pollutant Discharge Elimination System (NPDES) permit program through the submission and implementation of a Stormwater Pollution Prevention Plan during construction activities to prevent contaminated runoff from leaving the Project site. Therefore, no significant impacts would occur during construction activities.

The operational phase of the proposed Project would occur after construction is completed and residents move in to occupy the structures on a day-to-day basis. The proposed Project includes land uses that are considered compatible with the surrounding uses, including single and multi-family residential uses. This land use does not routinely transport, use, or dispose of hazardous materials, or present a reasonably foreseeable release of hazardous materials, with the exception of common residential grade hazardous materials such as cleaners, paint, petroleum products, etc. The proposed Project would not create a significant hazard through the routine transport, use, or disposal of hazardous materials, nor would a significant hazard to the public or to the environment through the reasonably foreseeable upset and accidental conditions involving the likely release of hazardous materials into the environment occur.

IX.b) As noted above, during construction, some hazardous materials, such as diesel fuel, would be used. Residential land uses do not typically store hazardous materials that could potentially create a significant hazard. The transport, use, and storage of any hazardous materials at the site would be required to be conducted in accordance with all federal, State, and local regulations, in order to assure hazardous materials are not released into the environment. As such, less than significant impacts will occur.

IX.c) As previously discussed, the site is located in a residential and commercial area, with the area to the north, west, and east currently vacant, and the area to the southeast and south consisting of single-family residences. There are no schools located within one-quarter mile radius of the project site. Although the construction phase may utilize small amounts of hazardous materials, all hazardous materials utilized on-site would be used and disposed of in accordance with all applicable federal, State, and local regulations. In order to help minimize potential impacts associated with the proposed project, Mitigation Measure AIR-1 is required as described above in the Section III, Air Quality, above, which requires all equipment to be utilized under the project is maintained in good working condition. In addition, use of hazardous materials would be limited to construction which will be conducted in accordance to Best Management Practices (BMPs). Furthermore, when the proposed project commences, all hazardous materials at the Site would be required to be stored, handled, and transported in accordance with federal, state, and local regulations. With mitigation incorporated, a less than significant impact would occur.

IX.d) The location of the proposed project and adjacent properties has been checked against the lists of hazardous materials sites maintained by the State of California (http://www.envirostor.dtsc.ca.gov/public/). The proposed project is not located on a site included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5. Therefore, no impact would occur.

IX.e) The proposed project is not included in an airport land use plan, is not within two miles of a public airport or public use airport. Therefore, the proposed project would not result in a safety hazard for people residing or working in the project area. Thus, there would be no impact.

IX.f) There are no emergency response plans or evacuation plans that apply to the proposed project area. The proposed project is not anticipated to interfere with an emergency response or evacuation plan pursuant to the General Plan Safety Element. When necessary, a single lane may be temporarily closed along Fenway Street, Yankee Avenue or surrounding streets during construction. Emergency access would be maintained to all properties during construction. Therefore, construction of the proposed project would not physically interfere with an emergency response or evacuation plan pursuant to the General Plan Safety Element. Following construction, the Project would not affect emergency or evacuation routes. Impacts would be less than significant.

IX.g) The proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. The proposed project may entail installation of a continuous sidewalk, widened road, and as a result some replacement of utility poles which would not increase exposure of people or property to wildland fires. Therefore, no impact would occur.

MITIGATION MEASURES

No mitigation required.

FINDINGS

The proposed project would have a **Less Than Significant Impact** to Hazards and Hazardous Materials.

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

Thresholds of Significance: The project would have a significant effect on hydrology and water quality if it would violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality; substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin; substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner, which would result in substantial erosion or siltation on- or off-site, substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, 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 impede or redirect flows; in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

DISCUSSION

The City of Lakeport currently obtains its water from two primary sources: groundwater sources and water from Clear Lake treated at the City's water treatment plant. The groundwater supply consists of four wells located in Scotts Valley. Two of the wells are on Scotts Creek adjacent to the City's old pumping plant and two wells are located on the Green Ranch. Seasonal fluctuation in the underground water table means that the wells are only viable for portions of the year. When water supply from the wells in Scotts Valley is limited, the City relies on treated surface water from Clear Lake (City General Plan, 2009). The project site is located approximately one mile west of Clear Lake.

The City of Lakeport and the project Site are under the jurisdiction of the Central Valley Regional Water Quality Control Board (CVRWQCB), which is under the direction of the California State Water Resources Control Board. The Clean Water Act and the California Porter-Cologne Water Quality Control Act provide regulatory responsibility to these two agencies for regulating and protecting water quality.

Clear Lake and its tributary drainages have a long history of flooding. Flooding in Lakeport historically results from two distinct types of events: shoreline flooding due to high lake levels and wind velocity, and stream bank flooding caused by high intensity cloudburst storms over one or more of the drainage areas. Conditions in the winter tend to be conducive to both types of flood conditions at the same time. Additionally, the project Site is clear of the seiche inundation zone.

The proposed Project involves construction and operation of a 176-unit single and multifamily residential development including associated storm drains, on-site roadways accessing those commercial uses, with parking and landscaping distributed around the property, as well as serving each proposed parcel. With the proposed storm drain installations, it is not anticipated to significantly change the drainage patterns associated with the development. All project features, including culverts, gutters and on-site detention, would meet the most recent regulations set by the City, CVRWQCB, and any other applicable regulatory agencies. The project would require water services associated with the residential units. The City of Lakeport currently has adequate water supplies to provide the water services for this project.

Currently, the site is vacant and undeveloped. The proposed Project is anticipated to increase the amount of impervious surfaces at the Site, due to the residential housing, parking, and roadway. Under the City's General Plan (Policy LU 7.4), the City shall require all construction to employ stormwater Best Management Practices (BMPs). Implementation of BMPs would improve the quality and/or control the quantity of runoff with measures such as, detention ponds, constructed wetlands, updated drainage facilities, and construction practices which regulate erosion control.

The U.S. Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) permit program addresses water pollution by regulating point sources that discharge pollutants to waters of the United States. Created in 1972 by the Clean Water Act, the NPDES permit program grants authority to State governments to perform many permitting, administrative, and enforcement aspects of the program. Within California, the NPDES permit program is administered by the State Water Resources Control Board (SWRCB).

Construction projects that would disturb more than one acre of land, such as the project, would be subject to the requirements of General Construction Activity Stormwater Permit (Construction General Permit Order 2009-0009-DWQ), which requires operators of such construction sites to implement stormwater controls and develop a Stormwater Pollution Prevention Plan (SWPPP) identifying specific BMPs to be implemented to minimize the amount of sediment and other pollutants associated with construction sites from being discharged in stormwater runoff. Such BMPs may include straw bales, fiber rolls, and/or silt fencing structures to assure the minimization of erosion resulting from construction and to avoid runoff into sensitive habitat areas (including the Class III drainage and other waterways within the surrounding area), limit ground disturbance to the minimum necessary, and stabilize disturbed soil areas as soon as feasible after construction is completed.

IMPACT ANALYSIS

X.a) The proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. The proposed residential development would be constructed in accordance to the most recent standards set by all regulatory agencies, including but not limited to the City and State and local water quality control boards (SWRCB and NCRWQCB). Additionally, the Project would be subject to the Statewide General Construction Permit, which requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) that specifies erosion and sediment control construction and post-construction BMPs to reduce or eliminate construction-related and operational impacts on receiving water quality. Therefore, the proposed project would have a less than significant impact.

X.b) The proposed Project would result in an increased demand for water, for which the City of Lakeport has an adequate supply. The Project would not include any wells or water extraction from the immediate aquifer. Additionally, the proposed Project is anticipated to increase the amount of impervious surface at the site, however, the Project includes on-site storm water drains, so it is not anticipated that the Project would decrease groundwater supplies or interfere substantially with groundwater recharge; therefore, a less than significant impact would occur.

X.c.i) Development of the proposed project would involve development of residential dwelling buildings, parking areas and roadways covering the property. Project development would result in an increase in impervious surface area from existing conditions as a result of residential housing development, access roads, and associated land improvements. Project development would include construction and post-construction BMPs, including updated drainage facilities, to accommodate project-related increases in storm water flows designed according to current federal, State, and local regulatory standards. Therefore, the increase in impervious surface resulting from proposed residential development and associated construction would not result in substantial erosion or siltation. Additionally, Forbes Creek is located in the north of the parcel andthere will be a planned construction buffer between the creek and the proposed residential development to prevent erosion or siltation of the Creek. No alteration of the course of a river or stream, including the identified Class III drainage within the Project boundaries, would result from Project development due BMPs outlined in the SWPPP and NDPES permits. Therefore, a less than significant would occur as a result of the project.

X.c.ii-iv) Site drainage would continue to be directed towards the City's stormwater drainage system, underground storm water detention system and landscape areas, which would reduce the amount of surface runoff. Additionally, the proposed project would not be anticipated to 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, as the project would be required to implement BMPs to minimize the potential for this to occur. According to the Federal Emergency Management Agency (FEMA) Map 06033C0491D effective September 30, 2005, the project Site is primarily classified as an "Area of Minimal Flood Hazard" (Zone X), with a 0.2 percent annual chance of flood hazard and a one percent annual chance flood with average depth of less than one foot or with drainage areas of less than one square mile (FEMA, n.d.). Forbes Creek flows along the northern edge of the parcel and is designated as a Regulatory Floodway With Base Flood Elevation or Depth (Zone AE), with the northeastern portion of the parcel designated as Zone AO. The proposed Project will have a 30-foot buffer to the Floodway so that the development is not in the Flood Zone. The proposed development will not impede or redirect flows, significantly increase the amount of surface runoff, or contribute significant amounts of runoff that would exceed the capacity of stormwater drainage systems. Therefore, the project would have a less than significant impact.

X.d) As shown on the California Department of Conservation, Tsunami Maps and Data, the project Site is not located within a tsunami inundation zone. The topography of the Site and surrounding area is relatively flat, with slopes less than 10 percent (Web GIS, 2019). As described above, according to FEMA Map 06033C0491D effective September 30, 2005, the project Site is primarily classified as an "Area of Minimal Flood Hazard" (Zone X), with a 0.2 percent annual chance of flood hazard and a one percent annual chance flood with average depth of less than one foot or with drainage areas of less than one square mile (FEMA, n.d.). The proposed Project will have a buffer to the Regulatory Floodway of Forbes Creek so that the development is not in the Flood Zone. The proposed project would not be subject to flood hazard, tsunami, seiche zones, or risk the release of pollutants due to project inundation. According to the FEMA flood map and Figure 18 (Seiche Inundation Zone) of the Lakeport General Plan, the proposed Site is clear of any flooding and seiche inundation zones. The project Site is situated along slight slopes and the existing road development uses a variety of outdated systems to aid in the management of stormwater runoff. The proposed project aims to build a residential subdivision consisting of 176 single- and multifamily units. A less than significant impact would occur.

X.e) As previously discussed, the Site would require additional water resources and utilities. The proposed project consists of development of 176 single- and multifamily residential units. Per the Lakeport General Plan 2025 Policies and Programs aimed at managing water quality include:

> **Policy LU 5.1:** Water System Master Plan. Maintain and update a Water System Master Plan every five years and identify capital improvements required to meet anticipated demand.
>
> **Program S 2.2-a:** Monitor twice per year, during the dry and wet seasons, Lakeport's potable water supply for trace chemicals and other potential contaminants. Utilize updated industry-wide standards for evaluating potable water quality. Alert the County Environmental Health Department, City Council and the public if water quality hazards are

identified. Develop and implement mitigating measures to protect the public health. Responsibility: Public Works Departments

It is not anticipated that the project would decrease groundwater supplies or interfere substantially with groundwater recharge. Additionally, the proposed project would not have stormwater runoff impacts that would violate any water quality standards or waste discharge requirements. A SWPPP, listing BMPs to prevent construction pollutants and products from violating any water quality standard or waste discharge requirements, would be prepared for the proposed project, per the General Construction Activity Stormwater Permit (Construction General Permit Order 2009-0009-DWQ). Therefore, the proposed project is not anticipated to conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. No impact would occur.

MITIGATION MEASURES

No mitigation required.

FINDINGS

The proposed project would have a **Less Than Significant Impact** on Hydrology and Water Quality.

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

THRESHOLDS OF SIGNIFICANCE: The project would have a significant effect on land use and planning if it would physically divide an established community or 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.

DISCUSSION

Currently, land use in Lakeport is approximately 76 percent commercial/residential, 5 percent industrial, and 19 percent open space/governmental/agriculture. Marketing efforts promote Lakeport's appeal as a vacation and recreation destination. In recent years City leaders have emphasized various economic development strategies in an effort to make the City the focal point of economic and community activity for the County and the region.

The proposed Project involves the construction of 176 single- and multifamily residential units along with internal roads. The Project site is currently vacant and designated as Residential per the City of Lakeport General Plan, with the zoning as R-1 (Low Density Residential). The Project site is surrounded by vacant land to the north, east, and the west, with single-family residences immediately south and southeast of the site. The area to the west is zoned and designated as Open Space. The following entitlements are proposed as part of the Project:

- General Plan Amendment Residential to High Density Residential
- Zone Change R-1 to R-3
- Planned Development Combining District
- Tentative Subdivision Map

IMPACT ANALYSIS

XI.a) The proposed Project consists of a residential development on a parcel that is currently vacant and designated as Residential. The proposed Project will not divide an existing community; rather, it will extend an existing one. Therefore, there would be no impact as a result of the proposed Project.

XI.b) The proposed Project would not conflict with any applicable land use plan, policy, or regulation. The proposed Project is located in a predominately residential area and involves construction of residential housing. The Project, as proposed, does not conflict with Forbes Creek that flows through the northern portion of the parcel, to which the residential development will maintain a buffer. The Project also does not conflict with any applicable habitat or natural community conservation plan and would remain consistent with local land use and zoning policies, no impact would occur.

MITIGATION MEASURES

No mitigation required.

FINDINGS

The proposed project would have **No Impact** on Land Use and Planning.

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

THRESHOLDS OF SIGNIFICANCE: The project would have a significant effect on mineral resources if it would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state or 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.

DISCUSSION

The proposed project is not located in an area of known rock, aggregate, sand, or other mineral resource deposits of local, regional, or State residents. In addition, as supported by the City of Lakeport's General Plan, there are no mineral extraction or other mining operations at present within the Lakeport city limits or Sphere of Influence. Sand, gravel, and borax deposits are extracted in the Scotts Valley and Big Valley Areas, approximately 20 miles from the City. These mining operations have a significant impact on ground water capacity, siltation of streams, and highway traffic. The current Lakeport General Plan prohibits any mining or mineral extraction activities within the City and calls for the City to work with the County of Lake to discourage such land uses within the City's Sphere of Influence (City General Plan, 2009).

IMPACT ANALYSIS

XII.a-b) The project area does not contain mineral resources that are of value locally, to the region, or to residents. The project area is not identified as a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Therefore, the proposed project would not interfere with materials extraction or otherwise cause a short-term or long-term decrease in the availability of mineral resources. No impact would occur.

MITIGATION MEASURES

No mitigation required.

FINDINGS

The proposed project would have **No Impact** on Mineral Resources.

XIII. NOISE. Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c) For a project located within the vicinity of 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?	☐	☐	☐	☒

THRESHOLDS OF SIGNIFICANCE: The project would have a significant effect on noise if it would 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; or generation of excessive groundborne vibration or groundborne noise levels; or expose people residing or working in the project area to excessive noise levels (for a project located within the vicinity of a private airstrip or an airport or an airport land use plan, or where such as plan has not been adopted, within two miles of a public airport or public use airport).

DISCUSSION

As a result of project development, increased noise levels at the site would be anticipated during the project's construction phases, as project construction would require the use of heavy machinery to prepare the site for the commercial development. However, once construction is completed, it is anticipated that the proposed residential development would not result in a substantial permanent increase in noise at the site, since residential activities to the south and southeast already exist. Currently, the main sources of noise in the surrounding areas include traffic on local roadways, residential noise (lawn movers, audio equipment, voices, etc.). As noted in the City's General Plan, the primary noise generators within the City of Lakeport are vehicular traffic, boaters on Clear Lake, and events at the race track at the County Fairgrounds (2009). Traffic noise volume depends primarily on traffic speed, volume, and vehicle type. The main motor vehicle noise source is tire noise, which increases with speed.

Certain land uses are particularly sensitive to noise and vibration, including residential, school, and open space/recreation areas where quiet environments are necessary for enjoyment, public health, and safety. The sensitive receptors located in the vicinity of the Site include single-family residences south and southeast of the Site. As noted in the City's General Plan, several principal streets and highways are noted that are projected to experience a significant increase in noise over 60 decibels (dBA). No principal streets, arterials, or highways are located adjacent to the Project site.

The maximum acceptable interior noise level in new residential development required by the State of California Noise Insulation Standards is a Ldn of 45, which is applied to all single family and other residential development within the City (2009). Table 21 (Noise and Land Use Compatibility Standards) included in the Noise Element of the City's General Plan includes the maximum exterior noise levels for different use types, including but not limited to residential development and schools, which have a standard of 60 dBA or less (provided below).

Table 21: Noise and Land Use Compatibility Standards

Land Use	Maximum Exterior Noise Level
Residential Development	Up to 60db
Transient Lodging: Motel and Hotel	Up to 60db
School, Library, Church, Hospital and Nursing Home	Up to 60db
Auditorium, Concert Hall, Amphitheater, Sports Arena	Up to 70db
Sports Arena, Outdoor Spectator Sports	Up to 75db
Playgrounds, Neighborhood Parks, Open Space	Up to 70db
Golf Course, cemetery	Up to 70db
Office Building, Business, Commercial & Professional	Up to 65db
Industrial, Manufacturing, Utilities	Up to 70db

The City of Lakeport includes noise regulations in Chapter 17.28 (Performance Standards) of Title 17 (Land Use, Zoning, and Signs) of the *Lakeport Municipal Code* (LMC). Within the City, excessive noise is considered a nuisance and is discouraged. Specifically, within the residential zoning districts, maximum 15-minute sound levels within any one-hour equivalent sound pressure levels (A-weighted -dBA) shall be limited to 60 dBA during the hours of 7:00am to 10:00pm and 45 dBA during the hours of 10:00pm to 7:00am. Project work would be limited to the daytime hours of 7:00am to 7:00pm, Monday through Friday and between 8:00AM and 7:00PM on Saturdays and Sundays. However, the City may allow construction between 7:00PM and 7:00AM on any day if it can be demonstrated that noise would not adversely impact the neighborhood, or in the event of necessity as determined by the Building Official.

IMPACT ANALYSIS

XIII.a) Noise levels within the project area would not be expected to significantly increase as a result of the project. Construction-related activities and the associated heavy equipment would cause temporary increase in noise, which may be high at times and exceed noise standards within proximity to the sensitive receptors (including residences) in close proximity to the site; however, these impacts would only be associated with construction and would be temporary in nature. With the implementation of Mitigation Measures NOI-1 and NOI-2, which limits when construction may occur, requires neighboring landowners be notified of construction activities, and requires equipment utilized for the project to be equipped with muffles to lessen noise impacts, a less than significant impact would occur.

MITIGATION MEASURES

NOI-1: Construction noise shall be limited through operational standards. Construction activities shall be limited to between the hours of 7:00AM and 7:00PM Monday through Friday and between

8:00AM and 7:00PM on Saturdays and Sundays. The City may allow construction between 7:00PM and 7:00AM on any day if it can be demonstrated that noise would not adversely impact the neighborhood, or in the event of necessity as determined by the Building Official. Neighboring landowners shall be notified of the anticipated construction schedule prior to the commencement of construction activities.

NOI-2: All equipment driven by internal combustion engines shall be equipped with mufflers, which are in good condition and appropriate for the equipment. The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists. At all times during project construction, stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from residences. Unnecessary idling of internal combustion engines shall be prohibited. Construction staging areas shall be established at locations that would create the greatest distance between the construction-related noise sources and noise-sensitive receptors nearest the project Site during all project construction activities, to the extent feasible. The construction contractor shall designate a "noise disturbance coordinator" who shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall be responsible for determining the cause of the noise complaint (e.g., starting too early, poor muffler, etc.) and instituting reasonable measures as warranted to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.

XIII.b) There are no proposed uses on-site that would result in excessive groundborne vibration or groundborne noise levels. As noted above, the construction phase of the project would require the use of heavy equipment, which would cause temporary groundborne vibration and groundborne noise. However, these impacts are associated with construction and would be temporary in nature. With implementation of Mitigation Measure NOISE-1, a less than significant impact would occur.

XIII.c) The project area is not located within the vicinity of private airstrip or an airport land use plan or within two miles of a public airport or public use airport. The nearest airport to the Site, Lampson Field Airport, a public use airport, is located approximately 4 miles southeast of the Site. No impact would occur.

FINDINGS

The proposed project would have a **Less Than Significant Impact with Mitigation** on Noise.

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

THRESHOLDS OF SIGNIFICANCE: The project would have a significant effect on population and housing if it would induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and/or businesses) or indirectly (e.g., through extension of roads or other infrastructure); or displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

DISCUSSION

The City of Lakeport has an estimated population of 4,774, with 2441 housing units in 2021 per data from Demographics Research Unit, California Department of Finance. According to the 2020 Housing Element of the Lakeport General Plan, the average household size is 2.15 and is projected to remain at this figure. The City plans to extend services and infrastructure in the urban boundary to accommodate growth. The number of residential, commercial, and industrial acres needed in the City of Lakeport through 2025 is based on population projections through 2025 and an analysis of vacant and under-utilized lands currently within the City limits.

Additionally, according to the 2020 Housing Element of the Lake County General Plan, Lake County has a population of more than 65,000 people with 4,806 residing in the City of Lakeport. Outlined in the Table 22 below are the projected population and housing sizes for the City of Lakeport.

Table 22: Population and Household Projections, 2000 to 2025 – City of Lakeport

	2000*	2005*	2010*	2015*	2020*	2025*
Total Population*	4,820	5,150	5,521	5,935	6,380	6,859
Households*	1,967	2,148	2,339	2,515	2,703	2,906
Average Household Size	2.36	2.36	2.36	2.36	2.36	2.36
* DOF Lake County growth rates used for the City of Lakeport through 2025. **Assumes 2000 Lakeport avg. household size of 2.36 remains constant.						

Source: 2000 U.S. Census, Department of Finance.

IMPACT ANALYSIS

XIV.a) The proposed project consists of construction of 176 single- and multifamily residential units in an area currently zoned for residential development. The proposed residential Project will provide for reliable

housing for the community and additionally provide temporary construction jobs to the local workforce. In conclusion, less than significant impact would occur.

XIV.b) The Project implementation will not displace substantial numbers of people and instead provide needed housing. Therefore, no impact would occur.

MITIGATION MEASURES
No mitigation required.

FINDINGS
The proposed project would have **Less Than Significant Impact** on Population and Housing.

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

THRESHOLDS OF SIGNIFICANCE: The project would have a significant effect on public services if it would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in 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 (a) fire protection, (b) police protection, (c) schools, (d) parks, or (e) other public facilities**.**

DISCUSSION

The proposed Project involves construction of 176 single and multifamily residential units in the western portion of the City of Lakeport. The residential development would include storm drains, on-site roadways accessing those residences, with parking and landscaping distributed around the property, as well as serving each proposed unit.

The proposed Project site is served by the Lakeport Fire Protection District. The Lakeport Fire Protection District is a special district, independent all-risk fire district, located in the county seat of Lake County, on the west shore of Clear Lake. The Lakeport Fire Protection District is approximately one mile northwest of the proposed project location.

IMPACT ANALYSIS

XV.a) As discussed above, fire protection services at the Site are currently provided by the Lakeport Fire Protection District and would continue to be with project development. The Project would be required to comply with all applicable fire and building safety codes (California Building Code and Uniform Fire Code) to ensure fire safety elements are incorporated into final Project design, including the providing designated fire lanes marked as such. Proposed interior streets will be required to provide appropriate widths and turning radii to safely accommodate emergency response and the transport of emergency/public safety vehicles. The Project will also be designed to meet Fire Department requirements regarding water flow, water storage requirements, hydrant spacing, infrastructure sizing,

and emergency access. As a result, appropriate fire safety considerations will be included as part of the final design of the Project. Less than significant would occur.

XV.b) The proposed project area is served by the City of Lakeport Police Department located one mile to the southeast. The project Site does not contain police protection facilities that would need to be altered as a result of the proposed project. The project is not expected to require closure of the road. Traffic would be diverted onto the second half-road section to allow construction of new facilities on the opposite side. The Department would not need to expand its existing service area or construct a new facility to serve the Project site. Impacts are less than significant.

XV.c) Educational services for the proposed Project will be provided by the Lakeport Unified School District (LUSD). LUSD operates four schools within the planning area; one elementary school, one middle school, one high school, as well as an alternative education center. Since the proposed Project includes the addition of 176 residential units, the number of students in the school district will increase. Development is required by state law to pay development impact fees to the school districts at the time of building permit issuance. The residential developer fee rate as of 7/2018 is $3.79 per square foot.[20] These impact fees are used by the school districts to maintain existing and develop new facilities, as needed.

While development of 176 residential units alone is not expected to require the alteration of existing or construction of new school facilities, the development will contribute to the cumulative need for increased school facilities. The timing of when new school facilities would be required or details about size and location cannot be known until such facilities are planned and proposed, and any attempt to analyze impacts to a potential future facility would be speculative. As the future new school facilities are further planned and developed, they would be subject to their own separate CEQA review in order to identify and mitigate any potential environmental impacts. Therefore, the impact is less than significant.

XV.d) City of Lakeport's Parks and Building Maintenance Division provides for the operation and maintenance of two parks within the city, Library Park and Westside Community Park. The Project will be required to pay City park facility impact fees to compensate for any service demand increase on existing parks within the Lakeport area. Impacts are less than significant.

XV.e) The proposed Project is within the land use and growth projections identified in the City's General Plan and other infrastructure studies. The Project, therefore, would not result in increased demand for, or impacts on, other public facilities such as library services. Any impacts would be less than significant.

MITIGATION MEASURES

No mitigation required.

FINDINGS

The proposed project would have a **Less Than Significant Impact** on Public Services.

[20] Lakeport Unified School District Developer Fee Rates. https://www.lakeport.k12.ca.us/Page/1025. Accessed June 2022.

XVI. RECREATION. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) 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) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

THRESHOLDS OF SIGNIFICANCE: The project would have a significant effect on recreation if it would 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 or include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

DISCUSSION

The City of Lakeport's parks and recreation facilities contribute to the connectivity, character, health and culture of the community. Lakeport is known for its popular recreational activities, such as boating, bass fishing, wakeboarding, swimming, sailing, and kayaking and is a destination for many tourists.

The proposed project area is currently in the vicinity of the following neighborhood parks and recreational facilities:

- Library Park, located approximately 1.0 miles from the proposed project area; and
- Westside Community Park, located approximately 0.1 miles away from the proposed project area.

The City of Lakeport is planning on a new recreational development located approximately 1.2 miles from the project site along a 5.3-acre area of the Clear Lake shoreline. In 2019, the California Department of Parks awarded the City of Lakeport a Proposition 68 grant for the development of the Lakefront Park at 810 North Main Street.

IMPACT ANALYSIS

XVI.a-b) The project Site is bound by low-density residential areas. The proposed residential development would include residential housing units including among landscaped areas, as well as walking paths that provide connectivity through-out the development. The proposed project would not encroach upon any existing recreational areas or any planned recreational areas. The increase of 176 housing units resulting from the Project would have a relatively small impact on existing recreational facilities. The Project will be required to pay City park facility impact fees. Therefore, impacts are considered less than significant impacts.

MITIGATION MEASURES
No mitigation required.

FINDINGS
The proposed project would have Less Than Significant Impacts on Recreation.

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

THRESHOLDS OF SIGNIFICANCE: The project would have a significant effect on transportation if it would conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities; conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b); substantially increase hazards due to a geometric design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or result in inadequate emergency access.

DISCUSSION
As previously discussed, the proposed Project involves development of a 176-unit single and multifamily residential subdivision on a 15.16-acre parcel. The residential development would include on-site roadways accessing those units, with storm drains, parking and landscaping distributed around the property. Access to the residential development would be primarily from Fenway Street or Yankee Avenue.

Roads within the City limits are maintained by the Streets Division of the City of Lakeport Public Works Department, in addition to curb and gutter, drainage systems and structures, and right-of-way improvements within the City, including but not limited to asphalt overlays and repairs, street signs, pavement markings, culvert maintenance and replacement, and other street related projects (City of Lakeport Public Works, n.d.).

The City of Lakeport is a member of the Lake Area Planning Council (APC), which is the Regional Transportation Planning Agency (RTPA) for the Lake County region. Primarily, the RTPA ensures that appropriate local transportation planning is administered in accordance with the Transportation Development Act (TDA), the State Transportation Improvement Program (STIP), and the Service Authority for Freeway Emergencies (SAFE) program. (Lake APC, n.d.).

As noted in the City's 2025 General Plan, "*Lakeport's roadway network is defined and constrained by two barriers: Clear Lake on the East and State Highway 29 on the West. The majority of the city is laid out in a rectangular grid pattern which is interrupted by hilly terrain. In these hilly areas the street system becomes discontinuous and through traffic is difficult. Many of the City's streets are narrow, not improved to current standards, and will require upgrading…Although construction of the State Highway 29 freeway has reduced congestion downtown, it is now a barrier inhibiting east-west circulation through the Planning Area*" (2009).

A Traffic Impact Analysis was performed on behalf of the proposed project by Ruettgers & Schuler Civil Engineers (April 2022). The following discussion and impact analysis are directly referencing this technical report (see Appendix E for full report and references). The Traffic Impact Analysis was conducted for a total of 176 residential units (48 single-family housing and 128 multifamily housing units). The proposed project is projected to generate 101 net total AM peak hour trips, 125 net total PM peak hour trips and 1,410 net total daily trips.

A level of service (LOS) and vehicle miles traveled (VMT) analysis was conducted for the proposed project. LOS is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, LOS A represents free flow conditions and LOS F represents forced flow or breakdown conditions.

A capacity analysis of the study intersections was conducted using Synchro software from Trafficware. This software utilizes the capacity analysis methodology in the Transportation Research Board's Highway Capacity Manual 2010 (HCM 2010). The analysis was performed for each of the following traffic scenarios.

- Existing (2022)
- Existing (2022) + Project
- Future (2042)
- Future (2042) + Project

Level of service (LOS) criteria for unsignalized and signalized intersections, as defined in HCM 2010, are presented in the tables below. The City of Lakeport and Lake County Regional Transportation Plan designate LOS D as the minimum acceptable intersection peak hour level of service. The following intersections in the vicinity of the project site have been included in the intersection level of service (LOS) analysis:

1. Fenway Ave & Westside Park Rd
2. Wrigley St & Westside Park Rd
3. Parallel Dr & Westside Park Rd

4. Parallel Dr & Lakeport Blvd
5. SR 29 SB Offramp/SR 29 SB Onramp & Lakeport Blvd
6. SR 29 NB Onramp/SR 29 NB Offramp & Lakeport Blvd
7. Bevins St & Lakeport Blvd
8. S Main St & Lakeport Blvd

As stated in the City's 2025 General Plan, traffic volumes are expected to increase as the population increases in both the City of Lakeport and County of Lake. In addition, current traffic volumes continue to increase on arterials and many collectors, particularly in the downtown area (2009).

IMPACT ANALYSIS

XVII.a) The proposed project is not anticipated to conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities, as several improvements would occur. Although traffic interruptions may occur during the construction phase of the project, this impact would be temporary in nature.

Existing peak hour turning movement counts were obtained in April 2022 and compared to pre-COVID turning movement volumes. It was determined that no adjustment factor was necessary due to traffic being generally similar to historical count data with applicable growth rates. Average annual growth rates of 1.45 percent was applied to the 2022 peak hour volumes to estimate peak hour volumes for the year 2042. These growth rates were developed based on coordination with Caltrans and Lake APC. Cumulative volumes were estimated based on information provided by the City of Lakeport regarding build year, land use, size and location for each pending development.

The proposed project will participate in the cost of off-site improvements through payments to the City and/or County adopted traffic impact fee program. The program's contribution to a transportation improvement funding mechanisms or as a fair share contribution towards a cumulative impacted facility should be considered sufficient to address the project's fair share towards mitigation measure(s) designed to alleviate cumulative project impacts. Intersection improvements needed by the year 2042 to maintain or improve the operational level of service of the street system in the vicinity of the project are presented in Table 23. Shown also is the project's percent share of the cost for these improvements.

Table 23: Future Intersection Improvements and Local Mitigation

#	Intersection	Mitigation Required by 2042	Percent Share
5	SR 29 SB Ramps & Lakeport Ave	Install Signal	29.49%
6	SR 29 NB Ramps & Lakeport Ave	Install Signal	19.66%
7	Bevins St & Lakeport Ave	Install Signal	13.88%

Additionally, the proposed project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise, decrease the performance or safety of such facilities. A less than significant impact would occur.

XVII.b) The proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b), which state:

> *"(1) Land Use Projects. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact", and*
>
> *"(2) Transportation Projects. Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, a lead agency may tier from that analysis as provided in Section 15152."*

The analysis utilized map-based screening with a VMT metric of home-based VMT per resident. The project is located in a low VMT area (more than 14.3% below Countywide average). Utilizing the Lake County VMT screening tool, 15% reduction threshold screening was performed for years 2022 and 2030. The screening information and results are shown in Table 24 below.

Table 24: Total VMT

Year	TAZ VMT	Countywide Average VMT	Project Threshold	Percent Difference	Minimum Reduction
2022	10.7	30.1	25.6	-64.5%	-14.3%
2030	12.2	33.7	28.7	-63.8%	-14.3%

As shown in Table 23, the overall effect of the project reduces the regional VMT. This is expected as the project's land uses are expected to be primarily local-serving reducing regional VMT. The TAZ VMT for the project is 10.7 and 12.2 for 2022 and 2030, respectively. This average is 64.5% and 63.8% lower than the countywide average VMT for 2022 and 2030, respectively. Therefore, the project will not result in a significant transportation impact under CEQA.

XVII.c) The roadways adjacent to the proposed Project are pre-existing and a significant change in use is not proposed. The proposed improvements would be designed in accordance to all City standards to ensure the features would be safe and would not substantially increase hazards due to a geometric design feature such as sharp curves or dangerous intersections. No impact would occur.

XVII.d) The proposed Project would not result in inadequate emergency access on the existing road system. As the Site and surrounding vicinity are currently developed to meet pertinent design criteria to

provide adequate emergency access in accordance with all design standards and requirements, no impact would occur.

MITIGATION MEASURES

No mitigation required.

FINDINGS

The proposed project would have a **Less Than Significant Impact** on Transportation.

XVIII. TRIBAL CULTURAL RESOURCES. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	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 §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 §5020.1(k)?	☐	☐	☐	☒
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code §5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code §5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Thresholds of Significance: The project would have a significant effect on Tribal Cultural Resources if it would cause a substantial adverse change in the significance of a cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Places or in a local register of historical resources as defined in Public Resources Code §5020.1(k), or is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code §5024.1.

DISCUSSION

As discussed under Section V, Cultural Resources, above, a Cultural Records Search was conducted by the Northwest Information Center (NWIC) for the proposed Project on April 20, 2022 by reviewing pertinent NWIC base maps that reference cultural resources records and reports, historic-period maps, and literature for Lake County, which included a review of all study reports on file within a one-quarter mile radius of the project area (NWIC File No. 21-1389) (see Appendix D).

On March 28, 2022, in response to request for notification of projects pursuant to Assembly Bill 52 (Public Resources Code 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 5097.94), the City of Lakeport provided notification and provided 90-days to request consultation to the Scotts Valley Band of Pomo Indians and Big Valley Band of Pomo Indians regarding the Parkside Residential Project (proposed project). Additionally, the City of Lakeport sent a "Request for Review" to both the Big Valley Band of Pomo Indians and the Scotts Valley Band of Pomo Indians in a letter dated October 19, 2021 with a request for response by November 2, 2021. As of the date of this Initial Study, no responses or other communications have been received from the Native community regarding the project.

IMPACT ANALYSIS

XVIII.a.i) As discussed under Section V, Cultural Resources, in order for a cultural resource to be deemed "important" under CEQA and thus eligible for listing on the California Register of Historic Resources (CRHR), it must meet at least one of the following criteria (as set forth in Section 5024.1(c) of the Public Resources Code):

1. is associated with events that have made a significant contribution to the broad patterns of California History and cultural heritage; or
2. is associated with the lives of persons important to our past; or
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possess high artistic value; or
4. has yielded or is likely to yield, information important to prehistory or history (ALTA, 2019).

As provided in the Cultural Records Search, The records search showed that there has been one cultural resource study, S-31281, that covers approximately 100% of the proposed project area (Flaherty 2005). The Project area contains no recorded archaeological resources. The State Office of Historic Preservation Built Environment Resources Directory (OHP BERD) lists no recorded buildings or structures within or adjacent to the proposed project area. In addition to these inventories, the NWIC base maps show no recorded buildings or structures within the proposed project area. While the proposed project area is described as within the tribal territory of the Kulanapo, there were no specific references to Native American resources in or adjacent to the proposed Project area found in the ethnograpphic literature (Barrett 1908:18, Stewart 1935). No impact would occur.

XVIII.a.ii) As described above, on March 28, 2022, in response to request for notification of projects pursuant to Assembly Bill 52 (Public Resources Code 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 5097.94), the City of Lakeport provided notification and provided 90-days to request consultation to the Scotts Valley Band of Pomo Indians and Big Valley Band of Pomo Indians regarding the Parkside Residential Project (proposed project). Additionally, the City of Lakeport sent a "Request for Review" to both the Big Valley Band of Pomo Indians and the Scotts Valley Band of Pomo Indians in a letter dated October 19, 2021 with a request for response by November 2, 2021. As of the date of this Initial Study, no responses or other communications have been received from the Native community regarding the project.

Although no archaeological resources have been identified, it does not preclude the possibility of such resources, including cultural or Tribal cultural resources or human remains, existing within the Project area. Due to the potential for unrecorded Native American and archaeological resources and human remains at the Site, Mitigation Measures CULT-1 and CULT-2 are included, which describes the prescribed protocol in the event inadvertent archaeological discovery(ies) are made, including the discovery of human remains. With mitigation incorporated, a less than significant impact would occur.

MITIGATION MEASURES

Refer to Mitigation Measures CULT-1 through CULT-2 in Section V, Cultural Resources, above.

FINDINGS

The proposed project would have a **Less Than Significant Impact with Mitigation Incorporated** on Tribal Cultural Resources.

XIX. UTILITIES AND SERVICE SYSTEMS. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, State, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

THRESHOLDS OF SIGNIFICANCE: The project would have a significant effect on utilities and service systems if it would require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the

construction or relocation of which could cause significant environmental effects; not have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years; result in a determination by the wastewater treatment provider, which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments; 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; or not comply with federal, State, and local management and reduction statutes and regulations related to solid waste.

DISCUSSION

The City of Lakeport Public Works Department serves the incorporated Lakeport community. The Department consists of several divisions which are responsible for water, sewer, underground utilities (installation and maintenance), storm drain system maintenance, and public park maintenance and operations.

Water Service

The Water Division continuously monitors the quality of the water that is provided to Lakeport's water customers and holds the responsibility of providing safe drinking water as its highest priority. The Water Division operates and maintains four wells, a surface water treatment facility, and distribution system to individual meters. The Division also works with developers and customers on water service issues during project design, during service installation and to address future needs. None of the grading that occurs along the project Site would involve reconstruction of the water main or displacement of any of the existing water service utilities. The proposed project is not expected to impact these existing utilities.

Sewer Service

The Sewer Division of the Lakeport Public Works Department is responsible for the safe collection, treatment, and disposal of sewage and wastewater generated by residential, commercial and industrial customers inside the City of Lakeport. All of the City's wastewater activities are done in a manner compliant with State and County health and safety regulations. The primary directive of the Sewer Division is to ensure that Lakeport's streams, waterways and Clear Lake are free from disease-causing bacteria and viruses that are harmful to the public health. The Lakeport sewer system involves approximately 2,200 connections, serving over 5,000 customers, which accounts for approximately eight percent of the entire population of Lake County. The Division operates and maintains nearly 40 miles of sewer main lines, eight sewer lift stations, and a secondary treatment and disposal facility (City Public Works, Sewer Division, n.d.).

Additionally, in 2018, Lakeport adopted the Sewer System Management Plan (SSMP). The SSMP is a document that describes the activities in which a wastewater agency engages to manage its collection system effectively. The SSMP is intended to meet the requirements of both the Central Valley Regional Water Quality Control Board (CVRWQCB) and the Statewide General Waste Discharge Requirements GWDR. The State Water Resource Control Board (SWRCB) adopted Water Quality Order No. 2006- 0003-DWQ at its meeting on May 2, 2006, which required all public wastewater collection system agencies in California with sewer systems greater than one mile in length to be regulated under GWDR.

The Project includes extending water and sewer systems from the existing Phase I of the Parkside Subdivision to serve site development. The Project, as proposed, would not include any updates to the utilities managed by the Sewer Division.

Storm Drainage System/Wastewater

The Streets Division of the City of Lakeport Public Works Department provides for the maintenance and minor construction of all City streets, curb, gutter, drainage systems structures, and right-of-way improvements. This includes asphalt overlays and repairs, street signs, pavement markings, culvert maintenance and replacement, and other street related projects. The Streets Division also provides many additional public service functions, including providing traffic control devices for parades and other special events. The wastewater operations and service entity is governed by a Board of Directors, which also acts as the City Council (City Public Works, Streets Division, n.d.).

Within the Streets Division there is the Underground Utility Construction staff which installs and maintains new and existing water and sewer systems to private property, and within dedicated easements throughout the City. This division works on emergency water breaks and sewer stoppages and schedules repair or replacement of water distribution and collection systems deficiencies.

The project would require some grading of the property, that would include modifying the existing topography of the property with no significant export of materials. All grading for the property, which includes all three phases of the project, would be completed at the time of the original grading permit for the property.

Solid Waste Service

Lakeport Disposal provides solid waste and recycling collection services to commercial, residential, and industrial customers within the incorporated limits of Lakeport. The nearest active landfill is Eastlake Landfill (17-AA-0001) in Clearlake, California, located approximately 28 miles from the project Site. The Eastlake Landfill has a daily permitted disposal of approximately 200 tons per day. Furthermore, the Eastlake Landfill has a maximum permitted capacity of 6.05 million cubic yards and a remaining capacity of approximately 2.86 million cubic yards. The Eastlake Landfill is expected to remain active for another five years, until the year 2023 (CalRecycle, 2018). Solid waste generated by the proposed Project during construction activities would be collected and transported to an active and permitted landfill.

IMPACT ANALYSIS

XIX.a) As described in Impact X-b, there is sufficient water supply available to serve the Project. The Project would not require the construction or expansion of any new water or wastewater facilities and the proposed residential use has been anticipated by the City's adopted planning documents. Water usage for the construction and implementation of the project would be minimal and existing entitlements and resources have the capacity to serve any water needs for the project. Electric power: The Project will require electric power, and telecommunications; however, no impact to these utilities is expected.

XIX.b-c) As discussed above, the water required for the Project has been planned for by the City's adopted planning documents. Water usage for the construction and implementation of the project would be minimal and existing entitlements and resources have the capacity to serve any water needs for the project and have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years. The project site is currently served by the City of Lakeports Water Service District for municipal water service. There are no planned residential developments in the project area and thus the population is not expected to increase as a result of the project. Therefore, the proposed project would not require additional or expanded infrastructure relating to municipal water or wastewater treatment. The projected water use for the proposed project is within the existing allocation and would not require new or expanded entitlements. There is a minimal increase in wastewater as a result of the project. A less than significant impact would occur.

XIX.d-e) The Project site is currently vacant and would be served by a landfill (Eastlake Landfill) with sufficient permitted capacity to accommodate the project's anticipated solid waste disposal needs at full project build-out.

Proposed Project construction would generate solid waste in the form of construction debris that would need to be disposed of at the Eastlake Landfill Facility. Construction debris includes concrete, asphalt, wood, drywall, metals, and other miscellaneous and composite materials. Much of this material would be recycled and salvaged to the maximum extent feasible. Materials not recycled would be disposed of at local landfills. The Project site is currently undeveloped and would not require any demolition.

The proposed Project would construct up to 176 residential dwellings and using the household size in the 2020 Lakeport Housing Element, would provide housing for 378.4 persons (176 x 2.15 people per household). According to CalRecycle, the state of California has a per resident disposal rate of 6.7 pounds/resident/day, or 2,445.5 pounds/resident/year.[21] Based on that figure, the Project would produce approximately 5,100,652 pounds of solid waste per year (2,445.5 pounds X 378.4 persons = 925,377 pounds). This equates to approximately 2,535.3 pounds per day (925,377 pounds / 365 days = 2,535.3 pounds) or approximately 1.27 tons per day (TPD).

As previously described, the existing landfill is permitted to receive a maximum of 200 TPD. The Project's contribution would be approximately 0.635% of the daily maximum permitted capacity of 200 TPD. As such, there is adequate capacity to accommodate the solid waste demands of the proposed Project.

Additionally, the proposed Project would be required to comply with applicable State and local regulations, including regulations pertaining to disposal of recyclable materials. With adequate landfill capacity at existing landfills and compliance with regulations, a less than significant impact would occur.

XIX.f) Disposal of construction waste would comply with federal, State, and local statutes and regulations related to solid waste. As mentioned above, solid waste generated by the proposed project during

[21] CalRecycle. California's 2019 Per Capital Disposal Rate Estimate. https://calrecycle.ca.gov/lgcentral/goalmeasure/disposalrate/mostrecent/. Accessed June 2022.

construction activities would be collected and transported to an active and permitted landfill. The nearest active landfill has capacity for the proposed projects generated waste and is expected to remain active for another five years, until the year 2023. No impact would occur as a result of the project.

MITIGATION MEASURES

No mitigation required.

FINDINGS

The proposed project would have a **Less Than Significant Impact** on Utilities and Service Systems.

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

THRESHOLDS OF SIGNIFICANCE: The project would have a significant effect on wildfire if it would impair an adopted emergency response plan or emergency evacuation plan; 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; require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or 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 challenges.

DISCUSSION

The combination of vegetation, topography, climate, and population density create a significant potential for hazards from wildfires within the Lakeport Planning Area. There are many vacant and undeveloped areas within the City and its Sphere of Influence, particularly on the west side of Highway

29 and the northern portions of the City, including mobile home parks. Rugged topography and highly flammable vegetation make residential development potentially unsafe unless adequate fire safety measures are taken (City General Plan, 2009).

The area within the City is served by the Lakeport Fire Protection District. Any location within City limits can be reached within three to five minutes. Locations within the Sphere of Influence can be reached in five to seven minutes. This rapid response time can be attributed to the combination of full-time staff and emergency personnel in the Lakeport Fire Protection District and a large number of volunteers.

The CalFire Fire Hazard Severity Zones Map was developed to guide construction standards for building permits, use of natural hazard disclosure at time of sale, guide defensible space clearance around buildings, set property development standards, and considerations of fire hazard in city and county general plans. The project area is located in a Local Responsibility Area per CalFire's Fire Hazard Severity Zone (FHSZ) Viewer. Per Lake County, the site is within a 'High' FHSZ.

The proposed project involves construction of a residential subdivision consisting of 176 single and multifamily units on a 15.16acre parcel in the southwestern portion of the City of Lakeport. The residential development would include on-site internal roadways accessing those units, with parking and landscaping distributed around the property. The project site would be accessed by Fenway Street or Yankee Avenue. The site design contains curb, gutter, sidewalk and paved parking areas. The area to the north, west, and east of the site is currently vacant, with the area to the southeast and south consisting of single-family residences.

IMPACT ANALYSIS

XX.a) The City of Lakeport is developing an emergency response plan. The streets surrounding and adjacent to the project Site are mainly used by the residential areas in the vicinity of the site and are not main thoroughfares through the City. Construction activities could result in minor delays for emergency vehicles or law enforcement; however, during construction, Fenway Street and Yankee Avenue would remain open, although one-way controlled traffic may be necessary. This would ensure the passage of emergency and passenger vehicles in the event of an emergency, including wildfire. The project related activities would not be anticipated to significantly impact the capacity of the street system, the project would have a less than significant impact.

XX.b-c) The proposed residential development will be located along Fenway Street and Yankee Avenue, in close proximity to Parallel Drive and the onramps to State Route 29. The close proximity of State Route 29 provides a quick access for emergency evacuation and would not exacerbate wildfire risk. The project is in a growing residential area, and the addition of a residential subdivision would not exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.

XX.d) The area is flat in nature which would limit the risk of downslope flooding and landslides, and limit any wildfire spread. Furthermore, the project would not expose people or structures to significant risks, including drainage challenges. Therefore, there would be no impact on wildfire risk or spread of pollutants from such thereafter. Implementation of the project's grading, road, any stormwater improvements

would develop the slopes on the property and project features will be stabilized during construction by use of construction BMPs and will be revegetated once construction is complete. Additionally, implementation of the project's grading and stormwater features would help stabilize the project area from negative impacts related to stormwater runoff, as the project proposes features to better manage, direct, and contain runoff, and has been designed to maintain stormwater flows within the project area. No impact would occur.

MITIGATION MEASURES

No mitigation required.

FINDINGS

The proposed project would have a **Less Than Significant Impact** on Wildfire.

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

THRESHOLDS OF SIGNIFICANCE: The project would have a significant effect on mandatory findings of significance if it would have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory; 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.); or have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly.

DISCUSSION

The proposed project involves development of a residential subdivision consisting of 176 single and multifamily units on an approximately 15.16acre parcel, along with associated storm drains, parking, and access roads.

IMPACT ANALYSIS

XXI.a) The analyses of environmental issues contained in this Initial Study indicate that the proposed Project is not expected to have substantial impact on the environment or on any resources identified in the Initial Study. Mitigation measures have been incorporated as described in each impact area to reduce all potentially significant impacts to *less than significant*.

XXI.b) CEQA Guidelines Section 15064(i) 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. Due to the nature of the Project and consistency with environmental policies, incremental contributions to impacts are considered less than cumulatively considerable. All Project- related impacts were determined to be either less than significant, or less than significant after mitigation. The proposed Project would not contribute substantially to adverse cumulative conditions, or create any substantial indirect impacts (i.e., increase in population could lead to an increased need for housing, increase in traffic, air pollutants, etc.). Due to buildout of the area and existing land constraints, it is not anticipated that further substantial commercial or residential development will occur in the area in the foreseeable future. As such, Project impacts are not considered to be cumulatively considerable given the lack of proposed new development in the area and the insignificance of Project-induced impacts. The impact is therefore *less than significant.*

XXI.c) The project would not generate any potential direct or indirect environmental effect that would have a substantial adverse impact on human beings including, but not limited to, exposure to geologic hazards, air quality, water quality, traffic hazards, noise, and fire hazards. With mitigation incorporated, all potential impacts associated with the proposed project would be reduced to a less-than-significant level. A less than significant impact would occur.

MITIGATION MEASURES

No mitigation required.

FINDINGS

The proposed project would have a **Less Than Significant Impact** on Mandatory Findings of Significance.

FIGURES

Figure 1 **Location Map**

Figure 2 **Site Plan**

APPENDIX A

Mitigation and Monitoring Reporting Program (MMRP)

APPENDIX B

Air Quality, Health Risk Analysis, Greenhouse Gas, and Energy Technical Memorandum

APPENDIX C

Biological Resources Assessment

APPENDIX D

CHRIS Results Letter

APPENDIX E

Traffic Impact Study

Appendix A – Mitigation and Monitoring Reporting Program (MMRP)

MITIGATION MONITORING AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) has been formulated based upon the findings of the Initial Study/Mitigated Negative Declaration (IS/MND) for the City of Lakeport's Parkside Residential Project (proposed Project). The MMRP lists mitigation measures recommended in the IS/MND for the proposed Project and identifies monitoring and reporting requirements as well as conditions recommended by responsible agencies who commented on the project.

The first column of the Table identifies the mitigation measure. The second column, entitled "Party Responsible for Implementing Mitigation," names the party responsible for carrying out the required action. The third column, "Implementation Timing," identifies the time the mitigation measure should be initiated. The fourth column, "Party Responsible for Monitoring," names the party ultimately responsible for ensuring that the mitigation measure is implemented. The last column will be used by the City to ensure that individual mitigation measures have been monitored.

Mitigation Measure	Party Responsible for implementing Mitigation	Implementation Timing	Party Responsible for Monitoring	Verification (name/date)
AIR-1 During construction activities, the following Best Management Practices (BMPs) shall be implemented to control dust: • Exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 miles per hour. • All roadways, driveways, and sidewalks shall be paved as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations	**Construction Contractor**	**During Construction Activities**	**During Construction Activities**	**Project Applicant**

[CCR]). Clear signage shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • A publicly visible sign shall be posted with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours of a complaint or issue notification.				
AIR-2 Before a construction permit is issued for the proposed project, the project applicant, project sponsor, or construction contractor shall submit construction emissions minimization plans to the City of Lakeport for review and approval. The construction emissions minimization plans shall provide reasonably detailed compliance with the following requirements: **(1)** Where portable diesel engines are used during construction, all off-road equipment shall have engines that meet either EPA or CARB Tier 4 Final off-road emission standards except as otherwise specified herein. If engines that comply with Tier 4 Final off-road emission standards are not commercially available, then the construction contractor shall use the next cleanest piece of off-road equipment (e.g., Tier 4 Interim) that is commercially available. For purposes of this project design feature, "commercially available" shall mean the equipment at issue is available taking into consideration factors such as (i) critical-path timing of construction; and (ii) geographic	**Project Applicant**	**Prior to Construction Activities**	**Project Applicant**	

proximity to the project site of equipment. If the relevant equipment is determined by the project applicant to not be commercially available, the contractor can confirm this conclusion by providing letters from at least two rental companies for each piece of off-road equipment that is at issue.				
BIO-1 1. BIO-1 To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August. **2.** If it is not possible to schedule construction between September and January, pre-construction surveys for nesting birds shall be conducted by a qualified biologist to ensure that no active nests will be disturbed during the implementation of the Project. A pre-construction survey shall be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has otherwise failed for non-construction related reasons.	**Project Applicant**	**Prior to Construction Activities**	**Project Applicant**	
CULT-1 If previously unidentified cultural resources are encountered during project implementation, any persons on-site shall avoid altering the materials and their stratigraphic context. A qualified professional archaeologist shall be contacted to evaluate the situation. Project personnel shall not collect cultural resources. [Prehistoric resources include, but are not limited to, chert or obsidian flakes, projectile points, mortars, pestles, and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic resources include stone or abode foundations or walls; structures and remains with square nails; and refuse deposits or bottle dumps, often located in old wells or privies.]	**Project Applicant**	**During Construction**	**Project Applicant**	

CULT-2 If human remains are encountered on-site, all work must stop in the immediate vicinity of the discovered remains and the County Coroner and a qualified archaeologist must be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American and prehistoric, the Native American Heritage Commission (NAHC) must be contacted by the Coroner so that a "Most Likely Descendant" can be designated and further recommendations regarding treatment of the remains is provided.	**Project Applicant**	**During Construction**	**Project Applicant**	
NOI-1 Construction noise shall be limited through operational standards. Construction activities shall be limited to between the hours of 7:00AM and 7:00PM Monday through Friday and between 8:00AM and 7:00PM on Saturdays and Sundays. The City may allow construction between 7:00PM and 7:00AM on any day if it can be demonstrated that noise would not adversely impact the neighborhood, or in the event of necessity as determined by the Building Official. Neighboring landowners shall be notified of the anticipated construction schedule prior to the commencement of construction activities.	**Project Applicant**	**During Construction**	**Project Applicant**	
NOI2 All equipment driven by internal combustion engines shall be equipped with mufflers, which are in good condition and appropriate for the equipment. The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists. At all times during project construction, stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from residences. Unnecessary idling of internal combustion engines shall be prohibited. Construction staging areas shall be established at locations that would create the greatest distance between the construction-related noise sources and noise-sensitive receptors nearest the project Site during all project construction activities, to the extent feasible. The construction contractor shall designate a "noise disturbance coordinator" who shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall be responsible for	**Project Applicant**	**During Construction**	**Project Applicant**	

	determining the cause of the noise complaint (e.g., starting too early, poor muffler, etc.) and instituting reasonable measures as warranted to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.				

Appendix B – Air Quality, Health Risk Analysis, Greenhouse Gas and Energy Technical Memorandum

To:	Emily Bowen, LEED AP, Principal Environmental Planner Crawford & Bowen Planning, Inc. 113 N. Church Street, Suite 302 Visalia, CA 93291 emily@candbplanning.com	From:	Johnson Johnson and Miller Air Quality Consulting Services Richard Miller, Air Quality and Climate Change Specialist rmiller.jjm.environmental@gmail.com

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Lakeport Waterstone Residential Project

Date: April 6, 2022

Subject: Air Quality, Health Risk Analysis, Greenhouse Gas, and Energy Technical Memorandum

This Air Quality, Greenhouse Gas Emissions, and Energy Analysis Report was prepared to evaluate whether the estimated criteria air pollutant, ozone precursor, toxic air contaminant (TAC), and/or greenhouse gas (GHG) emissions generated from construction and/or operation of the proposed Lakeport Waterstone Residential Project (proposed project) would cause significant impacts to air resources in the project area. The respective analyses were conducted within the context of the California Environmental Quality Act (CEQA) (California Public Resources Code [PRC] § 21000, et seq.). Since the Lake County Air Quality Management District (LCAQMD) has no project-level thresholds of significance for the Lake County Air Basin (LCAB), thresholds of significance from the Bay Area Air Quality Management District (BAAQMD) were referenced where applicable.

Project Location and Description

The proposed project consists of the construction and development of a mixed residential project of the City of Lakeport. The project site is located a vacant lot located west of the intersection of Wrigley Street and Yankee Avenue in the City of Lakeport. The Assessor's Parcel Number (APN) associated with the project site is 005-030-51. The project includes the following components:

- 176 total dwelling units
    - 48 Custer Houses (single-family detaching housing)
    - 128 Apartments (low-rise multifamily housing)
- Community Facilities Leasing Office
- Related parking and landscaping.

The site plan for the proposed project and project location are included as part of Attachment A.

Local Setting

The City of Lakeport adopted its 2025 General Plan in August of 2009. The General Plan's Housing Element was updated in 2014 in accordance with the State's requirements and

amendments to the City's Sphere of Influence were completed in 2015.[1] The 2025 General Plan[2] includes the following applicable goals and policies related to improving air quality or increasing energy conservation that may also co-benefit climate change impacts:

Air Quality

- **Objective C 3:** To maintain good air quality in Lakeport and continue to have attainment status.
    - **Policy C 3.1: High Air Quality Standard.** Maintain a high air quality standard in Lakeport to protect the public health.
    - **Policy C 3.2: Sensitive Receptors.** Ensure that the air quality impacts of projects located in proximity to sensitive receptors are adequately mitigated. Discourage land uses producing adverse air quality impacts from locating near sensitive receptors.
    - **Policy C 3.3: Naturally Occurring Asbestos.** The City shall protect public health from naturally occurring asbestos by requiring mitigation measures to control dust and emissions during construction, grading, quarrying, or surface mining operations.[3]

Community Design Element

- **Objective CD 1:** To preserve and enhance the quality and character of existing and future residential neighborhoods in Lakeport.
    - **Policy CD 1.1: Higher Densities.** New residential development should be built at higher densities in clustered development patterns that minimize infrastructure requirements and maximize open space.

Energy Conservation

- **Objective C 5:** To reduce demand for electricity and increase energy efficiency.
    - **Policy C 5.1: Energy Efficiency.** Reduce energy waste and peak electricity demand through energy efficiency and conversation in homes and businesses.
    - **Policy C 5.2: City Use of Green Technologies.** Integrate energy efficiency, conversation, and green building practices into all City functions.
    - **Objective C 6:** To increase renewable resource use.
    - **Policy C 6.1: Renewable Energy Resources.** Preserve opportunities for development of renewable energy resources.
    - **Policy C 6.2: Renewable Technologies Incentives.** Facilitate renewable technologies through streamlined planning and development rules, codes and processing, and other incentives. [4]

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1 Lakeport General Plan. 2009. City of Lakeport General Plan 2025. August. Website: https://www.cityoflakeport.com/community_development/_planning/general_plan.php. Accessed March 1, 2022.
2 Lakeport General Plan. 2009. City of Lakeport General Plan 2025. August. Website: https://www.cityoflakeport.com/community_development/_planning/general_plan.php. Accessed March 1, 2022.
3 Lakeport General Plan. 2009.. Conservation Element. August. Website: https://www.cityoflakeport.com/VII%20-%20Conservation%20Element.pdf. Accessed March 1, 2022.
4 Lakeport General Plan. 2009.. Conservation Element. August. Website: https://www.cityoflakeport.com/VII%20-%20Conservation%20Element.pdf. Accessed March 1, 2022.

Modeling Parameters and Assumptions

The following modeling parameters and assumptions were used to generate criteria air pollutant (including precursors), Toxic Air Contaminants (TACs), and greenhouse gas (GHG) emissions for the proposed project.

Air Pollutants and GHGs Assessed

Criteria Pollutants Assessed

The following criteria air pollutants were assessed in this analysis: reactive organic gases (ROG), oxides of nitrogen (NO_X), carbon monoxide (CO), sulfur oxides (SO_X), particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$).

Note that the proposed project would emit ozone precursors ROG and NO_X. However, the proposed project would not directly emit ozone since it is formed in the atmosphere during the photochemical reaction of ozone precursors.

The project does not contain sources that would produce substantial quantities of SO_X emissions during construction or operation. Modeling conducted for the project is provided in Attachment A and includes SO_2 emission estimates. No further analysis of SO_2 is required.

GHGs Assessed

This analysis was restricted to GHGs identified by AB 32, which include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). The proposed project would generate a variety of GHGs, including several defined by AB 32 such as CO_2, CH_4, and N_2O.

Certain GHGs defined by AB 32 would not be emitted by the project. HFCs, PFCs, SF_6, and NF_3 are typically used in industrial applications, none of which would be used for typical retail operations. Therefore, it is not anticipated that the proposed project would emit those GHGs.

GHG emissions associated with the proposed project construction, as well as future operations were estimated using CO_2 equivalent (CO_2e) emissions as a proxy for all GHG emissions. Construction GHG emissions were amortized over the lifetime of the proposed project. In order to obtain the CO_2e, an individual GHG is multiplied by its Global Warming Potential (GWP). The GWP designates on a pound for pound basis the potency of the GHG compared to CO_2.

Toxic Air Containments Assessed

Diesel particulate matter (DPM)

Studies indicate that diesel particulate matter (DPM) poses the greatest health risk among airborne TACs. The California Air Resources Board (CARB) conducted a 10-year research program that demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic long-term health risk.

DPM is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases: gas and particle. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde, and

polycyclic aromatic hydrocarbons. The particle phase also has many different types of particles that can be classified by size or composition. The size of diesel particulates that are of greatest health concern are those that are in the categories of fine and ultra-fine particles. The composition of these fine and ultra-fine particles may be composed of elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals, and other trace elements. Diesel exhaust is emitted from a broad range of diesel engines, such as the on-road diesel engines of trucks, buses, and cars, and off-road diesel engines that include locomotives, marine vessels, and heavy-duty equipment.[5]

For purposes of this analysis, DPM exhaust emissions are represented as particulate matter that is 10 micrometers in diameter and smaller (PM_{10}).

Asbestos

Asbestos is a fibrous mineral that both naturally occurs in ultramafic rock (a rock type commonly found in California) and is used as a processed component of building materials. Because asbestos has been proven to cause a number of disabling and fatal diseases, such as asbestosis and lung cancer, it is strictly regulated either based on its natural widespread occurrence or in its use as a building material. In the initial Asbestos National Emission Standards for Hazardous Air Pollutants rule promulgated in 1973, a distinction was made between building materials that would readily release asbestos fibers when damaged or disturbed (friable) and those materials that were unlikely to result in significant fiber release (non-friable). The U.S. Environmental Protection Agency (EPA) has since determined that, when severely damaged, otherwise non-friable materials can release significant amounts of asbestos fibers. Asbestos has been banned from many building materials under the Toxic Substances Control Act, the Clean Air Act, and the Consumer Product Safety Act. Naturally occurring asbestos (NOA) is known to occur in many parts of California and is commonly associated with ultramafic or serpentinite rock.

Model Selection

Criteria Pollutants and GHG Emissions—Model Selection

The California Emissions Estimator Model (CalEEMod) is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects. CalEEMod quantifies direct emissions from construction and operation activities (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. Further, CalEEMod identifies mitigation measures to reduce criteria pollutant and GHG emissions along with calculating the benefits achieved from measures chosen by the user.

CalEEMod was developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the California Air Districts. Default data (e.g., emission factors,

[5] California Air Resources Board (CARB). 2019. Overview: Diesel Exhaust and Health. Website: https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health. Accessed February 20, 2022.

trip lengths, meteorology, source inventory, etc.) have been provided by the various California Air Districts to account for local requirements and conditions.

CalEEMod is a comprehensive tool for quantifying air quality impacts from land use projects located throughout California. The model can be used for a variety of situations where an air quality analysis is necessary or desirable such as preparing CEQA or National Environmental Policy Act documents, conducting pre-project planning, and, verifying compliance with local air quality rules and regulations, etc.

CalEEMod version 2020.4.0 was used to estimate project-generated emissions from construction and operations of the proposed project.

Construction DPM emissions (represented as PM_{10} exhaust) were estimated using CalEEMod Version 2020.4.0. Emissions were estimated for the unmitigated scenario and a scenario with clean construction equipment engines (Tier 4 mitigated). Equipment tiers refer to a generation of emission standards established by the EPA and CARB that apply to diesel engines in off-road equipment. The “tier” of an engine depends on the model year and horsepower rating; generally, the newer a piece of equipment is, the higher the tier level the equipment is likely to have. Excluding engines greater than 750 horsepower, Tier 1 engines were manufactured generally between 1996 and 2003. Since Tier 1 emission standards were established by the EPA in 1994, increasingly more stringent Tier 2, Tier 3, and Tier 4 (interim and final) standards were adopted by the EPA, as well as CARB.

Toxic Air Containments—Model Selection and Parameters

An air dispersion model is a mathematical formulation used to estimate the air quality impacts at specific locations (receptors) surrounding a source of emissions given the rate of emissions and prevailing meteorological conditions. The air dispersion model applied in this assessment was the United States Environmental Protection Agency (EPA) AERMOD (version 21112) air dispersion model. Specifically, the AERMOD model was used to estimate levels of air emissions at sensitive receptor locations from potential sources of project-generated TACs during the construction period. The use of the AERMOD model provides a refined methodology for estimating construction impacts by utilizing long-term, measured representative meteorological data for the project site and a representative construction schedule.

The modeling analysis also considered the spatial distribution and elevation of each emitting source in relation to the sensitive receptors. Direction-dependent calculations were obtained by identifying the Universal Transverse Mercator (UTM) coordinates for each source location. Terrain elevations were obtained for the project site using the AERMAP model, the AERMOD terrain data pre-processor. Specifically, National Elevation Dataset (NED) data for the area were obtained and included in the model runs to account for complex terrain. The air dispersion model assessment used meteorological data from the Ukiah Municipal Airport station, located approximately 15.75 miles northwest of the project area. The meteorological data used was preprocessed for use with AERMOD by CARB and included data for the years 2009 to 2014; all years were used in the assessment. To evaluate the proposed project’s localized impacts at the point of maximum impact, all receptors were placed within the breathing zone at 1.5 meters above ground level.

For the construction period, construction emissions were assumed to be distributed over the project site with a working schedule of eight hours per day and five days per week. Emissions

were adjusted by a factor of 4.2 to convert for use with a 24-hour-per-day, 365 day-per-year averaging period. Project operations were assessed assuming a 24-hour-per-day, and seven day-per-week schedule. Detailed parameters and complete calculations are contained in Attachment B.

Assumptions

Construction Modeling Assumptions

Schedule

The proposed project would require various tasks including site preparation, grading, building construction, architectural coatings, and paving. Table 1 shows the anticipated construction schedule. The construction schedule utilized in the analysis represents a "worst-case" analysis scenario since emission factors for construction equipment decrease as the analysis year increases, due to improvements in technology and more stringent regulatory requirements. Therefore, construction emissions would decrease if the construction schedule moved to later years or is phased over multiple years. The exact start and end times for various project phases are currently unknown. As such, all phases were combined into a single phase in order to provide a conservative estimate of air impacts. The duration of construction activity and associated equipment represent a reasonable approximation of the expected construction fleet as required per CEQA guidelines. The site-specific construction fleet may vary due to specific project needs at the time of construction.

Table 1: Project Construction Schedule

Construction Task	Start Date	End Date	Workdays
Site Preparation	6/1/2022	6/14/2022	10
Grading	6/15/2022	7/26/2022	30
Paving	7/27/2022	8/23/2022	20
Building Construction	8/24/2022	11/5/2023	313*
Architectural Coating	11/6/2023	12/1/2023	20

Note: *Adjusted to match anticipated project schedule.
Source: CalEEMod Output (Attachment A).

Equipment

The off-road equipment fleet for construction were generated using default values from CalEEMod. CalEEMod generates construction fleets for construction activities based on the size of the construction areas. Construction equipment for each construction activity is shown in Table 2.

Table 2: Project Construction Equipment

Construction Task	Equipment Type	Pieces of Equipment	Usage (hours/day)	Horsepower	Load Factor	Fuel Type
Site Preparation	Rubber Tired Dozers	3	8	247	0.40	Diesel
	Tractors/Loaders/Backhoes	4	8	97	0.37	Diesel
Grading	Excavators	2	8	158	0.38	Diesel
	Graders	1	8	187	0.41	Diesel
	Rubber Tired Dozers	1	8	247	0.40	Diesel
	Scrapers	2	8	367	0.48	Diesel
	Tractors/Loaders/Backhoes	2	8	97	0.37	Diesel
Paving	Pavers	2	8	130	0.42	Diesel
	Paving Equipment	2	8	132	0.36	Diesel
	Rollers	2	8	80	0.38	Diesel
Building Construction	Cranes	1	7	231	0.29	Diesel
	Forklifts	3	8	89	0.20	Diesel
	Generator Sets	1	8	84	0.74	Diesel
	Tractors/Loaders/Backhoes	3	7	97	0.37	Diesel
	Welders	1	8	46	0.45	Diesel
Architectural Coating	Air Compressors	1	6	78	0.48	Diesel
Source: CalEEMod Output (Attachment A).						

Vehicles Trips

Table 3 provides a summary of the construction-related vehicle trips. CalEEMod default values were used to estimate the number of construction-related vehicle trips.

The default values for hauling trips are based on the assumption that a truck can haul 20 tons (or 16 cubic yards) of material per load. If one load of material is delivered, CalEEMod assumes that one haul truck importing material will also have a return trip with an empty truck (e.g., 2 one-way trips).

The fleet mix for worker trips is light-duty passenger vehicles to light-duty trucks. The vendor trips fleet mix is composed of a mixture of medium and heavy-duty diesel trucks. The hauling trips were assumed to be 100 percent heavy-duty diesel truck trips. CalEEMod default trip lengths for a project in Lake County and a rural setting were used for the worker (16.8 miles), vendor (6.6 miles), and hauling (20 miles) trips.

Table 3: Construction Vehicle Trips

Construction Task	Worker Trips per Day	Vendor Trips per Day	Total Haul Truck Trips
Site Preparation	18	0	14
Grading	20	0	516
Paving	15	4	12
Building Construction	152	36	18
Architectural Coating	30	0	2

Notes:
Additional hauling trips were added to each phase for mobilization/demobilization (two trip per piece of off-road equipment). Additional vendor trips were added to the paving phase to account for delivery of materials. Cut/fill anticipated to balance on-site; however, 2,000 cubic yards of import and 2,000 cubic yards of import were assumed to provide a conservative estimate of emissions. CalEEMod default trips account for miscellaneous trips in the building construction phase, which were retained in the modeling.
Source: CalEEMod Output (Attachment A).

Operational Modeling Assumptions

Operational emissions are those emissions that occur during operation of the proposed project. The sources are summarized below.

Motor Vehicles

Motor vehicle emissions refer to exhaust and road dust emissions from the automobiles that would travel to and from the proposed project site. Assumptions were based on the accompanying traffic study completed for the project.[6] Modeling was completing using the reported number of average daily trips (1,410 daily trips). Pass-by trips are assumed to already be on the local roads; however, unlike internal capture, vehicles making pass-by trips are not necessarily making a single trip to visit multiple land uses within the project site. For the purposes of estimating air pollutant emissions, it is appropriate to account for the project-generated trips that would travel to and from the project site. CalEEMod default trip types were applied in the analysis.

Trip Lengths

The CalEEMod default round trip lengths for an urban setting in Lake County were used in this analysis. Trip lengths are for primary trips. Trip purposes are primary, diverted, and pass-by trips. Diverted trips take a slightly different path than a primary trip. The CalEEMod default rates for percentages of primary, diverted, and pass-by trips were used.

Vehicle Fleet Mix

The vehicle fleet mix is defined as the mix of motor vehicle classes active during the operation of the proposed project. Emission factors are assigned to the expected vehicle mix as a function of vehicle class, speed, and fuel use (gasoline- and diesel-powered vehicles). CalEEMod default fleet mixes for Lake County were used in the analysis.

Area Sources

[6] Ruettgers & Schuler Civil Engineers. 2022. Residential Development City of Lakeport. April 2022.

Consumer Products

Consumer products are various solvents used in non-industrial applications, which emit VOCs during their product use. “Consumer Product” means a chemically formulated product used by household and institutional consumers, including but not limited to: detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. It does not include other paint products, furniture coatings, or architectural coatings. CalEEMod includes default consumer product use rates based on building square footage. The default emission factors developed for CalEEMod were used for consumer products were used.

Architectural Coatings (Painting)

Paints release VOC emissions. The buildings would be repainted on occasion. CalEEMod defaults were used for this purpose.

Landscaping Emissions

CalEEMod estimates a total of 180 days for which landscaping equipment would be used to estimate potential emissions for the proposed project.

Indirect Emissions

For GHG emissions, CalEEMod contains calculations to estimate indirect GHG emissions. Indirect emissions are emissions where the location of consumption or activity is different from where actual emissions are generated. For example, electricity would be consumed at the proposed project site; however, emissions associated with producing that electricity are generated off-site at a power plant. Since the electricity can vary greatly based on locations, the user should override these values if they have more specific information regarding their specific water supply and treatment.

Energy Use

The Renewables Portfolio Standard (RPS) is not accounted for in CalEEMod 2020.4.0. Reductions from RPS are addressed by revising the electricity emission intensity factor in CalEEMod to account for the utility RPS rate forecast for 2020. Pacific Gas and Electric (PG&E) would provide electricity and natural gas services to the project site. PG&E provides emission factors for the electricity it provides to customers for its energy portfolio that is used to estimate project emissions. The utilities will be required to increase the use of renewable energy sources to 60 percent by 2030. More recent information available in PG&E’s 2020 Sustainability Report were used to adjust the project CO_2 intensity factor for the 2030 scenario. CalEEMod default values were used for buildout year scenario.

The emissions associated with the building electricity and natural gas usage (non-hearth) were estimated based on the land use type and size. The electricity energy use is in units of kilowatt hours per size metric for each land use type. Natural gas use is in units of one thousand British Thermal Units per size metric for each land use type.

Other Indirect Emissions (Water Use, Wastewater Use, and Solid Waste)

CalEEMod includes calculations for indirect GHG emissions for electricity consumption, water consumption, and solid waste disposal. For water consumption, CalEEMod calculates embedded energy (e.g., treatment, conveyance, distribution) associated with providing each

gallon of potable water to the project. For solid waste disposal, GHG emissions are associated with the disposal of solid waste generated by the proposed project into landfills. CalEEMod default data were used for inputs associated with solid waste.

AIR QUALITY

Environmental Setting

The City of Lakeport lies within the Lake County Air Basin and the Lake County Air Quality Management District (LCAQMD) on the western shore of Clear Lake. Summers are typically warm and dry, with an average annual high temperature of 94 degrees Fahrenheit. Winters are cool and wet, with an average annual low temperature of 30 degrees Fahrenheit. The prevailing wind is westerly, with occasional strong gusty winds in winter. During autumn and winter, nighttime radiational cooling between storm periods often leads to formation of inversions and ground fog, especially in canyon basins near Lakeport. Inversions occur in conjunction with masses of very stable air, which tend to not move vertically and can become trapped in the lower and sheltered areas. Considerable air stagnation can occur if the inversion condition continues for several days. The inversion may persist until the onset of a Pacific storm. More intense heating at the surface in spring will generally initiate convection and good ventilation. In summer, region wide elevated inversions may be present, restricting the layer in which mixing and dilution of surface air may occur.[7]

Criteria Air Pollutants

The Federal Clean Air Act (FCAA) establishes the framework for modern air pollution control. The FCAA, enacted in 1970 and amended in 1990, directs the United States Environmental Protection Agency (EPA) to establish ambient air quality standards. These standards are divided into primary and secondary standards. The primary standards are set to protect human health, and the secondary standards are set to protect environmental values, such as plant and animal life. The FCAA requires the EPA to set National Ambient Air Quality Standards for the six criteria air pollutants. These pollutants include particulate matter (PM), ground-level ozone, carbon monoxide (CO), sulfur oxides, nitrogen oxides, and lead.

Toxic Air Contaminants

A toxic air contaminant (TAC) is an air pollutant not included in the California Ambient Air Quality Standards, but TACs are considered hazardous to human health. Toxic air contaminants are defined by the California Air Resources Board (CARB) as those pollutants that, “may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health.”

The health effects associated with TACs are generally assessed locally rather than regionally. Toxic air contaminants can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; TACs can also cause short-term acute effects such as eye watering, respiratory irritation, running nose, throat pain, and headaches. For evaluation purposes, TACs are separated into carcinogens and noncarcinogens. Carcinogens are assumed to have no safe threshold below which health impacts would not occur, and the cancer risk is expressed as excess cancer cases per one million exposed individuals (typically over a lifetime of exposure).

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[7] City of Lakeport. 2008. Draft Environmental Impact Report. Website:https://www.cityoflakeport.com/Planning/Draft%20EIR%20General%20Plan%20Update/Draft-EIR---General-Plan-Update- --City-o-116200865514PM.pdf. Accessed March 1, 2022.

TACs of concern assessed in this analysis include DPM and asbestos.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, childcare centers, playgrounds, retirement homes, convalescent homes, hospitals, and medical clinics.

Air Quality Standards

The Clean Air Act requires states to develop a general plan to attain and maintain the standards in all areas of the country and a specific plan to attain the standards for each area designated nonattainment. These plans, known as State Implementation Plans or SIPs, are developed by state and local air quality management agencies and submitted to EPA for approval.

The SIP for the State of California is administered by the CARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's SIP incorporates individual federal attainment plans for each regional air district. SIPs are prepared by the regional air district and sent to CARB to be approved and incorporated into the California SIP. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms.

The CARB also administers the California Ambient Air Quality Standards (CAAQS) for the 10 air pollutants designated in the California Clean Air Act. The 10 state air pollutants include the six federal criteria pollutant standards listed above as well as visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The federal and state ambient air quality standards are summarized in Table 4.

Table 4: California and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
Ozone	1 Hour	0.09 ppm (180 µg/m^3)	—	Same as Primary Standard
	8 Hour	0.070 ppm (137 µg/m^3)	0.070ppm (137 µg/m^3)	
Respirable Particulate Matter	24 Hour	50 µg/m^3	150 µg/m3	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m^3	—	
Fine Particulate Matter	24 Hour	—	35 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	
Carbon Monoxide	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	—
	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	—

Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)	—	—
Nitrogen Dioxide	1 Hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)	—
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary Standard
Sulfur Dioxide	1 Hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)	—
	3 Hour	—	—	0.5 ppm (1300 µg/m^3)
	24 Hour	0.04 ppm (105 µg/m^3)	0.14 ppm (for certain areas)	—
	Annual Arithmetic Mean	—	0.030 ppm (for certain areas)	—
Lead	30-Day Average	1.5 µg/m^3	—	—
	Calendar Quarter	—	1.5 µg/m^3	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 µg/m^3	
Visibility-Reducing Particles	8 Hour	See Footnote 1	No National Standards	
Sulfates	24 Hour	25 µg/m^3		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)		

Notes:
1 - In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.
µg/m3 =micrograms per cubic meter
CARB = California Air Resources Board
mg/m3 = milligrams per cubic meter
ppm = parts per million
Source: Bay Area Air Quality Management District (BAAQMD). 2017. Air Quality Standards and Attainment Status. Website: https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status. Accessed March 23, 2022.

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the project area. Table 5 summarizes 2018 through 2020 published monitoring data, which is the most recent 3-year period available. The table displays data from the Lakeport – S. Main Street Station (located approximately 0.1.43 miles southeast of the project site), which is the closest monitoring station to the project site with data available. The data shows that during the past few years, the project area has exceeded the standards for PM_{10} (state and national) and $PM_{2.5}$ (state and national). The data in the table reflects the concentration of the pollutants

in the air, measured using air monitoring equipment. This differs from emissions, which are calculations of a pollutant being emitted over a certain period. No recent monitoring data for Lake County or the Lake County Air Basin was available for CO, NO_2, or SO_2. Generally, no monitoring is conducted for pollutants that are no longer likely to exceed ambient air quality standards.

Table 5: Air Quality Monitoring Summary

Air Pollutant	Averaging Time	Item	2018	2019	2020
Ozone[1]	1 Hour	Max 1 Hour (ppm)	0.080	0.060	0.080
		Days > State Standard (0.09 ppm)	0	0	0
	8 Hour	Max 8 Hour (ppm)	0.063	0.054	0.063
		Days > State Standard (0.07 ppm)	0	0	0
		Days > National Standard (0.075 ppm)	0	0	0
Carbon monoxide (CO)	8 Hour	Max 8 Hour (ppm)	ND	ND	ND
		Days > State Standard (9.0 ppm)	ND	ND	ND
		Days > National Standard (9 ppm)	ND	ND	ND
Nitrogen dioxide (NO_2)[2]	Annual	Annual Average (ppm)	ND	ND	ND
	1 Hour	Max 1 Hour (ppm)	ND	ND	ND
		Days > State Standard (0.18 ppm)	ND	ND	ND
Sulfur dioxide (SO_2)	Annual	Annual Average (ppm)	ND	ND	ND
	24 Hour	Max 24 Hour (ppm)	ND	ND	ND
		Days > State Standard (0.04 ppm)	ND	ND	ND
Inhalable coarse particles (PM_{10})[1]	Annual	Annual Average (µg/m^3)	ID	10.1	19.8
	24 Hour	24 Hour (µg/m^3)	**180.1**	21.9	**126.6**
		Days > State Standard (50 µg/m^3)	ID	0.0	**23.0**
		Days > National Standard (150 µg/m^3)	**6.1**	0.0	0.0
Fine particulate matter ($PM_{2.5}$)[1]	Annual	Annual Average (µg/m^3)	9.3	3.1	9.3
	24 Hour	24 Hour (µg/m^3)	**157.9**	8.3	**111.5**
		Days > National Standard (35 µg/m^3)	**18.8**	0.0	**23.0**

Notes:
> = exceed ppm = parts per million µg/m^3 = micrograms per cubic meter
ID = insufficient data ND = no data max = maximum
Bold = exceedance
State Standard = California Ambient Air Quality Standard
National Standard = National Ambient Air Quality Standard
[1] Lakeport – S. Main Street Station
Source: California Air Resources Board (CARB). 2021. Trends Summary. Website: https://www.arb.ca.gov/adam/trends/trends1.php. Accessed March 1, 2022.
[2] Lakeport – S. Main Street Station
Source: California Air Resources Board (CARB). 2021. Top 4 Summary: Select Pollutant, Years, & Area. Website: https://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed March 1, 2022.

The health impacts of the various air pollutants of concern can be presented in a number of ways. One method is to compare concentrations in an area with the applicable state and federal

ozone standards. If concentrations are below the standard, it is reasonable to conclude that no significant health impacts would occur. When concentrations exceed the standard, impacts will vary based on the amount by which the standard is exceeded. The EPA developed the Air Quality Index (AQI) as an easy-to-understand measure of health impacts compared with concentrations in the air. Table 6 provides a description of the health impacts of ozone at different concentrations.

Table 6: Air Quality Index and Health Effects from Ozone

Air Quality Index/ 8-hour Ozone Concentration	Health Effects Description
AQI 51–100—Moderate	**Sensitive Groups:** Children and people with asthma are the groups most at risk.
Concentration 55–70 ppb	**Health Effects Statements:** Unusually sensitive individuals may experience respiratory symptoms.
	Cautionary Statements: Unusually sensitive people should consider limiting prolonged outdoor exertion.
AQI 101–150—Unhealthy for Sensitive Groups	**Sensitive Groups:** Children and people with asthma are the groups most at risk.
Concentration 71–85 ppb	**Health Effects Statements:** Increasing likelihood of respiratory symptoms and breathing discomfort in active children and adults and people with respiratory disease, such as asthma.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
AQI 151–200—Unhealthy	**Sensitive Groups:** Children and people with asthma are the groups most at risk.
Concentration 86–105 ppb	**Health Effects Statements:** Greater likelihood of respiratory symptoms and breathing difficulty in active children and adults and people with respiratory disease, such as asthma; possible respiratory effects in general population.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
AQI 201–300—Very Unhealthy	**Sensitive Groups:** Children and people with asthma are the groups most at risk.
Concentration 106–200 ppb	**Health Effects Statements:** Increasingly severe symptoms and impaired breathing likely in active children and adults and people with respiratory disease, such as asthma; increasing likelihood of respiratory effects in general population.
	Cautionary Statements: Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.
Source: Air Now. 2016. AQI Calculator: AQI to Concentration. Website: https://www.airnow.gov/aqi/aqi-calculator/. Accessed March 1, 2022.	

The AQI for the 8-hour ozone standard is based on the current NAAQS of 70 parts per billion (ppb). Based on the AQI scale for the 8-hour ozone standard, the project area experienced zero days in the last three years that would have violated the 70-ppb standard. The highest reading was 63 ppb in 2018 and 2020 (AQI 77).

Another pollutant of concern due to associated health impacts is $PM_{2.5}$. An AQI of 100 or lower is considered moderate and would be triggered by a 24-hour average concentration of 12.1 to 35.4 µg/m^3. An AQI of 101 to 105 or 35.5-55.4 µg/m^3 is considered unhealthful for sensitive groups. When concentrations reach this amount, it is considered an exceedance of the federal $PM_{2.5}$ standard. The monitoring station nearest the project exceeded the standard on approximately 41.8 days in the three-year period spanning from 2018 to 2020. The highest number of exceedances was recorded in 2020 with 23.0 days over the standard. People with respiratory or heart disease, the elderly, and children are the groups most at risk. Unusually sensitive people should consider reducing prolonged or heavy exertion. The AQI of 151 to 200 is classified as unhealthy for everyone. This AQI classification is triggered when $PM_{2.5}$ concentration ranges from 55.4 to 150.4 µg/m^3. At this concentration, there is increasing likelihood of respiratory symptoms in sensitive individuals, aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease, and in the elderly. People with respiratory or heart disease, the elderly, and children should limit prolonged exertion. Everyone else should reduce prolonged or heavy exertion. The highest concentration recorded at the Lakeport – S. Main Street Station monitoring station in the most recent 3-year period available was 157.9 µg/m^3 (AQI 208) in 2018. At this concentration, there is significant aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; significant increase in respiratory effects in general population. Sensitive groups should avoid all physical activity outdoors, move activities indoors, or reschedule to a time when air quality is better. Everyone else should avoid prolonged or heavy exertion, consider moving activities indoors, or reschedule to a time when air quality is better. The relationship of the AQI to health effects in shown in Table 7.

Table 7: Air Quality Index and Health Effects of Particle Pollution

Air Quality Index/ $PM_{2.5}$ Concentration	**Health Effects Description**
AQI 51–100—Moderate	**Sensitive Groups:** Some people who may be unusually sensitive to particle.
Concentration 12.1–35.4 µg/m^3	**Health Effects Statements:** Unusually sensitive people should consider reducing prolonged or heavy exertion.
	Cautionary Statements: Unusually sensitive people: Consider reducing prolonged or heavy exertion. Watch for symptoms such as coughing or shortness of breath. These are signs to take it easier.
AQI 101–150—Unhealthy for Sensitive Groups	**Sensitive Groups:** Sensitive groups include people with heart or lung disease, older adults, children, and teenagers.
Concentration 35.5–55.4 µg/m^2	**Health Effects Statements:** Increasing likelihood of respiratory symptoms in sensitive individuals, aggravation of heart or lung disease

	and premature mortality in persons with cardiopulmonary disease, and the elderly.
	If you have heart disease: Symptoms such as palpitations, shortness of breath, or unusual fatigue may indicate a serious problem. If you have any of these, contact your health care provider.
AQI 151–200—Unhealthy	**Sensitive Groups:** Everyone
Concentration 55.5–150.4 µg/m^3	**Health Effects Statements:** Increased aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; increased respiratory effects in general population.
	Cautionary Statements: Sensitive groups: Avoid prolonged or heavy exertion. Consider moving activities indoors or rescheduling. Everyone else: Reduce prolonged or heavy exertion. Take more breaks during outdoor activities.
AQI 201–300—Very Unhealthy	**Sensitive Groups:** Everyone
Concentration 150.5–250.4 µg/m^3	**Health Effects Statements:** Significant aggravation of heart or lung disease and premature mortality in persons with cardiopulmonary disease and the elderly; significant increase in respiratory effects in general population.
	Cautionary Statements: Sensitive groups: Avoid all physical activity outdoors. Move activities indoors or reschedule to a time when air quality is better. Everyone else: Avoid prolonged or heavy exertion. Consider moving activities indoors or rescheduling to a time when air quality is better.
Source: Air Now. 2016. AQI Calculator: AQI to Concentration. Website: https://www.airnow.gov/aqi/aqi-calculator/. Accessed March 23, 2022.	

Federal and state air quality laws require identification of areas not meeting the ambient air quality standards. These areas must develop regional air quality plans to eventually attain the standards. Under both federal and state Clean Air Act, the Lake County Air Basin is in attainment for all ambient air quality standards; therefore, the LCAQMD has not been required to develop any regional air quality plans.[8,9]

Thresholds of Significance

Project-level Thresholds

The CEQA Guidelines define a significant effect on the environment as “a substantial, or potentially substantial, adverse change in the environment.” To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the proposed project must be evaluated.

[8] Lake County Air Quality Management District. 2021. Lake County Air Quality Management District, Lake County, California Official Website. Website: https://www.lcaqmd.net/. Accessed March 1, 2022.

[9] City of Lakeport. 2008. Draft Environmental Impact Report. Website: https://www.cityoflakeport.com/Planning/Draft%20EIR%20General%20Plan%20Update/Draft-EIR---General-Plan-Update---City-o-116200865514PM.pdf. Accessed March 1, 2022.

This analysis uses the air quality significance thresholds contained in Appendix G of the CEQA Guidelines, effective December 28, 2018. A significant impact would occur if the proposed project would:

a) Conflict with or obstruct implementation of the applicable air quality plan.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard.

c) Expose sensitive receptors to substantial pollutant concentrations.

d) Create objectionable odors affecting a substantial number of people.

The City of Lakeport has not established specific CEQA significance thresholds. Where available guidance provided by the applicable air district can be used to make significance determinations for the CEQA questions listed above; however, LCAQMD does not provide published thresholds for use by lead agencies in Lake County. Since the LCAQMD has no project-level thresholds of significance for the LCAB, the project's incremental increase for air pollutant emissions of concern are compared against quantitative thresholds of significance from the BAAQMD in this analysis. While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, the BAAQMD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions in accordance with the Appendix G requirements. If a Lead Agency finds that a project has the potential to exceed these air pollution thresholds, according to the BAAQMD, the project should be considered to have significant air quality impacts.

Air pollutant emissions have regional effects and localized effects. This analysis assesses the regional effects of the project's criteria pollutant emissions in comparison to BAAQMD thresholds of significance for short-term construction activities and long-term operation of the project. Localized emissions from project construction and operation are also assessed using concentration-based thresholds that determine if the project would result in a localized exceedance of any ambient air quality standards or would make a cumulatively considerable contribution to an existing exceedance.

The primary pollutants of concern during project construction and operation are ROG, NO_X, PM_{10}, and $PM_{2.5}$.

Ozone is a secondary pollutant that can be formed miles away from the source of emissions through reactions of ROG and NO_X emissions in the presence of sunlight. Therefore, ROG and NO_X are termed ozone precursors. Although the LCAB is currently in attainment of all state and federal air quality standards, if the project emits a substantial quantity of ozone precursors, the project may contribute to an exceedance of the ozone standard. PM_{10}, and $PM_{2.5}$ were also addressed, as substantial project emissions may contribute to an exceedance for these pollutants as well.

The BAAQMD has adopted significance thresholds for construction-related and operational emissions. These thresholds will be identified and addressed in the appropriate section of this document.

Project construction would involve the use of diesel-fueled vehicles and equipment that emit DPM, which is considered a TAC. Once operational, the gasoline dispensing facility would be a source of benzene. The following project-specific health risk significance thresholds are applied in this analysis:

- Maximum Incremental Cancer Risk: >=10 in 1 million.
- Hazard Index (project increment) >=1.0.

Environmental Impact Analysis

This section discusses potential impacts related to air quality associated with the proposed project and provides mitigation measures where necessary.

Impact AIR-1 Conflict with or obstruct implementation of the applicable air quality plan?

Impact Analysis

Federal and state air quality laws require identification of areas not meeting the ambient air quality standards. These areas must develop regional air quality plans to eventually attain these standards. Under both federal and state Clean Air Act, the Lake County Air Basin is in attainment for all ambient air quality standards; therefore, the LCAQMD has not been required to develop any regional air quality plans.[10,11] A key purpose of the LCAQMD is to enforce local, state, and federal air quality laws, rules and regulations in order to meet the Ambient Air Quality Standards and protect the public from air toxics through regulation. Projects that comply with applicable rules and regulations would not conflict or obstruct LCAQMD's ability to remain in attainment with air quality standards.

Conclusion

There are currently no applicable air quality plans in the Lake County Air Basin for the proposed project to conflict with.

This impact will not be further addressed in this document.

Level of Significance Before Mitigation
Less than significant.

Mitigation Measures
No mitigation measures are necessary.

Impact AIR-2 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?

Impact Analysis

[10] Lake County Air Quality Management District. 2021. Lake County Air Quality Management District, Lake County, California Official Website. Website: https://www.lcaqmd.net/. Accessed March 1, 2022.

[11] City of Lakeport. 2008. Draft Environmental Impact Report. Website: https://www.cityoflakeport.com/Planning/Draft%20EIR%20General%20Plan%20Update/Draft-EIR---General-Plan-Update---City-o-116200865514PM.pdf. Accessed March 1, 2022.

Since the LCAQMD has no project-level thresholds of significance for the LCAB, thresholds of significance from the BAAQMD were relied upon in this analysis.

In developing thresholds of significance for air pollutants, the BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Project construction and operational impacts are assessed separately below.

Construction Emissions

Construction activities associated with development of the proposed project would include site preparation, grading, building construction, paving, and architectural coatings. Emissions from construction-related activities are generally short-term in duration but may still cause adverse air quality impacts. During construction, fugitive dust would be generated from earth-moving activities. Exhaust emissions would also be generated from off-road construction equipment and construction-related vehicle trips. Emissions associated with construction of the proposed project are discussed below.

Construction Fugitive Dust (PM_{10} and $PM_{2.5}$)

During construction (grading), fugitive dust (PM_{10} and $PM_{2.5}$) would be generated from site grading and other earth-moving activities. Most of this fugitive dust will remain localized and be deposited near the project site.

The BAAQMD does not have a quantitative threshold for fugitive dust. The BAAQMD's Air Quality Guidelines recommend that projects determine the significance for fugitive dust through application of best management practices (BMPs). Therefore, impacts related to fugitive dust from the construction of the proposed project would be potentially significant without the inclusions of sufficient dust control measures. Mitigation Measure (MM) AIR-2a requires the inclusion of BMPs recommended by the BAAQMD to reduce potential impacts related to fugitive dust emissions from use of construction equipment. With incorporation of MM AIR-2a, short-term construction impacts associated with violating an air quality standard or contributing substantially to an existing or projected air quality violation related to fugitive dust would be less than significant.

Construction Emissions: ROG, NO_X, PM_{10} (exhaust), $PM_{2.5}$ (exhaust)

Table 8 provides the construction emissions estimate for the proposed project. Please refer to the Modeling Parameters and Assumptions section of this technical memorandum for details regarding assumptions used to estimate construction emissions. The duration of construction activity and associated equipment represent a reasonable approximation of the expected construction fleet as required pursuant to CEQA guidelines.

Table 8: Construction Annual and Daily Average Emissions (Unmitigated Average Daily Rate)

Parameter	Air Pollutants			
	ROG	**NO_X**	**PM_{10} (Exhaust)**	**$PM_{2.5}$ (Exhaust)**
Site Preparation	0.02	0.17	0.01	0.01
Grading	0.06	0.65	0.03	0.02
Paving	0.02	0.12	0.01	0.01
Building Construction (2022)	0.15	0.89	0.04	0.04
Building Construction (2023)	0.33	1.91	0.08	0.08
Architectural Coating	5.40	0.01	<0.01	<0.01
Total Emissions from All Construction Activities (2022-2023)				
Total Project Construction Emissions (tons/year)	5.96	3.75	0.16	0.15
Total Emissions (pounds/year)	11,926	7,502	318	297
Average Daily Emissions (pounds/day)[1]	**30.35**	**19.09**	**0.81**	**0.76**
Significance Threshold (pounds/day)	**54**	**54**	**82**	**54**
Exceeds Significance Threshold?	**No**	**No**	**No**	**No**

Notes:
[1] Calculated by dividing the total number of pounds by the total 393 working days of construction for the entire construction period. Calculations use unrounded numbers.
lbs = pounds
NO_X = oxides of nitrogen
PM_{10} = particulate matter 10 microns in diameter
$PM_{2.5}$ = particulate matter 2.5 microns in diameter
ROG = reactive organic gases
Source: CalEEMod Output (Attachment A).

As shown in Table 8, estimated emissions from construction of project would not exceed any applicable threshold and would be less than significant.

Operational Emissions

As previously discussed, the pollutants of concern include ROG, NO_X, PM_{10}, and $PM_{2.5}$. Full buildout of the project is anticipated to occur in 2023, immediately following the earliest anticipated completion of all phases of construction. Emissions were assessed for full buildout operations in the 2023 operational year. The 2023 operational year was chosen as it would be the best representation of the project as it is year earliest year the project could become fully operational, thus generating the full amount of expected operational activity. The BAAQMD Criteria Air Pollutant Significance thresholds were used to determine impacts. Operational annual and daily emissions are shown in Table 9 and Table 10, respectively.

Table 9: Operational Annual Emissions for Full Buildout (Unmitigated)

	Tons per Year			
Emissions Source	**ROG**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Area	1.93	0.08	0.01	0.01
Energy	0.01	0.09	0.01	0.01
Mobile (Motor Vehicles)	1.54	2.47	1.96	0.54
Waste	0.00	0.00	0.00	0.00
Water	0.00	0.00	0.00	0.00
Total Project Annual Emissions	**3.48**	**2.64**	**1.98**	**0.56**
Thresholds of Significance	**10**	**10**	**15**	**10**
Exceeds Significance Threshold?	**No**	**No**	**No**	**No**

Notes:
NO_X = oxides of nitrogen
$PM_{2.5}$ = particulate matter 2.5 microns or less in diameter
PM_{10} = particulate matter 10 microns or less in diameter
ROG = reactive organic gases
Source: CalEEMod Output (Attachment A).

Table 10: Operational Average Daily Emissions (Unmitigated)

	Tons per Year			
Emissions Source	**ROG**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Total Project Annual Emissions[1] (tons/year)	3.48	2.64	1.98	0.56
Total Project Annual Emissions[2] (lbs/year)	6,969	5,277	3,968	1,127
Average Daily Emissions[3] (lbs/day)	19.09	14.46	10.87	3.09
Average Daily Emission Thresholds (lbs/day)	**54**	**54**	**82**	**54**
Exceeds Significance Threshold?	**No**	**No**	**No**	**No**

Notes:
[1] Tons per year are shown in Table 9.
[2] Pounds per year were calculated using the unrounded annual project operational emissions.
[3] The average daily operational emissions were estimated based on the total annual emissions divided by 365 days (365 days was used in the calculations to represent a typical year; however, there are 366 years in 2023).
lbs = pounds
NO_X = oxides of nitrogen
$PM_{2.5}$ = particulate matter 2.5 microns or less in diameter
PM_{10} = particulate matter 10 microns or less in diameter
ROG = reactive organic gases
Source: CalEEMod Output (Attachment A).

As shown in Table 9 and Table 10, the proposed project would not result in net operational-related air pollutants or precursors that would exceed the applicable thresholds of significance. Therefore, project operations would not be considered to have the potential to generate a significant quantity of air pollutants; long-term operational impacts associated with the project's criteria pollutant emissions would be less than significant.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

MM AIR-2a During construction activities, the following Best Management Practices (BMPs) shall be implemented to control dust:

- Exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- All roadways, driveways, and sidewalks shall be paved as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly visible sign shall be posted with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours of a complaint or issue notification.

Level of Significance After Mitigation

Less than significant.

Impact AIR-3 Expose sensitive receptors to substantial pollutant concentrations?

Impact Analysis

Since the LCAQMD has no project-level thresholds of significance for the LCAB, thresholds of significance from the BAAQMD are used this analysis.

This discussion addresses whether the proposed project would expose sensitive receptors to substantial pollutant concentrations. The localized pollutants that could impact sensitive receptors include: NOA, construction-generated fugitive dust (PM_{10} and $PM_{2.5}$), construction generated DPM, CO hotspots, and operational-related TACs. Project construction and operational impacts are assessed separately below.

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, the following are land uses where sensitive receptors are typically located:

- Long-term health care facilities
- Rehabilitation centers
- Convalescent centers
- Hospitals
- Retirement homes
- Residences
- Schools, playgrounds, and childcare centers

As a residential development project, the proposed project itself would be considered a sensitive receptor once operational. Therefore, for the purposes of the Health Risk Assessment (HRA), sensitive receptors associated with future on-site activities were not included as part of the construction HRA. Most emissions during construction are generated during the site preparation and grading phases when heavy equipment is used to prepare the land for construction. It is anticipated that there will be times where construction activities overlap may overlap with project operations. Off-site residential receptors were included as part of the construction HRA. Receptors were placed bordering the project site in all directions in order to assess potential impacts to existing and planned receptors.

Project as a Source - Construction

Construction Fugitive Dust

During construction, fugitive dust (PM_{10} and $PM_{2.5}$) would be generated from site grading and other earth-moving activities. Most of this fugitive dust will remain localized and be deposited near the project site; however, projects that would generate fugitive dust from construction activities have the potential to expose sensitive receptors if sensitive receptors are located near where construction activities could occur.

The BAAQMD does not have a quantitative threshold for fugitive dust. The BAAQMD's Air Quality Guidelines recommend that projects determine the significance for fugitive dust through application of best management practices (BMPs). In accordance with the BAAQMD's guidelines on thresholds of significance for fugitive dust, the project would not be considered significant were BMPs to be followed during buildout of the project. Therefore, impacts related to fugitive dust from the construction of the proposed project would be potentially significant without the inclusions of sufficient dust control measures. As discussed in Impact AIR-2, the proposed project would implement MM AIR-2a and implement BMPs recommended by the

BAAQMD to reduce potential impacts related to fugitive dust emissions from use of the construction equipment. MM AIR-2a requires the inclusion of BMPs recommended by the BAAQMD to reduce potential impacts related to fugitive dust emissions from use of construction equipment. Impacts related to construction fugitive dust would be less than significant with incorporation of MM AIR-2a.

Construction-Generated DPM

A project-level assessment was conducted of the potential community health risk and health hazard impacts on surrounding sensitive receptors resulting from the emissions of TACs during construction. A summary of the assessment is provided below, while the detailed assessment is provided in Attachment B.

Construction activity using diesel-powered equipment emits DPM, a known carcinogen. Diesel particulate matter includes exhaust PM_{10} and exhaust $PM_{2.5}$. A 10-year research program demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk.[12] Health risks from TACs are a function of both concentration and duration of exposure. Construction diesel emissions are temporary, affecting an area for a period of weeks or months. Additionally, construction-related sources are mobile and transient in nature.

The health risk assessment evaluated DPM (represented as exhaust PM_{10}) emissions generated during construction of the proposed project and the related health risk impacts for sensitive receptors located within 1,000 feet of the project boundary. According to the BAAQMD, a project would result in a significant impact if it would individually expose sensitive receptors to TACs resulting in an increased cancer risk greater than 10.0 in one million, an increased non-cancer risk of greater than 1.0 on the hazard index (chronic or acute).

The project site is located within 1,000 feet of existing and planned sensitive receptors that could be exposed to diesel emission exhaust during the construction period. As a residential development project, the project itself would be considered a sensitive receptor land use once operational. The project would have the potential for construction and operations to overlap. To estimate the potential cancer risk associated with construction of the proposed project from equipment exhaust (including DPM), a dispersion model was used to translate an emission rate from the source location to concentrations at the receptor locations of interest (i.e., receptors at nearby residences and an existing assisted living facility). In addition, receptors were placed bordering the project site to assess potential impacts from potential overlap of construction and operations. A maximally exposed individual receptor (MEIR) was determined for each phase of construction through the use of the dispersion modeling. Risks from all construction activities were calculated for the MEIR location identified in each scenario.

Locations of the MEIR in each construction phase are summarized below and are shown in Attachment B.

Table 11 presents a summary of the proposed project's construction cancer risk and chronic non-cancer hazard impacts at the MEIR prior to the application of any equipment mitigation.

[12] California Air Resources Board (CARB). 2015. The Report on Diesel Exhaust. Website: https://ww2.arb.ca.gov/sites/default/files/classic/toxics/dieseltac/de-fnds.htm. Accessed March 1, 2022.

Table 11: Unmitigated Health Risks from Project Construction to Off-Site Receptors

Scenario	Health Impact Metric	Carcinogenic Inhalation Health Risk in One Million	Chronic Inhalation Hazard Index[2]
Risks and Hazards at the MEIR[1]			
Total project construction	Risks and Hazards at the MEIR: Infants	22.76	0.024
	Risks and Hazards at the MEIR: Child	4.45	0.024
	Risks and Hazards at the MEIR: Adult	0.59	0.024
Highest From Any Scenario			
Total project construction	Risks and Hazards at the MEIR (Infant Scenario)	22.76	0.024
	Applicable Threshold of Significance	**10**	**1**
	Exceeds Individual Source Threshold?	Yes	No

Notes:
Maximally Exposed Individual Receptor (MEIR)
[1] UTM for MEIR (unmitigated scenario): 505914.38, 4320536.14
[2] Chronic non-cancer hazard index was estimated by dividing the annual DPM concentration (as PM_{10} exhaust) by the REL of 5 $\mu g/m^3$.
Source: Attachment B.

As shown in Table 11, estimated health risks from elevated DPM concentrations during construction of the proposed project would exceed the applicable cancer risk significance threshold in at least one scenario. This represents a potentially significant construction TAC exposure impact. Therefore, mitigation is required to reduce the impact during the construction period to below a level of significance.

MM AIR-3a requires the project applicant, project sponsor, or construction contractor to provide documentation to the City of Lakeport that all off-road diesel-powered construction equipment greater than 75 horsepower meet EPA or CARB Tier 4 Final off-road emissions standards. Table 12 shows the health risks and non-cancer hazard index for construction with implementation of Tier 4 Final mitigation, as required by MM AIR-3a.

Table 12: Mitigated Health Risks from Project Construction to Off-Site Receptors

Scenario	Health Impact Metric	Carcinogenic Inhalation Health Risk in One Million	Chronic Inhalation Hazard Index[2]
Risks and Hazards at the MEIR[1]			
Total project construction	Risks and Hazards at the MEIR: Infants	2.70	0.003
	Risks and Hazards at the MEIR: Child	0.53	0.003
	Risks and Hazards at the MEIR: Adult	0.07	0.003
Highest From Any Scenario			
Total project construction	Risks and Hazards at the MEIR (Infant Scenario)	2.70	0.003
	Applicable Threshold of Significance	**10**	**1**

Scenario	Health Impact Metric	Carcinogenic Inhalation Health Risk in One Million	Chronic Inhalation Hazard Index[2]
	Exceeds Individual Source Threshold?	No	No

Notes:
Maximally Exposed Individual Receptor (MEIR)
[1] UTM for MEIR (mitigated scenario): 505914.38, 4320536.14*
* The MEIR for the unmitigated and mitigated scenarios were independently determined to be at the same receptor location.
[2] Chronic non-cancer hazard index was estimated by dividing the annual DPM concentration (as PM_{10} exhaust) by the REL of 5 $\mu g/m^3$.
Source: Attachment B.

As noted in Table 12, calculated health metrics from the proposed project's construction DPM emissions would not exceed the cancer risk significance threshold or non-cancer hazard index significance threshold at the MEIR with incorporation of MM AIR-3a. Therefore, the proposed project would not result in a significant impact on nearby sensitive receptors from TACs during construction.

Naturally Occurring Asbestos

The California DOC and the United States Geological Survey (USGS) have published a guide for generally identifying areas that are likely to contain NOA. Although there are areas likely to contain NOA in Lake County and within Lakeport itself, there are no NOA areas located in the immediate vicinity of the project area. Therefore, there is no impact.[13]

Project as a Source – Operation

CO Hotspot

Localized high levels of CO (CO hotspot) are associated with traffic congestion and idling or slow-moving vehicles. The BAAQMD recommends a screening analysis to determine if a project has the potential to contribute to a CO hotspot. The screening criteria identifies when site-specific CO dispersion modeling is necessary. The project would result in a less than significant impact to air quality for local CO if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans; or
- The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; or
- The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

[13] United States Geological Survey (USGS). 2011. Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California. Website: https://pubs.usgs.gov/of/2011/1188/. Accessed March 1, 2022.

According to the Traffic Study prepared for the project by Ruettgers & Schuler Civil Engineers, the project would generate approximately 101 trips during the a.m. peak hour and 125 trips during the p.m. peak hour and would not substantially increase traffic volumes on nearby roadways above 44,000 vehicles per hour.[14] Furthermore, the adjacent roadways are not located in an area where vertical and/or horizontal mixing, or the free movement of the air mass, is substantially limited by physical barriers such as large bridge overpasses or urban or natural canyon walls. Therefore, the project would not significantly contribute to an existing or projected CO hotspot. Impacts are less than significant.

Toxic Air Contaminants

The proposed project would develop 48 single-family detached dwelling units and 128 low rise multifamily housing dwelling units and would not generate substantial on-site TAC emissions during operation. As described in the Traffic Study, the project is expected to generate 1,410 average daily trips. The proposed project would primarily generate trips associated with residents and visitors traveling to and from the project site. The daily travel trips to and from the project site would primarily be generated by passenger vehicles. Because nearly all passenger vehicles are gasoline-combusted, the proposed project would not generate significant amount of DPM emissions during operation. Therefore, the proposed project would not result in significant health impacts to nearby sensitive receptors from emissions project-generated trips during operation.

Operations—The Project's Potential to Locate Sensitive Receptor Near Existing Sources of TACs

As a residential project, the project would locate sensitive receptors to a site where future project residents could be subject to existing sources of TACs at the project site. However, the California Supreme Court concluded in *California Building Industry Association v. BAAQMD* that agencies subject to CEQA are not required to analyze the impact of existing environmental conditions on a project's future users or residents. Furthermore, there are no notable existing long-term sources TACs (as identified in ARB's Land Use Handbook) that would warrant additional analysis. Therefore, this impact will not be further addressed in this document.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Implement Mitigation Measure AIR-2a (refer to Impact AIR-2 for complete details pertaining to this mitigation measure) and:

MM AIR-3a Before a construction permit is issued for the proposed project, the project applicant, project sponsor, or construction contractor shall submit construction emissions minimization plans to the City of Lakeport for review and approval. The construction emissions minimization plans shall provide reasonably detailed compliance with the following requirements:

[14] Ruettgers & Schuler Civil Engineers. 2022. Residential Development City of Lakeport. April 2022.

(1) Where portable diesel engines are used during construction, all off-road equipment with engines greater than 75 horsepower shall have engines that meet either EPA or CARB Tier 4 Final off-road emission standards except as otherwise specified herein. If engines that comply with Tier 4 Final off-road emission standards are not commercially available, then the construction contractor shall use the next cleanest piece of off-road equipment (e.g., Tier 4 Interim) that is commercially available. For purposes of this project design feature, "commercially available" shall mean the equipment at issue is available taking into consideration factors such as (i) critical-path timing of construction; and (ii) geographic proximity to the project site of equipment. If the relevant equipment is determined by the project applicant to not be commercially available, the contractor can confirm this conclusion by providing letters from at least two rental companies for each piece of off-road equipment that is at issue.

Level of Significance After Mitigation

Less than significant.

Impact AIR-4 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Impact Analysis

Since the LCAQMD has no project-level thresholds of significance for the LCAB, thresholds of significance from the BAAQMD are referenced in this analysis.

As stated in the BAAQMD Air Quality Guidelines, odors are generally regarded as an annoyance rather than a health hazard and the ability to detect odors varies considerably among the populations and overall is subjective. The BAAQMD identifies two situations that create a potential for odor impact. The first occurs when a new odor source is located near an existing sensitive receptor. The second occurs when a new sensitive receptor locates near an existing source of odor. According to the *CBIA v. BAAQMD* ruling, impacts of existing sources of odors on the project are not subject to CEQA review. Therefore, the project's potential to emit odor is assessed below.

The BAAQMD does not have a recommended odor threshold for construction activities. However, the BAAQMD recommends screening criteria that are based on distance between types of sources known to generate odor and the receptor. For projects within the screening distances, the BAAQMD has the following threshold for project operations:

> An odor source with five (5) or more confirmed complaints per year averaged over three years is considered to have a significant impact on receptors within the screening distance shown in the BAAQMD's guidance (see Table 13).

The BAAQMD's 2017 Air Quality Guidelines provide a table with odor screening distances recommended by BAAQMD for a variety of land uses.[15] Projects that would site an odor source or a receptor farther than the applicable screening distance, shown in Table 13 below, would not likely result in a significant odor impact.

Table 13: Screening Levels for Potential Odor Sources

Odor Generator	Distance
Wastewater Treatment Plant	2 miles
Wastewater Pumping Facilities	1 mile
Sanitary Landfill	2 miles
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	2 miles
Chemical Manufacturing	2 miles
Fiberglass Manufacturing	1 mile
Painting/Coating Operations	1 mile
Rendering Plant	2 miles
Coffee Roaster	1 mile
Food Processing Facility	1 mile
Confined Animal Facility/Feed Lot/Dairy	1 mile
Green Waste and Recycling Operations	1 mile
Source: Bay Area Air Quality Management District (BAAQMD). 2017. Air Quality Standards and Attainment Status. Website: https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status. Accessed March 1, 2022.	

Project Construction and Project Operation

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies. Project operations would not be anticipated to produce odorous emissions, as the project would not be considered an odor generator based on the land uses shown in Table 13. Construction activities associated with the proposed project could result in short-term odorous emissions from diesel exhaust associated with construction equipment. However, these emissions would be intermittent and would dissipate rapidly from the source. In addition, this diesel-powered equipment would only be present onsite temporarily during construction activities. Therefore, construction would not create objectionable odors affecting a substantial number of people from use of diesel-powered equipment. In addition, burning is not allowed as a means of disposal for waste material from construction debris and would not be a source of odors during construction of proposed project. As there would not be conditions under which the project would have the potential to expose a substantial number of people to odors emitted from construction or operations of the project, and the impact would be less than significant.

Level of Significance Before Mitigation

[15] Bay Area Air Quality Management District (BAAQMD). 2017. Air Quality Standards and Attainment Status. Website: https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status. Accessed March 1, 2022.

Less than significant.

Mitigation Measures

No mitigation measures are necessary.

GREENHOUSE GASES

Environmental Setting

Greenhouse Gases

Greenhouse gases and climate change are cumulative global issues. The CARB and EPA regulate GHG emissions within the State of California and the U.S., respectively. Meanwhile, the CARB has the primary regulatory responsibility within California for GHG emissions. Local agencies can also adopt policies for GHG emission reduction.

Many chemical compounds in the Earth's atmosphere act as GHGs as they absorb and emit radiation within the thermal infrared range. When radiation from the sun reaches the Earth's surface, some of it is reflected into the atmosphere as infrared radiation (heat). Greenhouse gases absorb this infrared radiation and trap the heat in the atmosphere. Over time, the amount of energy from the sun to the Earth's surface should be approximately equal to the amount of energy radiated back into space, leaving the temperature of the earth's surface roughly constant. Many gases exhibit these "greenhouse" properties. Some of them occur in nature (water vapor, carbon dioxide [CO_2], methane [CH_4], and nitrous oxide [N_2O]), while others are exclusively human made (like gases used for aerosols).

The principal climate change gases resulting from human activity that enter and accumulate in the atmosphere are listed below.

Carbon Dioxide

Carbon dioxide enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

Methane

Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and agricultural practices and the decay of organic waste in municipal solid waste landfills.

Nitrous Oxide

Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

Fluorinated Gases

Hydrofluorocarbons, perfluorinated chemicals, and sulfur hexafluoride are synthetic, powerful climate-change gases that are emitted from a variety of industrial processes. Fluorinated gases are often used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent climate-change gases, they are sometimes referred to as high global warming potential gases.

Emissions Inventories and Trends

According to the CARB's recent GHG inventory for the state, released 2021, California produced 418.2 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) in 2019. The major source of GHGs in California is transportation, contributing approximately 39.7 percent of the state's total GHG emissions in 2019.[16] This puts total emissions at 12.8 $MMTCO_2e$ below the 2020 target of 431 million metric tons. California statewide GHG emissions dropped below the 2020 GHG limit in 2016 and have remained below the 2020 GHG limit since then.

Potential Environmental Impacts

For California, climate change in the form of warming has the potential to incur and exacerbate environmental impacts, including but not limited to changes to precipitation and runoff patterns, increased agricultural demand for water, inundation of low-lying coastal areas by sea-level rise, and increased incidents and severity of wildfire events.[17] Cooling of the climate may have the opposite effects. Although certain environmental effects are widely accepted to be a potential hazard to certain locations, such as rising sea level for low-lying coastal areas, it is currently infeasible to predict all environmental effects of climate change on any one location.

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial and manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. A project's GHG emissions are at a micro-scale relative to global emissions but could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact.

Regulatory Requirements

California has adopted statewide legislation addressing various aspects of climate change and GHG emissions mitigation. Much of this legislation establishes a broad framework for the state's long-term GHG reduction and climate change adaptation program. The governor has also issued several executive orders (EOs) related to the state's evolving climate change policy. Of particular importance are AB 32 and SB 32, which outline the state's GHG reduction goals of achieving 1990 emissions levels by 2020 and a 40 percent reduction below 1990 emissions levels by 2030.

In the absence of federal regulations, control of GHGs is generally regulated at the state level and is typically approached by setting emission reduction targets for existing sources of GHGs, setting policies to promote renewable energy and increase energy efficiency, and developing statewide action plans.

Thresholds of Significance

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would

[16] California Air Resources Board (CARB). 2021. California Greenhouse Gas Emissions for 2000 to 2019. Website: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf. Accessed. March 1, 2022.

[17] Moser et al. 2009. Moser, Susie, Guido Franco, Sarah Pittiglio, Wendy Chou, Dan Cayan. 2009. The Future Is Now: An Update on Climate Change Science Impacts and Response Options for California. Website: http://www.susannemoser.com/documents/CEC-500-2008-071_Moseretal_FutureisNow.pdf. Accessed March 1, 2022.

have a significant impact on GHGs, the type, level, and impact of emissions generated by the project must be evaluated.

The following GHG significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

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

Project-level Thresholds

Section 15064.4(b) of the CEQA Guidelines' amendments for GHG emissions states that a lead agency may take into account the following three considerations in assessing the significance of impacts from GHG emissions.

- Consideration #1: The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting.
- Consideration #2: Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- Consideration #3: The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an Environmental Impact Report (EIR) must be prepared for the project.

Newhall Ranch

In the California Supreme Court decision in the *Center for Biological Diversity et al. vs. California Department of Fish and Wildlife, the Newhall Land and Farming Company* (62 Cal.4th 204 [2015], and known as the Newhall Ranch decision), the Supreme Court was concerned that new development may need to reduce GHG emissions more than existing development to demonstrate it is meeting its fair share of reductions. New development does do more than its fair share through compliance with enhanced regulations, particularly with respect to motor vehicles, energy efficiency, and electricity generation. If no additional reductions are required from an individual project beyond that achieved by regulations, then the amount needed to reach the 2020 target is the amount of GHG emissions a project must reduce to comply with Statewide goals.

The State's regulatory program implementing the 2008 Scoping Plan is now fully mature. All regulations envisioned in the Scoping Plan have been adopted by the responsible agencies and the effectiveness of those regulations have been estimated by the agencies during the adoption process and then are tracked to verify their effectiveness after implementation. The Governor

Brown, in the introduction to Executive Order B-30-15, states "California is on track to meet or exceed the current target of reducing greenhouse gas emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32)." The progress was evident in emission inventories prepared by CARB, which showed that the State inventory dropped below 1990 levels for the first time in 2016.[18] The 2017 Scoping Plan Update includes projections indicating that the State will meet or exceed the 2020 target with adopted regulations.[19] The State now projects that it will meet the 2020 target and achieve continued progress towards meeting the 2017 Scoping Plan target for 2030.

GHG Threshold Applied in the Analysis

The City of Lakeport adopted their most recent General Plan (City of Lakeport General Plan 2025) in 2009, which includes city-wide goals and strategies for reducing GHG emissions. The 2025 General Plan does not identify thresholds for determining the significance of GHG emissions during construction or operation of individual development projects.[20] The City of Lakeport has not adopted a GHG reduction plan. In addition, the City has not completed the GHG inventory, benchmarking, or goal-setting process required to identify a reduction target and take advantage of the streamlining provisions contained in the CEQA Guidelines amendments adopted for SB 97 and clarifications provided in the CEQA Guidelines amendments adopted on December 28, 2018. Furthermore, there are no recommendations provided by the LCAQMD for projects in the LCAB. As such, there are not formally adopted or recommended project-level thresholds of significance provided by either the LCAQMD or the City of Lakeport. In the absence of an adopted numeric GHG emissions threshold consistent with the State's 2030 target, the project's GHG emissions impact determination is based on the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The project's GHG emissions are provided for informational purposes only.

Environmental Impact Analysis

This section discusses potential impacts related to GHGs associated with the proposed project and provides mitigation measures where necessary.

Impact GHG-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact Analysis

The proposed project may contribute to climate change impacts through its contribution of GHGs. The proposed project would generate a variety of GHGs during construction, including several defined by AB 32, such as CO_2, CH_4, and N_2O from the exhaust of equipment, construction hauling trips, and worker commuter trips.

[18] California Air Resources Board (CARB). 2018. Climate Pollutants Fall Below 1990 Levels for the First Time. Website: https://ww2.arb.ca.gov/news/climate-pollutants-fall-below-1990-levelsfirst-time. Accessed March 1, 2022.

[19] California Air Resources Board (CARB). 2017. The 2017 Climate Change Scoping Plan Update, the Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target. January 17, 2017. Website: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf. Accessed March 1, 2022.

[20] City of Lakeport. 2009. General Plan 2025. Website: https://www.cityoflakeport.com/Planning/Lakeport%20General%20Plan%202025/City-of-Lakeport-General-Plan-2025_Augus-8312009103657PM.pdf. Accessed March 1, 2022.

In the absence of an adopted numeric GHG emissions threshold consistent with the State's 2030 target, the project's GHG emissions impact determination is based on the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The project's GHG emissions are provided for informational purposes only.

Quantification of Greenhouse Gas Emissions for Informational Purposes

Construction Emissions

Construction emissions would be generated from the exhaust of construction equipment, material delivery trips, haul truck trips, and worker commuter trips. Detailed construction assumptions are provided in Modeling Parameters and Assumptions section of this technical memorandum. Construction-generated GHGs were quantified and are disclosed in Attachment A. $MTCO_2e$ emissions during construction of the project are summarized below in Table 14.

Table 14: Construction Greenhouse Gas Emissions

Project Construction (2022-2023)	**$MTCO_2e$**
Site Preparation	18
Grading	103
Paving	23
Building Construction (2022)	220
Building Construction (2023)	512
Architectural Coating	6
Total Construction $MTCO_2e$	**882**
Emissions Amortized Over 30 Years[1]	**29**

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalent
[1] Construction GHG emissions are amortized over the 30-year lifetime of the project.
Source: CalEEMod Output (Attachment A).

During the construction of the proposed project, approximately 882 $MTCO_2e$ would be emitted. Neither the City of Lakeport, the LCAQMD, nor the BAAQMD have an adopted thresholds of significance for construction related GHG emissions. Because impacts from construction activities occur over a relatively short-term period, they contribute a relatively small portion of the overall lifetime project GHG emissions. In addition, GHG emission reduction measures for construction equipment are relatively limited. Therefore, a standard practice is to amortize construction emissions over the anticipated lifetime of a project, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies. However, emissions were quantified for informational purposes only. The total emissions generated during construction were amortized based on the life of the development (30 years) and added to the operational emissions to determine the total emissions from the project, as shown below.

Operational Emissions

Operational or long-term emissions occur over the life of the project. The operational emissions for the proposed project are shown in Table 15. Sources for operational emissions include the following:

- Motor Vehicles: These emissions refer to GHG emissions contained in the exhaust from the cars and trucks that would travel to and from the project site.
- Natural Gas: These emissions refer to the GHG emissions that occur when natural gas is burned on the project site. Natural gas uses include heating water, space heating, dryers, stoves, or other uses.
- Indirect Electricity: These emissions refer to those generated by offsite power plants to supply electricity required for the project.
- Water Transport: These emissions refer to those generated by the electricity required to transport and treat the water to be used on the project site.
- Waste: These emissions refer to the GHG emissions produced by decomposing waste generated by the project. These include waste removed from car interiors during the cleaning process; waste generated in the restrooms; and waste generated from the operations of the facility.

Detailed modeling results and more information regarding assumptions used to estimate emissions are provided in Attachment A. Operational emissions are shown in Table 15.

Table 15: Operational Greenhouse Gas Emissions at Project Buildout

Source Category	**$MTCO_2e$**
Area	79
Energy Consumption	150
Mobile	2,017
Solid Waste Generation	54
Water Usage	19
Amortized Construction Emissions[1]	29
Total	*2,348*

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalent
[1] Construction GHG emissions are amortized over the 30-year lifetime of the project.
Source: CalEEMod Output (Attachment A).

Project operations estimated in the 2030 operational year are provided in Table 16 below.

Table 16: Operational Greenhouse Gas Emissions in the 2030 Operational Year

Source Category	**$MTCO_2e$**
Area	79
Energy Consumption	146
Mobile	1,597
Solid Waste Generation	54

Source Category	$MTCO_2e$
Water Usage	19
Amortized Construction Emissions[1]	29
Total	*1,924*

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalent
[1] Construction GHG emissions are amortized over the 30-year lifetime of the project.
Source: CalEEMod Output (Attachment A).

As previously noted, the project's estimated emissions were estimated for disclosure purposes. However, significance for GHG emissions is analyzed by assessing the project's compliance with Consideration No. 3 regarding consistency with adopted plans to reduce GHG emissions. As discussed in detail below, the project would not conflict with any applicable plan, policy or regulation of an agency adopted to reduce the emissions of GHGs. As such, the project's generation of GHG emissions would not result in a significant impact on the environment.

Impact Analysis (Project's Compliance with Consideration No. 3 Regarding Consistency with Adopted Plans to Reduce GHG Emissions)

The following analysis assesses the project's compliance with Consideration No. 3 regarding consistency with adopted plans to reduce GHG emissions. As discussed above, the City of Lakeport has not adopted a GHG reduction plan. In addition, the City has not completed the GHG inventory, benchmarking, or goal-setting process required to identify a reduction target and take advantage of the streamlining provisions contained in the CEQA Guidelines amendments adopted for SB 97 and clarifications provided in the CEQA Guidelines amendments adopted on December 28, 2018. There are no other local plans adopted for the purposes of reducing GHG emissions that contain measures that are applicable to development projects. Since no other local or regional Climate Action Plan is in place, the project is assessed for its consistency with CARB's adopted Scoping Plans. This would be achieved with an assessment of the project's compliance with Scoping Plan measures contained in the 2017 Scoping Plan Update.

Greenhouse Gas Emissions Estimation Summary and Greenhouse Gas Impact Analysis

Greenhouse Gas Impact Analysis

The following analysis assesses the proposed project's compliance with Consideration No. 3 regarding consistency with adopted plans to reduce GHG emissions. The proposed project is assessed for its consistency with CARB's adopted Scoping Plans. This would be achieved with an assessment of the proposed project's compliance with Scoping Plan measures contained in the 2017 Scoping Plan Update.

Consistency with SB 32

The 2017 Climate Change Scoping Plan Update (2017 Scoping Plan) includes the strategy that the State intends to pursue to achieve the 2030 targets of Executive Order S-3-05 and SB 32. The 2017 Scoping Plan includes the following summary of its overall strategy for reaching the 2030 target:

- SB 350
    - Achieve 50 percent Renewables Portfolio Standard (RPS) by 2030.
    - Doubling of energy efficiency savings by 2030.
- Low Carbon Fuel Standard (LCFS)
    - Increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020).
- Mobile Source Strategy (Cleaner Technology and Fuels Scenario)
    - Maintaining existing GHG standards for light- and heavy-duty vehicles.
    - Put 4.2 million zero-emission vehicles (ZEVs) on the roads.
    - Increase ZEV buses, delivery and other trucks.
- Sustainable Freight Action Plan
    - Improve freight system efficiency.
    - Maximize use of near-zero emission vehicles and equipment powered by renewable energy.
    - Deploy over 100,000 zero-emission trucks and equipment by 2030.
- Short-Lived Climate Pollutant (SLCP) Reduction Strategy
    - Reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030.
    - Reduce emissions of black carbon 50 percent below 2013 levels by 2030.
- SB 375 Sustainable Communities Strategies
    - Increased stringency of 2035 targets.
- Post-2020 Cap-and-Trade Program
    - Declining caps, continued linkage with Québec, and linkage to Ontario, Canada.
    - CARB will look for opportunities to strengthen the program to support more air quality co-benefits, including specific program design elements. In Fall 2016, CARB staff described potential future amendments including reducing the offset usage limit, redesigning the allocation strategy to reduce free allocation to support increased technology and energy investment at covered entities and reducing allocation if the covered entity increases criteria or toxics emissions over some baseline.
- By 2018, develop Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

Table 17 provides an analysis of the project's consistency with the 2017 Scoping Plan Update measures.

Table 17: Consistency with SB 32 2017 Scoping Plan Update

Scoping Plan Measure	Project Consistency
SB 350 50% Renewable Mandate. Utilities subject to the legislation will be required to increase their renewable energy mix from 33% in 2020 to 50% in 2030.	**Consistent**: The project will purchase electricity from a utility subject to the SB 350 Renewable Mandate SB 100 Renewable Mandate. SB 100 revised the Renewable Portfolio Standard goals to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. The specific provider for the City of Lakeport and the proposed project is Pacific Gas and Electric Company (PG&E).
SB 350 Double Building Energy Efficiency by 2030. This is equivalent to a 20 percent reduction from 2014 building energy usage compared to current projected 2030 levels.	**Not Applicable**. This measure applies to existing buildings. Renovations to existing buildings are not proposed as part of the proposed project, which includes the development of new residential uses. New structures are required to comply with Title 24 Energy Efficiency Standards that are expected to increase in stringency until residential housing achieves zero net energy.
Low Carbon Fuel Standard. This measure requires fuel providers to meet an 18 percent reduction in carbon content by 2030.	**Consistent**. Vehicles accessing the project site will use fuel containing lower carbon content as the fuel standard is implemented.
Mobile Source Strategy (Cleaner Technology and Fuels Scenario). Vehicle manufacturers will be required to meet existing regulations mandated by the LEV III and Heavy-Duty Vehicle programs. The strategy includes a goal of having 4.2 million ZEVs on the road by 2030 and increasing numbers of ZEV trucks and buses.	**Consistent**. The project is residential in nature and would not engage in vehicle manufacturing; however, vehicles would access the project site during project operations. Future project occupants and visitors can be expected to purchase increasing numbers of more fuel efficient and zero emission cars and trucks each year. The 2016 CALGreen Code requires electrical service in new single-family housing to be EV charger-ready. Home deliveries will be made by increasing numbers of ZEV delivery trucks.
Sustainable Freight Action Plan. The plan's target is to improve freight system efficiency 25 percent by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces by 2030. This would be achieved by deploying over 100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.	**Not Applicable**. The measure applies to owners and operators of trucks and freight operations. However, deliveries that would be made to the future businesses are expected to be made by increasing number of ZEV delivery trucks.
Short-Lived Climate Pollutant (SLCP) Reduction Strategy. The strategy requires the reduction of SLCPs by 40 percent from 2013 levels by 2030 and the reduction of black carbon by 50 percent from 2013 levels by 2030.	**Consistent.** Sources of black carbon are already regulated by the CARB and air district criteria pollutant and toxic regulations that control fine particulate emissions from diesel engines and other combustion source. The project residences would not include hearths or would include only electric or natural gas hearths; natural gas hearths produce very little black carbon compared to woodburning fireplaces and heaters.

Scoping Plan Measure	Project Consistency
SB 375 Sustainable Communities Strategies. Requires Regional Transportation Plans to include a sustainable communities strategy for reduction of per capita vehicle miles traveled.	**Not Applicable**. The project does not consist of a proposed regional transportation plan; therefore, this measure is not applicable to the proposed project.
Post-2020 Cap-and-Trade Program. The Post 2020 Cap-and-Trade Program continues the existing program for another 10 years. The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers.	**Consistent.** The post-2020 Cap-and-Trade Program indirectly affects people who use the products and services produced by the regulated industrial sources when increased cost of products or services (such as electricity and fuel) are transferred to the consumers. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the program's first compliance period.
Natural and Working Lands Action Plan. The CARB is working in coordination with several other agencies at the federal, state, and local levels, stakeholders, and with the public, to develop measures as outlined in the Scoping Plan Update and the governor's Executive Order B-30-15 to reduce GHG emissions and to cultivate net carbon sequestration potential for California's natural and working land.	**Not Applicable**. The project consists of residential development and will not be considered natural or working lands.
Source: California Air Resources Board (CARB). 2017. The 2017 Climate Change Scoping Plan Update. January 20. Website: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf. Accessed March 1, 2022.	

Regarding goals for 2050 under Executive Order S-3-05, at this time it is not possible to quantify the emissions savings from future regulatory measures, as they have not yet been developed; nevertheless, it can be anticipated that operation of the project would comply with whatever measures are enacted that state lawmakers decide would lead to an 80 percent reduction below 1990 levels by 2050. In its 2008 Scoping Plan, CARB acknowledged that the "measures needed to meet the 2050 are too far in the future to define in detail." In the First Scoping Plan Update; however, CARB generally described the type of activities required to achieve the 2050 target: "energy demand reduction through efficiency and activity changes; large scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and rapid market penetration of efficiency and clean energy technologies that requires significant efforts to deploy and scale markets for the cleanest technologies immediately." The 2017 Scoping Plan provides an intermediate target that is intended to achieve reasonable progress toward the 2050 target.

Accordingly, taking into account the proposed project's emissions, project design features, and the progress being made by the State towards reducing emissions in key sectors such as

transportation, industry, and electricity, the project would be consistent with State GHG Plans and would further the State's goals of reducing GHG emissions to 1990 levels by 2020, 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050, and does not obstruct their attainment. Impacts would be less than significant.

Conclusion

Taking into account the proposed project's design features and the progress being made by the State towards reducing emissions in key sectors such as transportation, industry, and electricity, the proposed project would be consistent with State and local GHG Plans would not obstruct their attainment. The proposed project's GHG impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

No mitigation measures are necessary.

Impact GHG-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Impact Analysis

The analysis contained above under Impact GHG-1 evaluates whether the project would not conflict with any applicable plan, policy, or regulation of an agency adopted to reduce the emissions of GHGs. As discussed under Impact GHG-1 above, the project would not conflict with any applicable plan, policy, or regulation of agency to reduce. As such, project impacts in this regard would be less than significant.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

No mitigation measures are necessary.

Energy

Environmental Setting

Pacific Gas and Electric Company provides electricity and natural gas service to the City of Lakeport. Upon buildout of the project site, electricity to the project site would be provided by PG&E. All electricity infrastructure would be located underground and would tie-in to existing infrastructure.

In 2020, approximately 85 percent of the electricity PG&E supplied was from GHG-free sources including nuclear, large hydroelectric, and eligible renewable sources of energy.[21]

Methodology

The energy requirements for the proposed project were determined using the construction and operational estimates generated from the Air Quality Analysis (refer to Attachment A for related CalEEMod output files). The calculation worksheets for diesel fuel consumption rates for off-road construction equipment and on-road vehicles are provided in Attachment C. Short-term construction energy consumption is discussed below.

Short-Term Construction

Off-Road Equipment

The proposed project is anticipated to begin construction as early as June 1, 2022 and last approximately 18 months. For modeling purposes, construction was assumed to be completed on December 1, 2023. Table 18 provides estimates of the project's construction fuel consumption from off-road construction equipment for the entire project, categorized by construction activity.

Table 18: Construction Off-Road Fuel Consumption

Project Component	Construction Activity	Fuel Consumption (gallons)
Lakeport Waterstone Residential Project	Site Preparation	705
	Grading	3,878
	Paving	844
	Building Construction	17,387
	Architectural Coating	124
Total		**22,938**

Note: Totals may not appear to sum correctly due to rounding.
Source: Energy Consumption Calculations (Attachment C).

As shown in Table 18, off-road construction equipment usage associated with the proposed project would be estimated to consume approximately 22,9338 gallons of diesel fuel. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of the state. Therefore, it is expected that construction fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

[21] Pacific Gas & Electric (PG&E). 2021. Corporate Sustainability Report 2021. Website: https://www.pgecorp.com/corp_responsibility/reports/2021/pf04_renewable_energy.html. Accessed February 1, 2022.

On-Road Vehicles

On-road vehicles for construction workers, vendors, and haulers would require fuel for travel to and from the site during construction. Table 19 provides an estimate of the total on-road vehicle fuel usage during construction.

Table 19: Construction On-Road Fuel Consumption

Project Component	Construction Activity	Total Annual Fuel Consumption (gallons)
Lakeport Waterstone Residential Project	Site Preparation	160
	Grading	2,060
	Paving	276
	Building Construction	36,895
	Architectural Coating	389
Total		**39,780**
Notes: Total calculated after rounding fuel usage from each construction activity to the nearest whole number. Several assumptions related to the construction trips were selected to provide a conservative estimate of emissions that would also result in a conservative estimate of annual fuel consumption (see Attachments A and C). Source: Energy Consumption Calculations (Attachment C).		

As shown in Table 19, construction trips are estimated to consume approximately 39,780 gallons of gasoline and diesel fuel combined. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of the state. Therefore, it is expected that construction fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

Long-Term Operations

Transportation Energy Demand

Table 20 provides an estimate of the daily and annual fuel consumed by vehicles traveling to and from the proposed project. These estimates were derived using the same assumptions used in the operational air quality analysis for the proposed project.

Table 20: Long-Term Operational Vehicle Fuel Consumption

Vehicle Type	Percent of Vehicle Trips	Daily VMT	Annual VMT	Average Fuel Economy (miles/ gallon)[1]	Total Daily Fuel Consumption (gallons)	Total Annual Fuel Consumption (gallons)
Passenger Cars (LDA)	45.6	6,557	2,393,342	30.96	211.8	77,310
Light Trucks and Medium Duty Vehicles (LDT1, LDT2, MDV)	41.7	5,991	2,186,831	22.42	267.3	97,553

Vehicle Type	Percent of Vehicle Trips	Daily VMT	Annual VMT	Average Fuel Economy (miles/ gallon)[1]	Total Daily Fuel Consumption (gallons)	Total Annual Fuel Consumption (gallons)
Light-Heavy to Heavy-Heavy Diesel Trucks (LHD1, LHD2, MHDT, HHDT)	7.9	1,133	413,373	11.46	98.8	36,072
Motorcycles (MCY)	3.8	547	199,836	35.70	15.3	5,598
Other (OBUS, UBUS, SBUS, MH)	1.0	137	50,006	6.71	20.4	7,451
Total	**100%**	**14,365**	**5,243,394**	**—**	**613.7**	**223,983**

Notes:
Percent of Vehicle Trips and VMT provided by CalEEMod.
"Other" consists of buses and motor homes.
VMT = vehicle miles traveled
Source: Energy Consumption Calculations (Attachment C).

As shown above, daily vehicular fuel consumption is estimated to be 613.7 gallons of gasoline and diesel fuel combined. Annual consumption is estimated at 223,983 gallons.

In terms of land use planning decisions, the proposed project would constitute development within an established community and would not be opening a new geographical area for development such that it would draw mostly new trips or substantially lengthen existing trips. In addition, the vehicle fleet mix would be typical of other residential development in the region. For these reasons, it would be expected that vehicular fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than for any other similar land use activities in the region.

Building Energy Demand

As shown in Table 21 and Table 22, the proposed project is estimated to demand 912,902 kilowatt-hours (kWh) of electricity and 1,861,137 1,000-British Thermal Units (kBTU) of natural gas, respectively, on an annual basis. The proposed project would be built according to code and would generate on-site renewable energy from inclusion of rooftop solar panels on the single-family residential development.

Table 21: Long-Term Electricity Usage

Land Use	Size (DU)	Total Electricity Demand (kWh/year)
Multifamily Development	128	530,994
Single-family Development	48	381,908
Total Project		**912,902**

Notes:
DU = Dwelling Units
kWh = kilowatt hour
The estimates above represent total estimated electricity consumption on an annual basis from operations of the proposed project.
Source: Energy Consumption Calculations (Attachment C).

Table 22: Long-Term Natural Gas Usage

Land Use	Size (DU)	Total Natural Gas Demand (kBTU/year)
Multifamily Development	128	1,327,000
Single-family Development	48	534,137
Total Project		**1,861,137**

Notes:
DU = Dwelling Units
kBTU = 1,000 British Thermal Units
Source: Energy Consumption Calculations (Attachment C).

Environmental Impact Analysis

This section discusses potential energy impacts associated with the proposed project and provides mitigation measures where necessary.

Impact EN-1 Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Impact Analysis

This impact addresses the energy consumption from both the short-term construction and long-term operations are discussed separately below.

Construction Energy Demand

As summarized in Table 18 and Table 19, the proposed project would require 22,938 gallons of diesel fuel for construction off-road equipment and 39,780 gallons of gasoline and diesel for on-road vehicles during construction. There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of the state. Therefore, it is expected that construction fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region, and as such, impacts would be less than significant.

Long-Term Energy Demand

Building Energy Demand

Buildings and infrastructure constructed pursuant to the proposed project would comply with the versions of CCR Titles 20 and 24, including California Green Building Standards (CALGreen), that are applicable at the time that building permits are issued. The proposed project is estimated to demand 912,902 kWh of electricity per year and 1,861,137 kBTU of natural gas per year. This would represent an increase in demand for electricity and natural gas. It should be noted that these estimates were prepared assuming compliance with existing rules and regulations and may not reflect project design features that could further reduce the proposed project energy demand.

It would be expected that building energy consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than for any other similar buildings in the region. Current state regulatory requirements for new building construction contained in the 2016 CALGreen and Title 24 standards would increase energy efficiency and reduce energy demand in comparison to existing commercial structures, and therefore would reduce actual environmental effects associated with energy use from the proposed project. Additionally, the CALGreen and Title 24 standards have increased efficiency standards through each update. The proposed project would be built in accordance with regulations in effect at the time building permits are issues and would generate on-site renewable energy from inclusion of rooftop solar panels.

Therefore, while the proposed project would result in increased electricity and natural gas demand, the electricity and natural gas would be consumed more efficiently and would be typical of residential development. If buildout of the project is delayed, compliance with future building code standards would result in increased energy efficiency.

Based on the above information, the proposed project would not result in the inefficient or wasteful consumption of electricity or natural gas, and impacts would be less than significant.

Transportation Energy Demands

The daily vehicular fuel consumption is estimated to be 613.7 gallons of gasoline and diesel fuel combined. Annual consumption is estimated at 223,983 gallons. The proposed project would constitute development within an established community and would not be opening a new geographical area for development such that it would draw mostly new trips or substantially lengthen existing trips. The proposed project would be well positioned to accommodate an existing population and anticipated growth in the City of Lakeport. Furthermore, the proposed project is located within two mile of multiple land uses, including office and commercial developments. In addition, vehicles accessing the project site would be typical of other residential uses in the region. For these reasons, it would be expected that vehicular fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than for any other similar land use activities in the region, and impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

No mitigation measures are necessary.

Impact EN-2 Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Impact Analysis

The City's General Plan includes Policy CD 2.7 to promote energy efficiency through the siting and design of new buildings. Additionally, General Plan objectives C-5 and C-6 reduce the reliance on nonrenewable energy sources in existing and new commercial, industrial, and public structures through implementation of energy resource policies to encourage the use of renewable energy and decrease energy demand.[22] These policies and objectives are not applicable to the proposed residential development project. However, the proposed project would not impede or conflict with any of the energy objectives or policies of the General Plan. The proposed project would constitute development within an established community and would not be opening a new geographical area for development such that it would draw mostly new trips, or substantially lengthen existing trips. The proposed project would be well positioned to accommodate existing population. The proposed project would comply with the versions of CCR Titles 20 and 24, including CALGreen, that are applicable at the time that building permits are issued and with all applicable City measures. Part 11, Chapter 4 and 5, of the State's Title 24 energy efficiency standards establishes mandatory measures for residential and nonresidential buildings. Examples of these mandatory measure include solar, electric vehicle (EV) charging infrastructure, bicycle parking, energy efficiency, water efficiency and conservation, and material conservation and resource efficiency. The proposed project would be required to comply with mandatory measures for new residential development. In addition, the proposed project includes cluster homes and multi-family development, consistent with General Plan objective CD 1 and Policy CD 1.1. The project would locate housing near convenient access to jobs and would provide connectivity within the project site. Compliance with these aforementioned mandatory measures and project design features would ensure that the proposed project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing energy use or increasing the use of renewable energy. Therefore, operational energy efficiency and renewable energy standards consistency impacts would be less than significant.

For the above reasons, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

No mitigation measures are necessary.

[22] City of Lakeport. 2009. General Plan 2025. Website: https://www.cityoflakeport.com/Planning/Lakeport%20General%20Plan%202025/City-of-Lakeport-General-Plan-2025_Augus-8312009103657PM.pdf. Accessed March 1, 2022.

Attachments:

Attachment A – CalEEMod Output

Attachment B – Construction Health Risk Assessment

Attachment C – Energy Consumption Calculations

Attachment D – Additional Supporting Information

ATTACHMENT A
CalEEMod Output

Lakeport Residential Project - Construction and 2023 Operations - Lake County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Lakeport Residential Project - Construction and 2023 Operations

Lake County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.34	Acre	2.34	101,930.40	0
Apartments Low Rise	128.00	Dwelling Unit	5.70	256,000.00	366
Single Family Housing	48.00	Dwelling Unit	7.12	86,400.00	137

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	67
Climate Zone	1			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Earliest Occupancy: 2023

Land Use - 128 multi-family units + 48 single-family units = 176 total dwelling units
Total project acreage: 15.16 (including 2.34 acres for public right-of-way)

Construction Phase - 18-month construction schedule
Earliest construction start date provides a conservative estimate of emissions

Trips and VMT - Additional truck trips were added to each phase for mobilization/demobilization of on-site equipment (two trips per piece of equipment).
Additional vendor trips added to the paving phase to account for delivery of materials.

Grading - Cut/fill anticipated to balance on-site
Assumed 2,000 cubic yards of import + 2,000 cubic yards of import to provide a conservative estimate of emissions

Vehicle Trips - Project trip generation, consistent with the Traffic Study prepared for the project (Residential Development - City of Lakeport)
Single-family ADT: 514; Multifamily ADT: 896

Vehicle Emission Factors -

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Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - No woodburning fireplaces or woodstoves

Construction Off-road Equipment Mitigation - Basic construction dust control measures (water exposed area and 15 mph vehicle speed on unpaved surfaces)

Energy Mitigation - Compliance with Title 24 standards

Water Mitigation - Compliance with the Green Building Code Standards and the Water Efficient Land Use Ordinance

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	300.00	313.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberWood	44.80	0.00
tblFireplaces	NumberWood	16.80	0.00
tblGrading	MaterialExported	0.00	2,000.00
tblGrading	MaterialImported	0.00	2,000.00
tblLandUse	LandUseSquareFeet	128,000.00	256,000.00
tblLandUse	LotAcreage	8.00	5.70
tblLandUse	LotAcreage	15.58	7.12
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	14.00
tblTripsAndVMT	HaulingTripNumber	500.00	516.00
tblTripsAndVMT	HaulingTripNumber	0.00	18.00
tblTripsAndVMT	HaulingTripNumber	0.00	12.00
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblVehicleTrips	ST_TR	8.14	7.00
tblVehicleTrips	ST_TR	9.54	10.71

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	SU_TR	6.28	7.00
tblVehicleTrips	SU_TR	8.55	10.71
tblVehicleTrips	WD_TR	7.32	7.00
tblVehicleTrips	WD_TR	9.44	10.71
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

Lakeport Residential Project - Construction and 2023 Operations - Lake County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.2415	1.8233	1.9787	4.0300e-003	0.3446	0.0783	0.4230	0.1344	0.0729	0.2073	0.0000	359.3202	359.3202	0.0682	0.0112	364.3496
2023	5.7214	1.9275	2.8601	5.7200e-003	0.2323	0.0805	0.3128	0.0623	0.0758	0.1381	0.0000	510.5388	510.5388	0.0685	0.0181	517.6297
Maximum	**5.7214**	**1.9275**	**2.8601**	**5.7200e-003**	**0.3446**	**0.0805**	**0.4230**	**0.1344**	**0.0758**	**0.2073**	**0.0000**	**510.5388**	**510.5388**	**0.0685**	**0.0181**	**517.6297**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.2415	1.8233	1.9787	4.0300e-003	0.2145	0.0783	0.2928	0.0764	0.0729	0.1494	0.0000	359.3200	359.3200	0.0682	0.0112	364.3493
2023	5.7214	1.9275	2.8601	5.7200e-003	0.2323	0.0805	0.3128	0.0623	0.0758	0.1381	0.0000	510.5385	510.5385	0.0685	0.0181	517.6294
Maximum	**5.7214**	**1.9275**	**2.8601**	**5.7200e-003**	**0.2323**	**0.0805**	**0.3128**	**0.0764**	**0.0758**	**0.1494**	**0.0000**	**510.5385**	**510.5385**	**0.0685**	**0.0181**	**517.6294**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**22.55**	**0.00**	**17.68**	**29.46**	**0.00**	**16.77**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**6-1-2022**	**8-31-2022**	1.0836	1.0836
2	**9-1-2022**	**11-30-2022**	0.7315	0.7315
3	**12-1-2022**	**2-28-2023**	0.6838	0.6838
4	**3-1-2023**	**5-31-2023**	0.6681	0.6681
5	**6-1-2023**	**8-31-2023**	0.6643	0.6643
6	**9-1-2023**	**9-30-2023**	0.2166	0.2166
		Highest	1.0836	1.0836

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.9301	0.0809	1.3352	4.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	78.3792	78.3792	3.5100e-003	1.4000e-003	78.8836
Energy	0.0100	0.0858	0.0365	5.5000e-004		6.9300e-003	6.9300e-003		6.9300e-003	6.9300e-003	0.0000	183.7823	183.7823	0.0156	3.4800e-003	185.2077
Mobile	1.5444	2.4718	14.1685	0.0215	1.9385	0.0262	1.9647	0.5195	0.0246	0.5441	0.0000	1,978.4828	1,978.4828	0.1568	0.1170	2,017.2827
Waste						0.0000	0.0000		0.0000	0.0000	21.9636	0.0000	21.9636	1.2980	0.0000	54.4139
Water						0.0000	0.0000		0.0000	0.0000	3.6380	8.0820	11.7200	0.3750	8.9800e-003	23.7705
Total	**3.4846**	**2.6384**	**15.5402**	**0.0225**	**1.9385**	**0.0457**	**1.9842**	**0.5195**	**0.0441**	**0.5636**	**25.6016**	**2,248.7264**	**2,274.3280**	**1.8489**	**0.1309**	**2,359.5585**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.9301	0.0809	1.3352	4.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	78.3792	78.3792	3.5100e-003	1.4000e-003	78.8836
Energy	0.0100	0.0858	0.0365	5.5000e-004		6.9300e-003	6.9300e-003		6.9300e-003	6.9300e-003	0.0000	148.4468	148.4468	9.8500e-003	2.7800e-003	149.5228
Mobile	1.5444	2.4718	14.1685	0.0215	1.9385	0.0262	1.9647	0.5195	0.0246	0.5441	0.0000	1,978.4828	1,978.4828	0.1568	0.1170	2,017.2827
Waste						0.0000	0.0000		0.0000	0.0000	21.9636	0.0000	21.9636	1.2980	0.0000	54.4139
Water						0.0000	0.0000		0.0000	0.0000	2.9104	6.4656	9.3760	0.3000	7.1900e-003	19.0164
Total	**3.4846**	**2.6384**	**15.5402**	**0.0225**	**1.9385**	**0.0457**	**1.9842**	**0.5195**	**0.0441**	**0.5636**	**24.8740**	**2,211.7744**	**2,236.6484**	**1.7682**	**0.1284**	**2,319.1195**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.84**	**1.64**	**1.66**	**4.37**	**1.90**	**1.71**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2022	6/14/2022	5	10	
2	Grading	Grading	6/15/2022	7/26/2022	5	30	
3	Paving	Paving	7/27/2022	8/23/2022	5	20	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Building Construction	Building Construction	8/24/2022	11/5/2023	5	313	Adjusted to match 18-month schedule
5	Architectural Coating	Architectural Coating	11/6/2023	12/1/2023	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 2.34

Residential Indoor: 693,360; Residential Outdoor: 231,120; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 6,116 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	14.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	516.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	152.00	36.00	18.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	4.00	12.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	30.00	0.00	2.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0983**	**8.0600e-003**	**0.1064**	**0.0505**	**7.4200e-003**	**0.0579**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.7000e-003	2.3000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.4542	0.4542	0.0000	7.0000e-005	0.4755
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.4000e-004	6.1000e-004	5.8900e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9639	0.9639	4.0000e-005	4.0000e-005	0.9771
Total	**8.8000e-004**	**2.3100e-003**	**6.1200e-003**	**1.0000e-005**	**1.2200e-003**	**2.0000e-005**	**1.2400e-003**	**3.2000e-004**	**2.0000e-005**	**3.5000e-004**	**0.0000**	**1.4181**	**1.4181**	**4.0000e-005**	**1.1000e-004**	**1.4526**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0442	0.0000	0.0442	0.0227	0.0000	0.0227	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0442**	**8.0600e-003**	**0.0523**	**0.0227**	**7.4200e-003**	**0.0302**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

Lakeport Residential Project - Construction and 2023 Operations - Lake County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.7000e-003	2.3000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.4542	0.4542	0.0000	7.0000e-005	0.4755
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.4000e-004	6.1000e-004	5.8900e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9639	0.9639	4.0000e-005	4.0000e-005	0.9771
Total	**8.8000e-004**	**2.3100e-003**	**6.1200e-003**	**1.0000e-005**	**1.2200e-003**	**2.0000e-005**	**1.2400e-003**	**3.2000e-004**	**2.0000e-005**	**3.5000e-004**	**0.0000**	**1.4181**	**1.4181**	**4.0000e-005**	**1.1000e-004**	**1.4526**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1383	0.0000	0.1383	0.0548	0.0000	0.0548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0544	0.5827	0.4356	9.3000e-004		0.0245	0.0245		0.0226	0.0226	0.0000	81.8019	81.8019	0.0265	0.0000	82.4633
Total	**0.0544**	**0.5827**	**0.4356**	**9.3000e-004**	**0.1383**	**0.0245**	**0.1628**	**0.0548**	**0.0226**	**0.0774**	**0.0000**	**81.8019**	**81.8019**	**0.0265**	**0.0000**	**82.4633**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5400e-003	0.0625	8.5200e-003	1.7000e-004	4.3400e-003	5.4000e-004	4.8800e-003	1.1900e-003	5.2000e-004	1.7100e-003	0.0000	16.7408	16.7408	7.0000e-005	2.6300e-003	17.5266
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7900e-003	2.0200e-003	0.0196	4.0000e-005	3.6800e-003	3.0000e-005	3.7100e-003	9.8000e-004	3.0000e-005	1.0100e-003	0.0000	3.2131	3.2131	1.5000e-004	1.3000e-004	3.2569
Total	**4.3300e-003**	**0.0646**	**0.0281**	**2.1000e-004**	**8.0200e-003**	**5.7000e-004**	**8.5900e-003**	**2.1700e-003**	**5.5000e-004**	**2.7200e-003**	**0.0000**	**19.9539**	**19.9539**	**2.2000e-004**	**2.7600e-003**	**20.7836**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0622	0.0000	0.0622	0.0247	0.0000	0.0247	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0544	0.5827	0.4356	9.3000e-004		0.0245	0.0245		0.0226	0.0226	0.0000	81.8018	81.8018	0.0265	0.0000	82.4632
Total	**0.0544**	**0.5827**	**0.4356**	**9.3000e-004**	**0.0622**	**0.0245**	**0.0868**	**0.0247**	**0.0226**	**0.0472**	**0.0000**	**81.8018**	**81.8018**	**0.0265**	**0.0000**	**82.4632**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5400e-003	0.0625	8.5200e-003	1.7000e-004	4.3400e-003	5.4000e-004	4.8800e-003	1.1900e-003	5.2000e-004	1.7100e-003	0.0000	16.7408	16.7408	7.0000e-005	2.6300e-003	17.5266
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7900e-003	2.0200e-003	0.0196	4.0000e-005	3.6800e-003	3.0000e-005	3.7100e-003	9.8000e-004	3.0000e-005	1.0100e-003	0.0000	3.2131	3.2131	1.5000e-004	1.3000e-004	3.2569
Total	**4.3300e-003**	**0.0646**	**0.0281**	**2.1000e-004**	**8.0200e-003**	**5.7000e-004**	**8.5900e-003**	**2.1700e-003**	**5.5000e-004**	**2.7200e-003**	**0.0000**	**19.9539**	**19.9539**	**2.2000e-004**	**2.7600e-003**	**20.7836**

3.4 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	3.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0141**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0276**	**20.0276**	**6.4800e-003**	**0.0000**	**20.1895**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.4500e-003	2.0000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3893	0.3893	0.0000	6.0000e-005	0.4076
Vendor	1.3000e-004	2.8100e-003	7.3000e-004	1.0000e-005	2.4000e-004	3.0000e-005	2.6000e-004	7.0000e-005	3.0000e-005	9.0000e-005	0.0000	0.7883	0.7883	1.0000e-005	1.2000e-004	0.8228
Worker	1.3900e-003	1.0100e-003	9.8100e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.6066	1.6066	7.0000e-005	7.0000e-005	1.6285
Total	**1.5600e-003**	**5.2700e-003**	**0.0107**	**3.0000e-005**	**2.1800e-003**	**5.0000e-005**	**2.2200e-003**	**5.9000e-004**	**5.0000e-005**	**6.3000e-004**	**0.0000**	**2.7841**	**2.7841**	**8.0000e-005**	**2.5000e-004**	**2.8589**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	3.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0141**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0275**	**20.0275**	**6.4800e-003**	**0.0000**	**20.1895**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.4500e-003	2.0000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3893	0.3893	0.0000	6.0000e-005	0.4076
Vendor	1.3000e-004	2.8100e-003	7.3000e-004	1.0000e-005	2.4000e-004	3.0000e-005	2.6000e-004	7.0000e-005	3.0000e-005	9.0000e-005	0.0000	0.7883	0.7883	1.0000e-005	1.2000e-004	0.8228
Worker	1.3900e-003	1.0100e-003	9.8100e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.6066	1.6066	7.0000e-005	7.0000e-005	1.6285
Total	**1.5600e-003**	**5.2700e-003**	**0.0107**	**3.0000e-005**	**2.1800e-003**	**5.0000e-005**	**2.2200e-003**	**5.9000e-004**	**5.0000e-005**	**6.3000e-004**	**0.0000**	**2.7841**	**2.7841**	**8.0000e-005**	**2.5000e-004**	**2.8589**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0793	0.7261	0.7609	1.2500e-003		0.0376	0.0376		0.0354	0.0354	0.0000	107.7522	107.7522	0.0258	0.0000	108.3976
Total	**0.0793**	**0.7261**	**0.7609**	**1.2500e-003**		**0.0376**	**0.0376**		**0.0354**	**0.0354**	**0.0000**	**107.7522**	**107.7522**	**0.0258**	**0.0000**	**108.3976**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	6.5000e-004	9.0000e-005	0.0000	4.0000e-005	1.0000e-005	5.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1735	0.1735	0.0000	3.0000e-005	0.1817
Vendor	5.3500e-003	0.1174	0.0305	3.4000e-004	9.9000e-003	1.1300e-003	0.0110	2.8600e-003	1.0800e-003	3.9500e-003	0.0000	32.9881	32.9881	2.3000e-004	4.8300e-003	34.4341
Worker	0.0657	0.0476	0.4623	8.3000e-004	0.0867	6.7000e-004	0.0874	0.0231	6.2000e-004	0.0237	0.0000	75.7010	75.7010	3.4400e-003	3.1800e-003	76.7335
Total	**0.0711**	**0.1657**	**0.4929**	**1.1700e-003**	**0.0966**	**1.8100e-003**	**0.0984**	**0.0259**	**1.7100e-003**	**0.0277**	**0.0000**	**108.8627**	**108.8627**	**3.6700e-003**	**8.0400e-003**	**111.3492**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0793	0.7261	0.7609	1.2500e-003		0.0376	0.0376		0.0354	0.0354	0.0000	107.7521	107.7521	0.0258	0.0000	108.3975
Total	**0.0793**	**0.7261**	**0.7609**	**1.2500e-003**		**0.0376**	**0.0376**		**0.0354**	**0.0354**	**0.0000**	**107.7521**	**107.7521**	**0.0258**	**0.0000**	**108.3975**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	6.5000e-004	9.0000e-005	0.0000	4.0000e-005	1.0000e-005	5.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1735	0.1735	0.0000	3.0000e-005	0.1817
Vendor	5.3500e-003	0.1174	0.0305	3.4000e-004	9.9000e-003	1.1300e-003	0.0110	2.8600e-003	1.0800e-003	3.9500e-003	0.0000	32.9881	32.9881	2.3000e-004	4.8300e-003	34.4341
Worker	0.0657	0.0476	0.4623	8.3000e-004	0.0867	6.7000e-004	0.0874	0.0231	6.2000e-004	0.0237	0.0000	75.7010	75.7010	3.4400e-003	3.1800e-003	76.7335
Total	**0.0711**	**0.1657**	**0.4929**	**1.1700e-003**	**0.0966**	**1.8100e-003**	**0.0984**	**0.0259**	**1.7100e-003**	**0.0277**	**0.0000**	**108.8627**	**108.8627**	**3.6700e-003**	**8.0400e-003**	**111.3492**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1730	1.5823	1.7868	2.9600e-003		0.0770	0.0770		0.0724	0.0724	0.0000	254.9852	254.9852	0.0607	0.0000	256.5017
Total	**0.1730**	**1.5823**	**1.7868**	**2.9600e-003**		**0.0770**	**0.0770**		**0.0724**	**0.0724**	**0.0000**	**254.9852**	**254.9852**	**0.0607**	**0.0000**	**256.5017**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	1.2800e-003	1.7000e-004	0.0000	1.1000e-004	1.0000e-005	1.2000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3964	0.3964	0.0000	6.0000e-005	0.4150
Vendor	7.4900e-003	0.2302	0.0600	7.9000e-004	0.0234	1.3300e-003	0.0248	6.7800e-003	1.2700e-003	8.0500e-003	0.0000	75.6693	75.6693	3.3000e-004	0.0111	78.9698
Worker	0.1447	0.0986	0.9774	1.8900e-003	0.2050	1.4700e-003	0.2065	0.0545	1.3500e-003	0.0559	0.0000	173.7544	173.7544	7.2600e-003	6.8000e-003	175.9634
Total	**0.1522**	**0.3302**	**1.0375**	**2.6800e-003**	**0.2286**	**2.8100e-003**	**0.2314**	**0.0614**	**2.6300e-003**	**0.0640**	**0.0000**	**249.8201**	**249.8201**	**7.5900e-003**	**0.0179**	**255.3482**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1730	1.5823	1.7868	2.9600e-003		0.0770	0.0770		0.0724	0.0724	0.0000	254.9849	254.9849	0.0607	0.0000	256.5013
Total	**0.1730**	**1.5823**	**1.7868**	**2.9600e-003**		**0.0770**	**0.0770**		**0.0724**	**0.0724**	**0.0000**	**254.9849**	**254.9849**	**0.0607**	**0.0000**	**256.5013**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	1.2800e-003	1.7000e-004	0.0000	1.1000e-004	1.0000e-005	1.2000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3964	0.3964	0.0000	6.0000e-005	0.4150
Vendor	7.4900e-003	0.2302	0.0600	7.9000e-004	0.0234	1.3300e-003	0.0248	6.7800e-003	1.2700e-003	8.0500e-003	0.0000	75.6693	75.6693	3.3000e-004	0.0111	78.9698
Worker	0.1447	0.0986	0.9774	1.8900e-003	0.2050	1.4700e-003	0.2065	0.0545	1.3500e-003	0.0559	0.0000	173.7544	173.7544	7.2600e-003	6.8000e-003	175.9634
Total	**0.1522**	**0.3302**	**1.0375**	**2.6800e-003**	**0.2286**	**2.8100e-003**	**0.2314**	**0.0614**	**2.6300e-003**	**0.0640**	**0.0000**	**249.8201**	**249.8201**	**7.5900e-003**	**0.0179**	**255.3482**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.3916					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**5.3936**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	2.0000e-004	3.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0627	0.0627	0.0000	1.0000e-005	0.0656
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-003	1.7700e-003	0.0175	3.0000e-005	3.6800e-003	3.0000e-005	3.7100e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.1176	3.1176	1.3000e-004	1.2000e-004	3.1572
Total	**2.6000e-003**	**1.9700e-003**	**0.0176**	**3.0000e-005**	**3.7000e-003**	**3.0000e-005**	**3.7300e-003**	**9.8000e-004**	**2.0000e-005**	**1.0100e-003**	**0.0000**	**3.1803**	**3.1803**	**1.3000e-004**	**1.3000e-004**	**3.2228**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.3916					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**5.3936**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	2.0000e-004	3.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0627	0.0627	0.0000	1.0000e-005	0.0656
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-003	1.7700e-003	0.0175	3.0000e-005	3.6800e-003	3.0000e-005	3.7100e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.1176	3.1176	1.3000e-004	1.2000e-004	3.1572
Total	**2.6000e-003**	**1.9700e-003**	**0.0176**	**3.0000e-005**	**3.7000e-003**	**3.0000e-005**	**3.7300e-003**	**9.8000e-004**	**2.0000e-005**	**1.0100e-003**	**0.0000**	**3.1803**	**3.1803**	**1.3000e-004**	**1.3000e-004**	**3.2228**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5444	2.4718	14.1685	0.0215	1.9385	0.0262	1.9647	0.5195	0.0246	0.5441	0.0000	1,978.4828	1,978.4828	0.1568	0.1170	2,017.2827
Unmitigated	1.5444	2.4718	14.1685	0.0215	1.9385	0.0262	1.9647	0.5195	0.0246	0.5441	0.0000	1,978.4828	1,978.4828	0.1568	0.1170	2,017.2827

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	896.00	896.00	896.00	3,331,972	3,331,972
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	514.00	514.00	514.00	1,911,422	1,911,422
Total	1,410.00	1,410.00	1,410.00	5,243,394	5,243,394

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	16.80	7.10	7.90	42.30	19.60	38.10	86	11	3
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Single Family Housing	16.80	7.10	7.90	42.30	19.60	38.10	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.456449	0.066493	0.191214	0.159357	0.054432	0.010008	0.008352	0.006045	0.000425	0.000000	0.038112	0.001232	0.007880
Other Asphalt Surfaces	0.456449	0.066493	0.191214	0.159357	0.054432	0.010008	0.008352	0.006045	0.000425	0.000000	0.038112	0.001232	0.007880

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Single Family Housing	0.456449	0.066493	0.191214	0.159357	0.054432	0.010008	0.008352	0.006045	0.000425	0.000000	0.038112	0.001232	0.007880

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	49.1296	49.1296	7.9500e-003	9.6000e-004	49.6154
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	84.4651	84.4651	0.0137	1.6600e-003	85.3004
NaturalGas Mitigated	0.0100	0.0858	0.0365	5.5000e-004		6.9300e-003	6.9300e-003		6.9300e-003	6.9300e-003	0.0000	99.3172	99.3172	1.9000e-003	1.8200e-003	99.9074
NaturalGas Unmitigated	0.0100	0.0858	0.0365	5.5000e-004		6.9300e-003	6.9300e-003		6.9300e-003	6.9300e-003	0.0000	99.3172	99.3172	1.9000e-003	1.8200e-003	99.9074

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.327e+006	7.1600e-003	0.0612	0.0260	3.9000e-004		4.9400e-003	4.9400e-003		4.9400e-003	4.9400e-003	0.0000	70.8136	70.8136	1.3600e-003	1.3000e-003	71.2344
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	534137	2.8800e-003	0.0246	0.0105	1.6000e-004		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	28.5036	28.5036	5.5000e-004	5.2000e-004	28.6730
Total		**0.0100**	**0.0858**	**0.0365**	**5.5000e-004**		**6.9300e-003**	**6.9300e-003**		**6.9300e-003**	**6.9300e-003**	**0.0000**	**99.3172**	**99.3172**	**1.9100e-003**	**1.8200e-003**	**99.9074**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.327e+006	7.1600e-003	0.0612	0.0260	3.9000e-004		4.9400e-003	4.9400e-003		4.9400e-003	4.9400e-003	0.0000	70.8136	70.8136	1.3600e-003	1.3000e-003	71.2344
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	534137	2.8800e-003	0.0246	0.0105	1.6000e-004		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	28.5036	28.5036	5.5000e-004	5.2000e-004	28.6730
Total		**0.0100**	**0.0858**	**0.0365**	**5.5000e-004**		**6.9300e-003**	**6.9300e-003**		**6.9300e-003**	**6.9300e-003**	**0.0000**	**99.3172**	**99.3172**	**1.9100e-003**	**1.8200e-003**	**99.9074**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	530994	49.1296	7.9500e-003	9.6000e-004	49.6154
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	381908	35.3356	5.7200e-003	6.9000e-004	35.6850
Total		**84.4651**	**0.0137**	**1.6500e-003**	**85.3004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	403691	37.3510	6.0400e-003	7.3000e-004	37.7204
Other Asphalt Surfaces	-127303	-11.7785	-0.0019	-0.0002	-11.8950
Single Family Housing	254605	23.5571	3.8100e-003	4.6000e-004	23.7900
Total		**49.1296**	**7.9400e-003**	**9.6000e-004**	**49.6154**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.9301	0.0809	1.3352	4.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	78.3792	78.3792	3.5100e-003	1.4000e-003	78.8836
Unmitigated	1.9301	0.0809	1.3352	4.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	78.3792	78.3792	3.5100e-003	1.4000e-003	78.8836

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5392					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3438					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.7000e-003	0.0658	0.0280	4.2000e-004		5.3200e-003	5.3200e-003		5.3200e-003	5.3200e-003	0.0000	76.2445	76.2445	1.4600e-003	1.4000e-003	76.6976
Landscaping	0.0394	0.0151	1.3071	7.0000e-005		7.2300e-003	7.2300e-003		7.2300e-003	7.2300e-003	0.0000	2.1347	2.1347	2.0500e-003	0.0000	2.1860
Total	**1.9301**	**0.0809**	**1.3352**	**4.9000e-004**		**0.0126**	**0.0126**		**0.0126**	**0.0126**	**0.0000**	**78.3792**	**78.3792**	**3.5100e-003**	**1.4000e-003**	**78.8836**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5392					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3438					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.7000e-003	0.0658	0.0280	4.2000e-004		5.3200e-003	5.3200e-003		5.3200e-003	5.3200e-003	0.0000	76.2445	76.2445	1.4600e-003	1.4000e-003	76.6976
Landscaping	0.0394	0.0151	1.3071	7.0000e-005		7.2300e-003	7.2300e-003		7.2300e-003	7.2300e-003	0.0000	2.1347	2.1347	2.0500e-003	0.0000	2.1860
Total	**1.9301**	**0.0809**	**1.3352**	**4.9000e-004**		**0.0126**	**0.0126**		**0.0126**	**0.0126**	**0.0000**	**78.3792**	**78.3792**	**3.5100e-003**	**1.4000e-003**	**78.8836**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	9.3760	0.3000	7.1900e-003	19.0164
Unmitigated	11.7200	0.3750	8.9800e-003	23.7705

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	8.33972 / 5.25765	8.5237	0.2727	6.5300e-003	17.2877
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.12739 / 1.97162	3.1964	0.1023	2.4500e-003	6.4829
Total		**11.7200**	**0.3750**	**8.9800e-003**	**23.7705**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	6.67177 / 4.20612	6.8189	0.2182	5.2300e-003	13.8301
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.50191 / 1.57729	2.5571	0.0818	1.9600e-003	5.1863
Total		**9.3760**	**0.3000**	**7.1900e-003**	**19.0164**

8.0 Waste Detail

8.1 Mitigation Measures Waste

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	21.9636	1.2980	0.0000	54.4139
Unmitigated	21.9636	1.2980	0.0000	54.4139

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	58.88	11.9521	0.7064	0.0000	29.6108
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	49.32	10.0115	0.5917	0.0000	24.8031
Total		**21.9636**	**1.2980**	**0.0000**	**54.4139**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	58.88	11.9521	0.7064	0.0000	29.6108
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	49.32	10.0115	0.5917	0.0000	24.8031
Total		**21.9636**	**1.2980**	**0.0000**	**54.4139**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Lakeport Residential Project - Mitigated Construction

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.34	Acre	2.34	101,930.40	0
Apartments Low Rise	128.00	Dwelling Unit	5.70	256,000.00	366
Single Family Housing	48.00	Dwelling Unit	7.12	86,400.00	137

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	67
Climate Zone	1			**Operational Year**	2023
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project construction with mitigation incorporated

Land Use - 128 multi-family units + 48 single-family units = 176 total dwelling units
Total project acreage: 15.16 (including 2.34 acres for public right-of-way)

Construction Phase - 18-month construction schedule
Earliest construction start date provides a conservative estimate of emissions

Trips and VMT - Additional truck trips were added to each phase for mobilization/demobilization of on-site equipment (two trips per piece of equipment).
Additional vendor trips added to the paving phase to account for delivery of materials.

Grading - Cut/fill anticipated to balance on-site
Assumed 2,000 cubic yards of import + 2,000 cubic yards of import to provide a conservative estimate of emissions

Vehicle Trips - Construction run only

Vehicle Emission Factors -

Vehicle Emission Factors -

Lakeport Residential Project - Mitigated Construction - Lake County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vehicle Emission Factors -

Woodstoves - Construction run only

Construction Off-road Equipment Mitigation - Basic construction dust control measures (water exposed area and 15 mph vehicle speed on unpaved surfaces)
Mitigation: Tier 4 applied to equipment >75 HP

Energy Mitigation - Construction run only

Water Mitigation - Construction run only

Fleet Mix -

Area Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	300.00	313.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberWood	44.80	0.00
tblFireplaces	NumberWood	16.80	0.00
tblGrading	MaterialExported	0.00	2,000.00
tblGrading	MaterialImported	0.00	2,000.00
tblLandUse	LandUseSquareFeet	128,000.00	256,000.00
tblLandUse	LotAcreage	8.00	5.70
tblLandUse	LotAcreage	15.58	7.12
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	14.00
tblTripsAndVMT	HaulingTripNumber	500.00	516.00
tblTripsAndVMT	HaulingTripNumber	0.00	12.00
tblTripsAndVMT	HaulingTripNumber	0.00	18.00
tblTripsAndVMT	HaulingTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblVehicleTrips	ST_TR	8.14	0.00
tblVehicleTrips	ST_TR	9.54	0.00
tblVehicleTrips	SU_TR	6.28	0.00
tblVehicleTrips	SU_TR	8.55	0.00
tblVehicleTrips	WD_TR	7.32	0.00
tblVehicleTrips	WD_TR	9.44	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.2415	1.8233	1.9787	4.0300e-003	0.3446	0.0783	0.4230	0.1344	0.0729	0.2073	0.0000	359.3202	359.3202	0.0682	0.0112	364.3496
2023	5.7214	1.9275	2.8601	5.7200e-003	0.2323	0.0805	0.3128	0.0623	0.0758	0.1381	0.0000	510.5388	510.5388	0.0685	0.0181	517.6297
Maximum	**5.7214**	**1.9275**	**2.8601**	**5.7200e-003**	**0.3446**	**0.0805**	**0.4230**	**0.1344**	**0.0758**	**0.2073**	**0.0000**	**510.5388**	**510.5388**	**0.0685**	**0.0181**	**517.6297**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1236	0.4348	2.1314	4.0300e-003	0.2145	9.4000e-003	0.2239	0.0764	9.2700e-003	0.0857	0.0000	359.3200	359.3200	0.0682	0.0112	364.3493
2023	5.6076	0.6368	3.0138	5.7200e-003	0.2323	0.0138	0.2460	0.0623	0.0136	0.0759	0.0000	510.5385	510.5385	0.0685	0.0181	517.6294
Maximum	**5.6076**	**0.6368**	**3.0138**	**5.7200e-003**	**0.2323**	**0.0138**	**0.2460**	**0.0764**	**0.0136**	**0.0857**	**0.0000**	**510.5385**	**510.5385**	**0.0685**	**0.0181**	**517.6294**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**3.89**	**71.43**	**-6.33**	**0.00**	**22.55**	**85.41**	**36.13**	**29.46**	**84.62**	**53.21**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**6-1-2022**	**8-31-2022**	1.0836	0.1911
2	**9-1-2022**	**11-30-2022**	0.7315	0.2743
3	**12-1-2022**	**2-28-2023**	0.6838	0.2590
4	**3-1-2023**	**5-31-2023**	0.6681	0.2486
5	**6-1-2023**	**8-31-2023**	0.6643	0.2448
6	**9-1-2023**	**9-30-2023**	0.2166	0.0798
		Highest	1.0836	0.2743

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.9301	0.0809	1.3352	4.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	78.3792	78.3792	3.5100e-003	1.4000e-003	78.8836
Energy	0.0100	0.0858	0.0365	5.5000e-004		6.9300e-003	6.9300e-003		6.9300e-003	6.9300e-003	0.0000	183.7823	183.7823	0.0156	3.4800e-003	185.2077
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	21.9636	0.0000	21.9636	1.2980	0.0000	54.4139
Water						0.0000	0.0000		0.0000	0.0000	3.6380	8.0820	11.7200	0.3750	8.9800e-003	23.7705
Total	**1.9401**	**0.1667**	**1.3716**	**1.0400e-003**	**0.0000**	**0.0195**	**0.0195**	**0.0000**	**0.0195**	**0.0195**	**25.6016**	**270.2436**	**295.8452**	**1.6921**	**0.0139**	**342.2758**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.9301	0.0809	1.3352	4.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	78.3792	78.3792	3.5100e-003	1.4000e-003	78.8836
Energy	0.0100	0.0858	0.0365	5.5000e-004		6.9300e-003	6.9300e-003		6.9300e-003	6.9300e-003	0.0000	148.4468	148.4468	9.8500e-003	2.7800e-003	149.5228
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	21.9636	0.0000	21.9636	1.2980	0.0000	54.4139
Water						0.0000	0.0000		0.0000	0.0000	2.9104	6.4656	9.3760	0.3000	7.1900e-003	19.0164
Total	**1.9401**	**0.1667**	**1.3716**	**1.0400e-003**	**0.0000**	**0.0195**	**0.0195**	**0.0000**	**0.0195**	**0.0195**	**24.8740**	**233.2916**	**258.1656**	**1.6113**	**0.0114**	**301.8368**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.84**	**13.67**	**12.74**	**4.77**	**17.97**	**11.81**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	6/1/2022	6/14/2022	5	10	
2	Grading	Grading	6/15/2022	7/26/2022	5	30	
3	Paving	Paving	7/27/2022	8/23/2022	5	20	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Building Construction	Building Construction	8/24/2022	11/5/2023	5	313	Adjusted to match 18-month schedule
5	Architectural Coating	Architectural Coating	11/6/2023	12/1/2023	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 2.34

Residential Indoor: 693,360; Residential Outdoor: 231,120; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 6,116 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	14.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	516.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	4.00	12.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	152.00	36.00	18.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	30.00	0.00	2.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0983**	**8.0600e-003**	**0.1064**	**0.0505**	**7.4200e-003**	**0.0579**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

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3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.7000e-003	2.3000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.4542	0.4542	0.0000	7.0000e-005	0.4755
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.4000e-004	6.1000e-004	5.8900e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9639	0.9639	4.0000e-005	4.0000e-005	0.9771
Total	**8.8000e-004**	**2.3100e-003**	**6.1200e-003**	**1.0000e-005**	**1.2200e-003**	**2.0000e-005**	**1.2400e-003**	**3.2000e-004**	**2.0000e-005**	**3.5000e-004**	**0.0000**	**1.4181**	**1.4181**	**4.0000e-005**	**1.1000e-004**	**1.4526**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0442	0.0000	0.0442	0.0227	0.0000	0.0227	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3300e-003	0.0101	0.1043	1.9000e-004		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**2.3300e-003**	**0.0101**	**0.1043**	**1.9000e-004**	**0.0442**	**3.1000e-004**	**0.0445**	**0.0227**	**3.1000e-004**	**0.0230**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.7000e-003	2.3000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.4542	0.4542	0.0000	7.0000e-005	0.4755
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.4000e-004	6.1000e-004	5.8900e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.9639	0.9639	4.0000e-005	4.0000e-005	0.9771
Total	**8.8000e-004**	**2.3100e-003**	**6.1200e-003**	**1.0000e-005**	**1.2200e-003**	**2.0000e-005**	**1.2400e-003**	**3.2000e-004**	**2.0000e-005**	**3.5000e-004**	**0.0000**	**1.4181**	**1.4181**	**4.0000e-005**	**1.1000e-004**	**1.4526**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1383	0.0000	0.1383	0.0548	0.0000	0.0548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0544	0.5827	0.4356	9.3000e-004		0.0245	0.0245		0.0226	0.0226	0.0000	81.8019	81.8019	0.0265	0.0000	82.4633
Total	**0.0544**	**0.5827**	**0.4356**	**9.3000e-004**	**0.1383**	**0.0245**	**0.1628**	**0.0548**	**0.0226**	**0.0774**	**0.0000**	**81.8019**	**81.8019**	**0.0265**	**0.0000**	**82.4633**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5400e-003	0.0625	8.5200e-003	1.7000e-004	4.3400e-003	5.4000e-004	4.8800e-003	1.1900e-003	5.2000e-004	1.7100e-003	0.0000	16.7408	16.7408	7.0000e-005	2.6300e-003	17.5266
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7900e-003	2.0200e-003	0.0196	4.0000e-005	3.6800e-003	3.0000e-005	3.7100e-003	9.8000e-004	3.0000e-005	1.0100e-003	0.0000	3.2131	3.2131	1.5000e-004	1.3000e-004	3.2569
Total	**4.3300e-003**	**0.0646**	**0.0281**	**2.1000e-004**	**8.0200e-003**	**5.7000e-004**	**8.5900e-003**	**2.1700e-003**	**5.5000e-004**	**2.7200e-003**	**0.0000**	**19.9539**	**19.9539**	**2.2000e-004**	**2.7600e-003**	**20.7836**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0622	0.0000	0.0622	0.0247	0.0000	0.0247	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0114	0.0495	0.4950	9.3000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	81.8018	81.8018	0.0265	0.0000	82.4632
Total	**0.0114**	**0.0495**	**0.4950**	**9.3000e-004**	**0.0622**	**1.5200e-003**	**0.0638**	**0.0247**	**1.5200e-003**	**0.0262**	**0.0000**	**81.8018**	**81.8018**	**0.0265**	**0.0000**	**82.4632**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.5400e-003	0.0625	8.5200e-003	1.7000e-004	4.3400e-003	5.4000e-004	4.8800e-003	1.1900e-003	5.2000e-004	1.7100e-003	0.0000	16.7408	16.7408	7.0000e-005	2.6300e-003	17.5266
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7900e-003	2.0200e-003	0.0196	4.0000e-005	3.6800e-003	3.0000e-005	3.7100e-003	9.8000e-004	3.0000e-005	1.0100e-003	0.0000	3.2131	3.2131	1.5000e-004	1.3000e-004	3.2569
Total	**4.3300e-003**	**0.0646**	**0.0281**	**2.1000e-004**	**8.0200e-003**	**5.7000e-004**	**8.5900e-003**	**2.1700e-003**	**5.5000e-004**	**2.7200e-003**	**0.0000**	**19.9539**	**19.9539**	**2.2000e-004**	**2.7600e-003**	**20.7836**

3.4 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	3.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0141**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0276**	**20.0276**	**6.4800e-003**	**0.0000**	**20.1895**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.4500e-003	2.0000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3893	0.3893	0.0000	6.0000e-005	0.4076
Vendor	1.3000e-004	2.8100e-003	7.3000e-004	1.0000e-005	2.4000e-004	3.0000e-005	2.6000e-004	7.0000e-005	3.0000e-005	9.0000e-005	0.0000	0.7883	0.7883	1.0000e-005	1.2000e-004	0.8228
Worker	1.3900e-003	1.0100e-003	9.8100e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.6066	1.6066	7.0000e-005	7.0000e-005	1.6285
Total	**1.5600e-003**	**5.2700e-003**	**0.0107**	**3.0000e-005**	**2.1800e-003**	**5.0000e-005**	**2.2200e-003**	**5.9000e-004**	**5.0000e-005**	**6.3000e-004**	**0.0000**	**2.7841**	**2.7841**	**8.0000e-005**	**2.5000e-004**	**2.8589**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8000e-003	0.0122	0.1730	2.3000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	3.0700e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.8700e-003**	**0.0122**	**0.1730**	**2.3000e-004**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**20.0275**	**20.0275**	**6.4800e-003**	**0.0000**	**20.1895**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.4500e-003	2.0000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3893	0.3893	0.0000	6.0000e-005	0.4076
Vendor	1.3000e-004	2.8100e-003	7.3000e-004	1.0000e-005	2.4000e-004	3.0000e-005	2.6000e-004	7.0000e-005	3.0000e-005	9.0000e-005	0.0000	0.7883	0.7883	1.0000e-005	1.2000e-004	0.8228
Worker	1.3900e-003	1.0100e-003	9.8100e-003	2.0000e-005	1.8400e-003	1.0000e-005	1.8500e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.6066	1.6066	7.0000e-005	7.0000e-005	1.6285
Total	**1.5600e-003**	**5.2700e-003**	**0.0107**	**3.0000e-005**	**2.1800e-003**	**5.0000e-005**	**2.2200e-003**	**5.9000e-004**	**5.0000e-005**	**6.3000e-004**	**0.0000**	**2.7841**	**2.7841**	**8.0000e-005**	**2.5000e-004**	**2.8589**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0793	0.7261	0.7609	1.2500e-003		0.0376	0.0376		0.0354	0.0354	0.0000	107.7522	107.7522	0.0258	0.0000	108.3976
Total	**0.0793**	**0.7261**	**0.7609**	**1.2500e-003**		**0.0376**	**0.0376**		**0.0354**	**0.0354**	**0.0000**	**107.7522**	**107.7522**	**0.0258**	**0.0000**	**108.3976**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	6.5000e-004	9.0000e-005	0.0000	4.0000e-005	1.0000e-005	5.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1735	0.1735	0.0000	3.0000e-005	0.1817
Vendor	5.3500e-003	0.1174	0.0305	3.4000e-004	9.9000e-003	1.1300e-003	0.0110	2.8600e-003	1.0800e-003	3.9500e-003	0.0000	32.9881	32.9881	2.3000e-004	4.8300e-003	34.4341
Worker	0.0657	0.0476	0.4623	8.3000e-004	0.0867	6.7000e-004	0.0874	0.0231	6.2000e-004	0.0237	0.0000	75.7010	75.7010	3.4400e-003	3.1800e-003	76.7335
Total	**0.0711**	**0.1657**	**0.4929**	**1.1700e-003**	**0.0966**	**1.8100e-003**	**0.0984**	**0.0259**	**1.7100e-003**	**0.0277**	**0.0000**	**108.8627**	**108.8627**	**3.6700e-003**	**8.0400e-003**	**111.3492**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0261	0.1253	0.8212	1.2500e-003		4.7300e-003	4.7300e-003		4.7300e-003	4.7300e-003	0.0000	107.7521	107.7521	0.0258	0.0000	108.3975
Total	**0.0261**	**0.1253**	**0.8212**	**1.2500e-003**		**4.7300e-003**	**4.7300e-003**		**4.7300e-003**	**4.7300e-003**	**0.0000**	**107.7521**	**107.7521**	**0.0258**	**0.0000**	**108.3975**

Lakeport Residential Project - Mitigated Construction - Lake County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	6.5000e-004	9.0000e-005	0.0000	4.0000e-005	1.0000e-005	5.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1735	0.1735	0.0000	3.0000e-005	0.1817
Vendor	5.3500e-003	0.1174	0.0305	3.4000e-004	9.9000e-003	1.1300e-003	0.0110	2.8600e-003	1.0800e-003	3.9500e-003	0.0000	32.9881	32.9881	2.3000e-004	4.8300e-003	34.4341
Worker	0.0657	0.0476	0.4623	8.3000e-004	0.0867	6.7000e-004	0.0874	0.0231	6.2000e-004	0.0237	0.0000	75.7010	75.7010	3.4400e-003	3.1800e-003	76.7335
Total	**0.0711**	**0.1657**	**0.4929**	**1.1700e-003**	**0.0966**	**1.8100e-003**	**0.0984**	**0.0259**	**1.7100e-003**	**0.0277**	**0.0000**	**108.8627**	**108.8627**	**3.6700e-003**	**8.0400e-003**	**111.3492**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1730	1.5823	1.7868	2.9600e-003		0.0770	0.0770		0.0724	0.0724	0.0000	254.9852	254.9852	0.0607	0.0000	256.5017
Total	**0.1730**	**1.5823**	**1.7868**	**2.9600e-003**		**0.0770**	**0.0770**		**0.0724**	**0.0724**	**0.0000**	**254.9852**	**254.9852**	**0.0607**	**0.0000**	**256.5017**

Lakeport Residential Project - Mitigated Construction - Lake County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	1.2800e-003	1.7000e-004	0.0000	1.1000e-004	1.0000e-005	1.2000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3964	0.3964	0.0000	6.0000e-005	0.4150
Vendor	7.4900e-003	0.2302	0.0600	7.9000e-004	0.0234	1.3300e-003	0.0248	6.7800e-003	1.2700e-003	8.0500e-003	0.0000	75.6693	75.6693	3.3000e-004	0.0111	78.9698
Worker	0.1447	0.0986	0.9774	1.8900e-003	0.2050	1.4700e-003	0.2065	0.0545	1.3500e-003	0.0559	0.0000	173.7544	173.7544	7.2600e-003	6.8000e-003	175.9634
Total	**0.1522**	**0.3302**	**1.0375**	**2.6800e-003**	**0.2286**	**2.8100e-003**	**0.2314**	**0.0614**	**2.6300e-003**	**0.0640**	**0.0000**	**249.8201**	**249.8201**	**7.5900e-003**	**0.0179**	**255.3482**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0592	0.2916	1.9405	2.9600e-003		0.0102	0.0102		0.0102	0.0102	0.0000	254.9849	254.9849	0.0607	0.0000	256.5013
Total	**0.0592**	**0.2916**	**1.9405**	**2.9600e-003**		**0.0102**	**0.0102**		**0.0102**	**0.0102**	**0.0000**	**254.9849**	**254.9849**	**0.0607**	**0.0000**	**256.5013**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	1.2800e-003	1.7000e-004	0.0000	1.1000e-004	1.0000e-005	1.2000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3964	0.3964	0.0000	6.0000e-005	0.4150
Vendor	7.4900e-003	0.2302	0.0600	7.9000e-004	0.0234	1.3300e-003	0.0248	6.7800e-003	1.2700e-003	8.0500e-003	0.0000	75.6693	75.6693	3.3000e-004	0.0111	78.9698
Worker	0.1447	0.0986	0.9774	1.8900e-003	0.2050	1.4700e-003	0.2065	0.0545	1.3500e-003	0.0559	0.0000	173.7544	173.7544	7.2600e-003	6.8000e-003	175.9634
Total	**0.1522**	**0.3302**	**1.0375**	**2.6800e-003**	**0.2286**	**2.8100e-003**	**0.2314**	**0.0614**	**2.6300e-003**	**0.0640**	**0.0000**	**249.8201**	**249.8201**	**7.5900e-003**	**0.0179**	**255.3482**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.3916					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**5.3936**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	2.0000e-004	3.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0627	0.0627	0.0000	1.0000e-005	0.0656
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-003	1.7700e-003	0.0175	3.0000e-005	3.6800e-003	3.0000e-005	3.7100e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.1176	3.1176	1.3000e-004	1.2000e-004	3.1572
Total	**2.6000e-003**	**1.9700e-003**	**0.0176**	**3.0000e-005**	**3.7000e-003**	**3.0000e-005**	**3.7300e-003**	**9.8000e-004**	**2.0000e-005**	**1.0100e-003**	**0.0000**	**3.1803**	**3.1803**	**1.3000e-004**	**1.3000e-004**	**3.2228**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.3916					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**5.3936**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	2.0000e-004	3.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0627	0.0627	0.0000	1.0000e-005	0.0656
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-003	1.7700e-003	0.0175	3.0000e-005	3.6800e-003	3.0000e-005	3.7100e-003	9.8000e-004	2.0000e-005	1.0000e-003	0.0000	3.1176	3.1176	1.3000e-004	1.2000e-004	3.1572
Total	**2.6000e-003**	**1.9700e-003**	**0.0176**	**3.0000e-005**	**3.7000e-003**	**3.0000e-005**	**3.7300e-003**	**9.8000e-004**	**2.0000e-005**	**1.0100e-003**	**0.0000**	**3.1803**	**3.1803**	**1.3000e-004**	**1.3000e-004**	**3.2228**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Lakeport Residential Project - Mitigated Construction - Lake County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	16.80	7.10	7.90	42.30	19.60	38.10	86	11	3
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Single Family Housing	16.80	7.10	7.90	42.30	19.60	38.10	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.456449	0.066493	0.191214	0.159357	0.054432	0.010008	0.008352	0.006045	0.000425	0.000000	0.038112	0.001232	0.007880
Other Asphalt Surfaces	0.456449	0.066493	0.191214	0.159357	0.054432	0.010008	0.008352	0.006045	0.000425	0.000000	0.038112	0.001232	0.007880

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Single Family Housing	0.456449	0.066493	0.191214	0.159357	0.054432	0.010008	0.008352	0.006045	0.000425	0.000000	0.038112	0.001232	0.007880

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	49.1296	49.1296	7.9500e-003	9.6000e-004	49.6154
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	84.4651	84.4651	0.0137	1.6600e-003	85.3004
NaturalGas Mitigated	0.0100	0.0858	0.0365	5.5000e-004		6.9300e-003	6.9300e-003		6.9300e-003	6.9300e-003	0.0000	99.3172	99.3172	1.9000e-003	1.8200e-003	99.9074
NaturalGas Unmitigated	0.0100	0.0858	0.0365	5.5000e-004		6.9300e-003	6.9300e-003		6.9300e-003	6.9300e-003	0.0000	99.3172	99.3172	1.9000e-003	1.8200e-003	99.9074

Lakeport Residential Project - Mitigated Construction - Lake County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.327e+006	7.1600e-003	0.0612	0.0260	3.9000e-004		4.9400e-003	4.9400e-003		4.9400e-003	4.9400e-003	0.0000	70.8136	70.8136	1.3600e-003	1.3000e-003	71.2344
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	534137	2.8800e-003	0.0246	0.0105	1.6000e-004		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	28.5036	28.5036	5.5000e-004	5.2000e-004	28.6730
Total		**0.0100**	**0.0858**	**0.0365**	**5.5000e-004**		**6.9300e-003**	**6.9300e-003**		**6.9300e-003**	**6.9300e-003**	**0.0000**	**99.3172**	**99.3172**	**1.9100e-003**	**1.8200e-003**	**99.9074**

Lakeport Residential Project - Mitigated Construction - Lake County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.327e+006	7.1600e-003	0.0612	0.0260	3.9000e-004		4.9400e-003	4.9400e-003		4.9400e-003	4.9400e-003	0.0000	70.8136	70.8136	1.3600e-003	1.3000e-003	71.2344
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	534137	2.8800e-003	0.0246	0.0105	1.6000e-004		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	28.5036	28.5036	5.5000e-004	5.2000e-004	28.6730
Total		**0.0100**	**0.0858**	**0.0365**	**5.5000e-004**		**6.9300e-003**	**6.9300e-003**		**6.9300e-003**	**6.9300e-003**	**0.0000**	**99.3172**	**99.3172**	**1.9100e-003**	**1.8200e-003**	**99.9074**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	530994	49.1296	7.9500e-003	9.6000e-004	49.6154
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	381908	35.3356	5.7200e-003	6.9000e-004	35.6850
Total		**84.4651**	**0.0137**	**1.6500e-003**	**85.3004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	403691	37.3510	6.0400e-003	7.3000e-004	37.7204
Other Asphalt Surfaces	-127303	-11.7785	-0.0019	-0.0002	-11.8950
Single Family Housing	254605	23.5571	3.8100e-003	4.6000e-004	23.7900
Total		**49.1296**	**7.9400e-003**	**9.6000e-004**	**49.6154**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.9301	0.0809	1.3352	4.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	78.3792	78.3792	3.5100e-003	1.4000e-003	78.8836
Unmitigated	1.9301	0.0809	1.3352	4.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	78.3792	78.3792	3.5100e-003	1.4000e-003	78.8836

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5392					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3438					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.7000e-003	0.0658	0.0280	4.2000e-004		5.3200e-003	5.3200e-003		5.3200e-003	5.3200e-003	0.0000	76.2445	76.2445	1.4600e-003	1.4000e-003	76.6976
Landscaping	0.0394	0.0151	1.3071	7.0000e-005		7.2300e-003	7.2300e-003		7.2300e-003	7.2300e-003	0.0000	2.1347	2.1347	2.0500e-003	0.0000	2.1860
Total	**1.9301**	**0.0809**	**1.3352**	**4.9000e-004**		**0.0126**	**0.0126**		**0.0126**	**0.0126**	**0.0000**	**78.3792**	**78.3792**	**3.5100e-003**	**1.4000e-003**	**78.8836**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5392					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3438					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.7000e-003	0.0658	0.0280	4.2000e-004		5.3200e-003	5.3200e-003		5.3200e-003	5.3200e-003	0.0000	76.2445	76.2445	1.4600e-003	1.4000e-003	76.6976
Landscaping	0.0394	0.0151	1.3071	7.0000e-005		7.2300e-003	7.2300e-003		7.2300e-003	7.2300e-003	0.0000	2.1347	2.1347	2.0500e-003	0.0000	2.1860
Total	**1.9301**	**0.0809**	**1.3352**	**4.9000e-004**		**0.0126**	**0.0126**		**0.0126**	**0.0126**	**0.0000**	**78.3792**	**78.3792**	**3.5100e-003**	**1.4000e-003**	**78.8836**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	9.3760	0.3000	7.1900e-003	19.0164
Unmitigated	11.7200	0.3750	8.9800e-003	23.7705

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	8.33972 / 5.25765	8.5237	0.2727	6.5300e-003	17.2877
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.12739 / 1.97162	3.1964	0.1023	2.4500e-003	6.4829
Total		**11.7200**	**0.3750**	**8.9800e-003**	**23.7705**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	6.67177 / 4.20612	6.8189	0.2182	5.2300e-003	13.8301
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.50191 / 1.57729	2.5571	0.0818	1.9600e-003	5.1863
Total		**9.3760**	**0.3000**	**7.1900e-003**	**19.0164**

8.0 Waste Detail

8.1 Mitigation Measures Waste

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	21.9636	1.2980	0.0000	54.4139
Unmitigated	21.9636	1.2980	0.0000	54.4139

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	58.88	11.9521	0.7064	0.0000	29.6108
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	49.32	10.0115	0.5917	0.0000	24.8031
Total		**21.9636**	**1.2980**	**0.0000**	**54.4139**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	58.88	11.9521	0.7064	0.0000	29.6108
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	49.32	10.0115	0.5917	0.0000	24.8031
Total		**21.9636**	**1.2980**	**0.0000**	**54.4139**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

11.0 Vegetation

Lakeport Residential Project - 2030 Operations - Lake County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Lakeport Residential Project - 2030 Operations

Lake County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.34	Acre	2.34	101,930.40	0
Apartments Low Rise	128.00	Dwelling Unit	5.70	256,000.00	366
Single Family Housing	48.00	Dwelling Unit	7.12	86,400.00	137

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	67
Climate Zone	1			**Operational Year**	2030
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	191	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2030 Operational Year Scenario
CO2 intensity factor adjusted based on Renewable Energy Portfolio and PG&E's 2020 Corporate Responsibility and Sustainability Report

Land Use - 128 multi-family units + 48 single-family units = 176 total dwelling units
Total project acreage: 15.16 (including 2.34 acres for public right-of-way)

Construction Phase - Operational run only (zeroed out construction parameters)

Trips and VMT - Operational run only (zeroed out construction parameters)

Grading -

Vehicle Trips - Project trip generation, consistent with the Traffic Study prepared for the project (Residential Development - City of Lakeport)
Single-family ADT: 514; Multifamily ADT: 896

Vehicle Emission Factors -

Vehicle Emission Factors -

Lakeport Residential Project - 2030 Operations - Lake County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vehicle Emission Factors -

Woodstoves - No woodburning fireplaces or woodstoves

Construction Off-road Equipment Mitigation -

Energy Mitigation - Compliance with Title 24 standards

Water Mitigation - Compliance with the Green Building Code Standards and the Water Efficient Land Use Ordinance

Fleet Mix -

Off-road Equipment - Operational run only (zeroed out construction parameters)

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	6/28/2022	6/1/2022
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberWood	44.80	0.00
tblFireplaces	NumberWood	16.80	0.00
tblLandUse	LandUseSquareFeet	128,000.00	256,000.00
tblLandUse	LotAcreage	8.00	5.70
tblLandUse	LotAcreage	15.58	7.12
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	203.98	191
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	30.00	0.00
tblVehicleTrips	ST_TR	8.14	7.00
tblVehicleTrips	ST_TR	9.54	10.71
tblVehicleTrips	SU_TR	6.28	7.00
tblVehicleTrips	SU_TR	8.55	10.71
tblVehicleTrips	WD_TR	7.32	7.00
tblVehicleTrips	WD_TR	9.44	10.71

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	5.3916	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**5.3916**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	5.3916	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**5.3916**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**6-1-2022**	**8-31-2022**	3.8512	3.8512
		Highest	3.8512	3.8512

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.9297	0.0809	1.3314	4.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	78.3792	78.3792	3.5000e-003	1.4000e-003	78.8831
Energy	0.0100	0.0858	0.0365	5.5000e-004		6.9300e-003	6.9300e-003		6.9300e-003	6.9300e-003	0.0000	178.4075	178.4075	0.0156	3.4800e-003	179.8329
Mobile	1.0848	1.3290	9.2871	0.0171	1.9313	0.0155	1.9468	0.5165	0.0146	0.5310	0.0000	1,571.3443	1,571.3443	0.1069	0.0778	1,597.2124
Waste						0.0000	0.0000		0.0000	0.0000	21.9636	0.0000	21.9636	1.2980	0.0000	54.4139
Water						0.0000	0.0000		0.0000	0.0000	3.6380	7.5678	11.2057	0.3750	8.9800e-003	23.2563
Total	**3.0245**	**1.4956**	**10.6550**	**0.0181**	**1.9313**	**0.0350**	**1.9663**	**0.5165**	**0.0341**	**0.5505**	**25.6016**	**1,835.6988**	**1,861.3004**	**1.7989**	**0.0917**	**1,933.5987**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.9297	0.0809	1.3314	4.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	78.3792	78.3792	3.5000e-003	1.4000e-003	78.8831
Energy	0.0100	0.0858	0.0365	5.5000e-004		6.9300e-003	6.9300e-003		6.9300e-003	6.9300e-003	0.0000	145.3205	145.3205	9.8500e-003	2.7800e-003	146.3965
Mobile	1.0848	1.3290	9.2871	0.0171	1.9313	0.0155	1.9468	0.5165	0.0146	0.5310	0.0000	1,571.3443	1,571.3443	0.1069	0.0778	1,597.2124
Waste						0.0000	0.0000		0.0000	0.0000	21.9636	0.0000	21.9636	1.2980	0.0000	54.4139
Water						0.0000	0.0000		0.0000	0.0000	2.9104	6.0542	8.9646	0.3000	7.1900e-003	18.6050
Total	**3.0245**	**1.4956**	**10.6550**	**0.0181**	**1.9313**	**0.0350**	**1.9663**	**0.5165**	**0.0341**	**0.5505**	**24.8740**	**1,801.0982**	**1,825.9722**	**1.7182**	**0.0892**	**1,895.5110**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.84**	**1.88**	**1.90**	**4.49**	**2.72**	**1.97**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	6/1/2022	6/1/2022	5	1	

Acres of Grading (Site Preparation Phase): 0

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.34

Residential Indoor: 693,360; Residential Outdoor: 231,120; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 6,116 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	0.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.3916					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.3916**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.3916					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.3916**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0848	1.3290	9.2871	0.0171	1.9313	0.0155	1.9468	0.5165	0.0146	0.5310	0.0000	1,571.3443	1,571.3443	0.1069	0.0778	1,597.2124
Unmitigated	1.0848	1.3290	9.2871	0.0171	1.9313	0.0155	1.9468	0.5165	0.0146	0.5310	0.0000	1,571.3443	1,571.3443	0.1069	0.0778	1,597.2124

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	896.00	896.00	896.00	3,331,972	3,331,972
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	514.00	514.00	514.00	1,911,421	1,911,421
Total	1,410.00	1,410.00	1,410.00	5,243,393	5,243,393

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	16.80	7.10	7.90	42.30	19.60	38.10	86	11	3
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Single Family Housing	16.80	7.10	7.90	42.30	19.60	38.10	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.508566	0.057418	0.193286	0.142603	0.037830	0.007419	0.007502	0.005498	0.000364	0.000000	0.034037	0.001164	0.004312
Other Asphalt Surfaces	0.508566	0.057418	0.193286	0.142603	0.037830	0.007419	0.007502	0.005498	0.000364	0.000000	0.034037	0.001164	0.004312

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Single Family Housing	0.508566	0.057418	0.193286	0.142603	0.037830	0.007419	0.007502	0.005498	0.000364	0.000000	0.034037	0.001164	0.004312

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	46.0033	46.0033	7.9500e-003	9.6000e-004	46.4891
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	79.0903	79.0903	0.0137	1.6600e-003	79.9255
NaturalGas Mitigated	0.0100	0.0858	0.0365	5.5000e-004		6.9300e-003	6.9300e-003		6.9300e-003	6.9300e-003	0.0000	99.3172	99.3172	1.9000e-003	1.8200e-003	99.9074
NaturalGas Unmitigated	0.0100	0.0858	0.0365	5.5000e-004		6.9300e-003	6.9300e-003		6.9300e-003	6.9300e-003	0.0000	99.3172	99.3172	1.9000e-003	1.8200e-003	99.9074

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.327e+006	7.1600e-003	0.0612	0.0260	3.9000e-004		4.9400e-003	4.9400e-003		4.9400e-003	4.9400e-003	0.0000	70.8136	70.8136	1.3600e-003	1.3000e-003	71.2344
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	534137	2.8800e-003	0.0246	0.0105	1.6000e-004		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	28.5036	28.5036	5.5000e-004	5.2000e-004	28.6730
Total		**0.0100**	**0.0858**	**0.0365**	**5.5000e-004**		**6.9300e-003**	**6.9300e-003**		**6.9300e-003**	**6.9300e-003**	**0.0000**	**99.3172**	**99.3172**	**1.9100e-003**	**1.8200e-003**	**99.9074**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.327e+006	7.1600e-003	0.0612	0.0260	3.9000e-004		4.9400e-003	4.9400e-003		4.9400e-003	4.9400e-003	0.0000	70.8136	70.8136	1.3600e-003	1.3000e-003	71.2344
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	534137	2.8800e-003	0.0246	0.0105	1.6000e-004		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	28.5036	28.5036	5.5000e-004	5.2000e-004	28.6730
Total		**0.0100**	**0.0858**	**0.0365**	**5.5000e-004**		**6.9300e-003**	**6.9300e-003**		**6.9300e-003**	**6.9300e-003**	**0.0000**	**99.3172**	**99.3172**	**1.9100e-003**	**1.8200e-003**	**99.9074**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	530994	46.0033	7.9500e-003	9.6000e-004	46.4891
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	381908	33.0871	5.7200e-003	6.9000e-004	33.4365
Total		**79.0903**	**0.0137**	**1.6500e-003**	**79.9255**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	403691	34.9743	6.0400e-003	7.3000e-004	35.3436
Other Asphalt Surfaces	-127303	-11.0290	-0.0019	-0.0002	-11.1455
Single Family Housing	254605	22.0580	3.8100e-003	4.6000e-004	22.2910
Total		**46.0033**	**7.9400e-003**	**9.6000e-004**	**46.4891**

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.9297	0.0809	1.3314	4.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	78.3792	78.3792	3.5000e-003	1.4000e-003	78.8831
Unmitigated	1.9297	0.0809	1.3314	4.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	78.3792	78.3792	3.5000e-003	1.4000e-003	78.8831

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5392					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3438					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.7000e-003	0.0658	0.0280	4.2000e-004		5.3200e-003	5.3200e-003		5.3200e-003	5.3200e-003	0.0000	76.2445	76.2445	1.4600e-003	1.4000e-003	76.6976
Landscaping	0.0390	0.0150	1.3034	7.0000e-005		7.2500e-003	7.2500e-003		7.2500e-003	7.2500e-003	0.0000	2.1347	2.1347	2.0300e-003	0.0000	2.1856
Total	**1.9297**	**0.0809**	**1.3314**	**4.9000e-004**		**0.0126**	**0.0126**		**0.0126**	**0.0126**	**0.0000**	**78.3792**	**78.3792**	**3.4900e-003**	**1.4000e-003**	**78.8831**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5392					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3438					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.7000e-003	0.0658	0.0280	4.2000e-004		5.3200e-003	5.3200e-003		5.3200e-003	5.3200e-003	0.0000	76.2445	76.2445	1.4600e-003	1.4000e-003	76.6976
Landscaping	0.0390	0.0150	1.3034	7.0000e-005		7.2500e-003	7.2500e-003		7.2500e-003	7.2500e-003	0.0000	2.1347	2.1347	2.0300e-003	0.0000	2.1856
Total	**1.9297**	**0.0809**	**1.3314**	**4.9000e-004**		**0.0126**	**0.0126**		**0.0126**	**0.0126**	**0.0000**	**78.3792**	**78.3792**	**3.4900e-003**	**1.4000e-003**	**78.8831**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	8.9646	0.3000	7.1900e-003	18.6050
Unmitigated	11.2057	0.3750	8.9800e-003	23.2563

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	8.33972 / 5.25765	8.1496	0.2727	6.5300e-003	16.9136
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	3.12739 / 1.97162	3.0561	0.1023	2.4500e-003	6.3426
Total		**11.2057**	**0.3750**	**8.9800e-003**	**23.2563**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	6.67177 / 4.20612	6.5197	0.2182	5.2300e-003	13.5309
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.50191 / 1.57729	2.4449	0.0818	1.9600e-003	5.0741
Total		**8.9646**	**0.3000**	**7.1900e-003**	**18.6050**

8.0 Waste Detail

8.1 Mitigation Measures Waste

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	21.9636	1.2980	0.0000	54.4139
Unmitigated	21.9636	1.2980	0.0000	54.4139

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	58.88	11.9521	0.7064	0.0000	29.6108
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	49.32	10.0115	0.5917	0.0000	24.8031
Total		**21.9636**	**1.2980**	**0.0000**	**54.4139**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	58.88	11.9521	0.7064	0.0000	29.6108
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	49.32	10.0115	0.5917	0.0000	24.8031
Total		**21.9636**	**1.2980**	**0.0000**	**54.4139**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

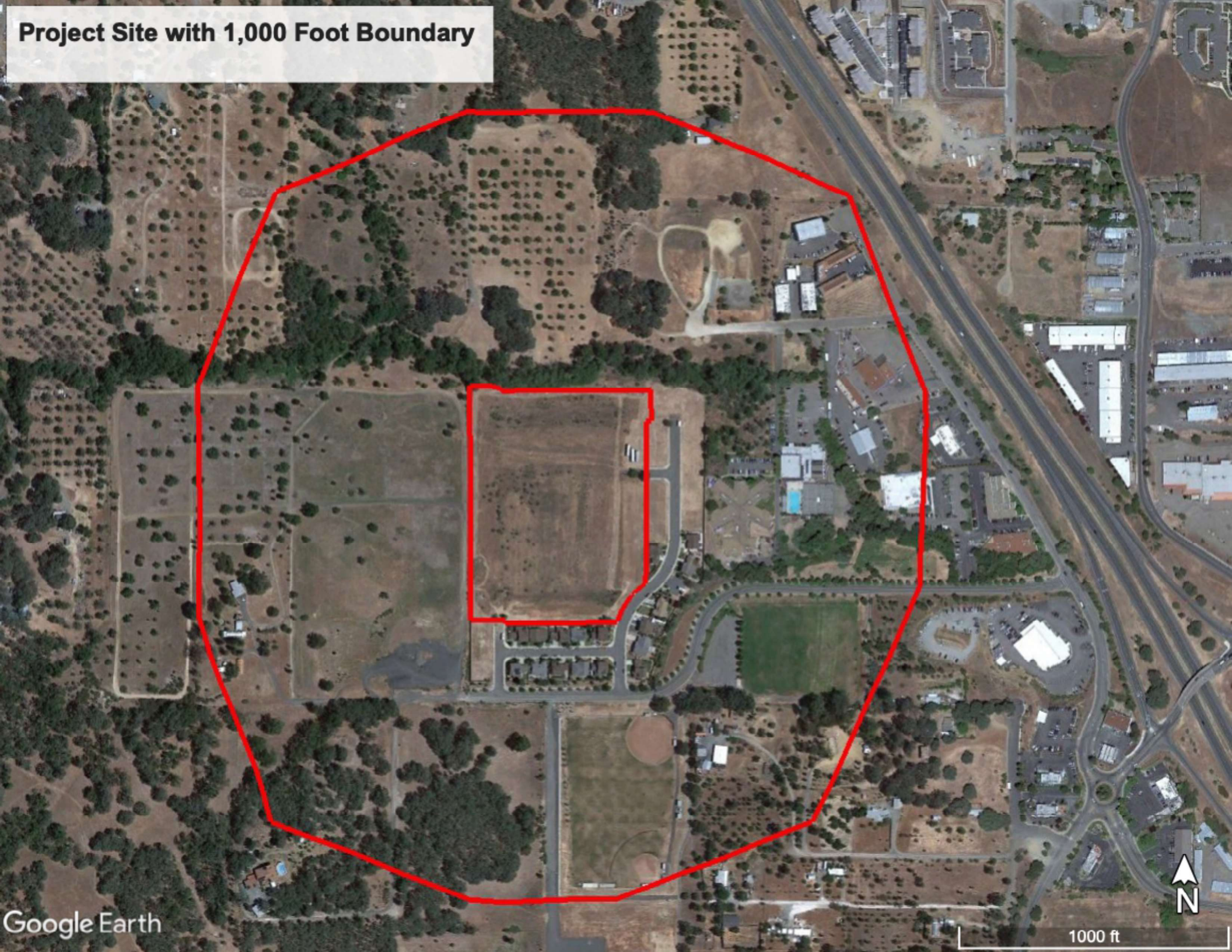
11.0 Vegetation

ATTACHMENT B
Construction Health Risk Assessment

Health Risk Assessment

Lakeport Waterstone Residential Project

Parameters and Supporting Information

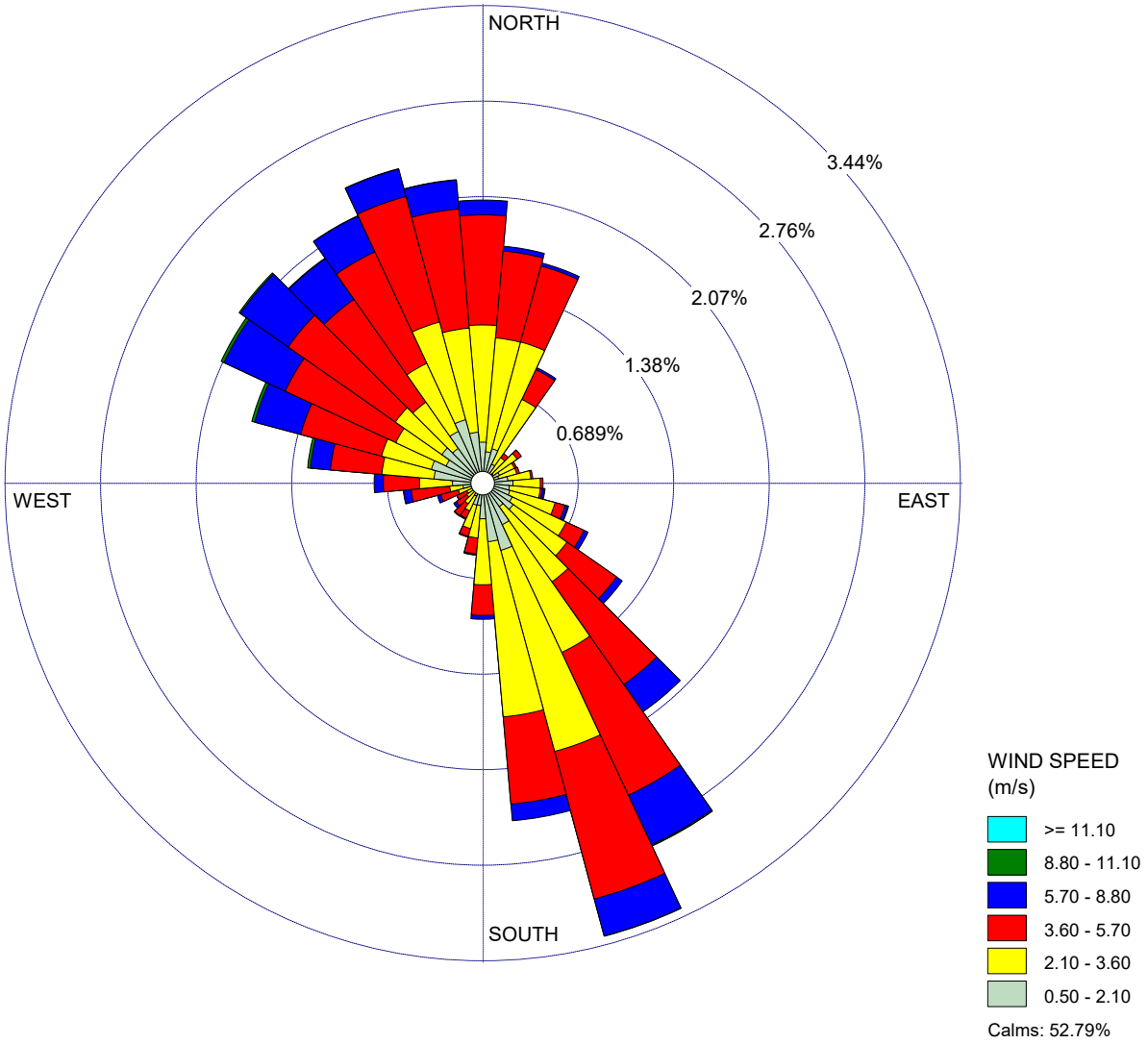

Project Site with 1,000 Foot Boundary
Google Earth
N
1000 ft

WIND ROSE PLOT:

Wind Rose - Station #23275 (Flow Vector - Blowing From)

DISPLAY:

Wind Speed
Direction (blowing from)



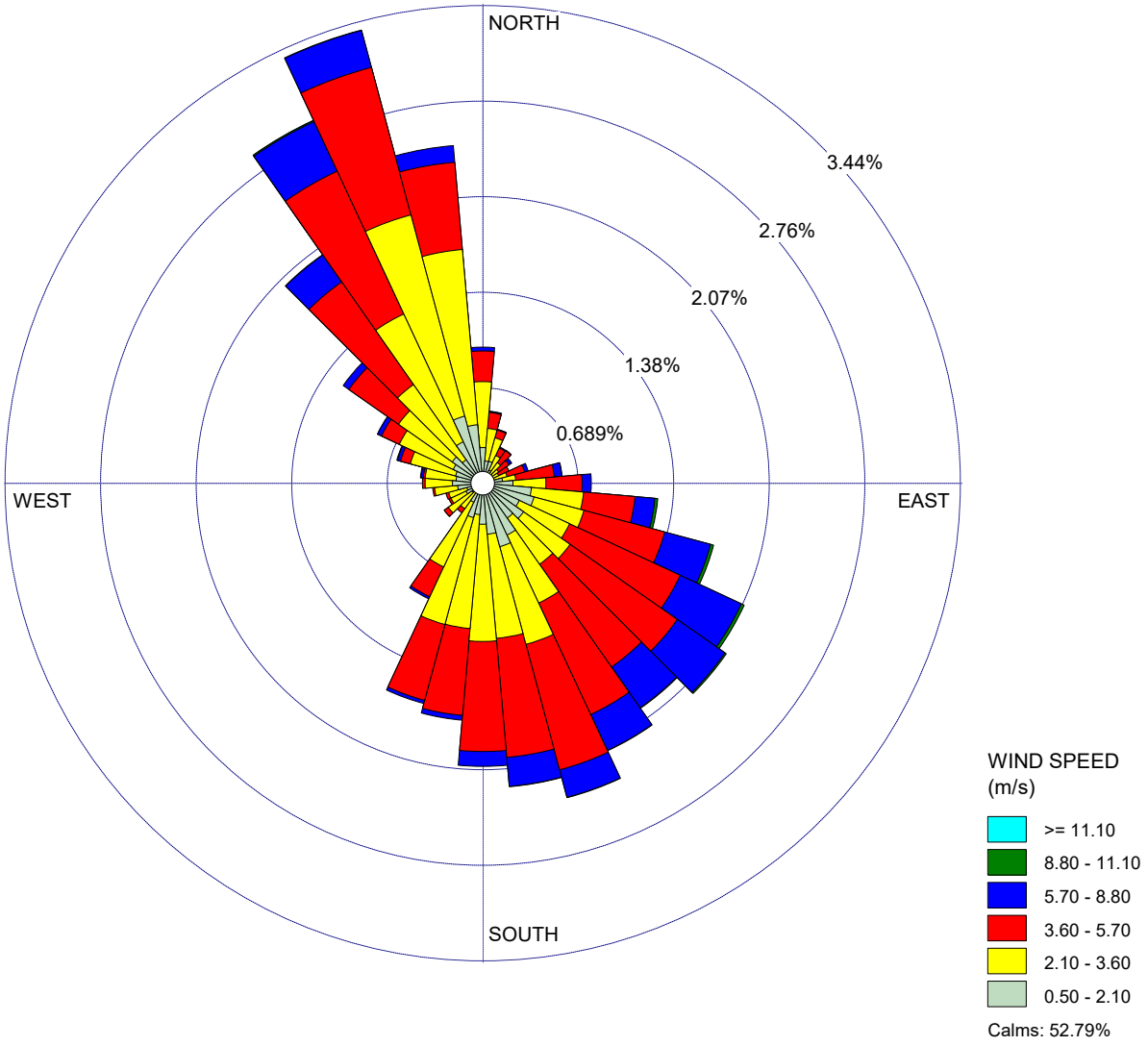
COMMENTS:	DATA PERIOD: **Start Date: 1/1/2009 - 00:00** **End Date: 1/2/2014 - 23:59**		
	CALM WINDS: **52.79%**	TOTAL COUNT: **41851 hrs.**	
	AVG. WIND SPEED: **1.58 m/s**	DATE: **4/5/2022**	PROJECT NO.:

WIND ROSE PLOT:

Wind Rose - Station #23275 (Flow Vector - Blowing To)

DISPLAY:

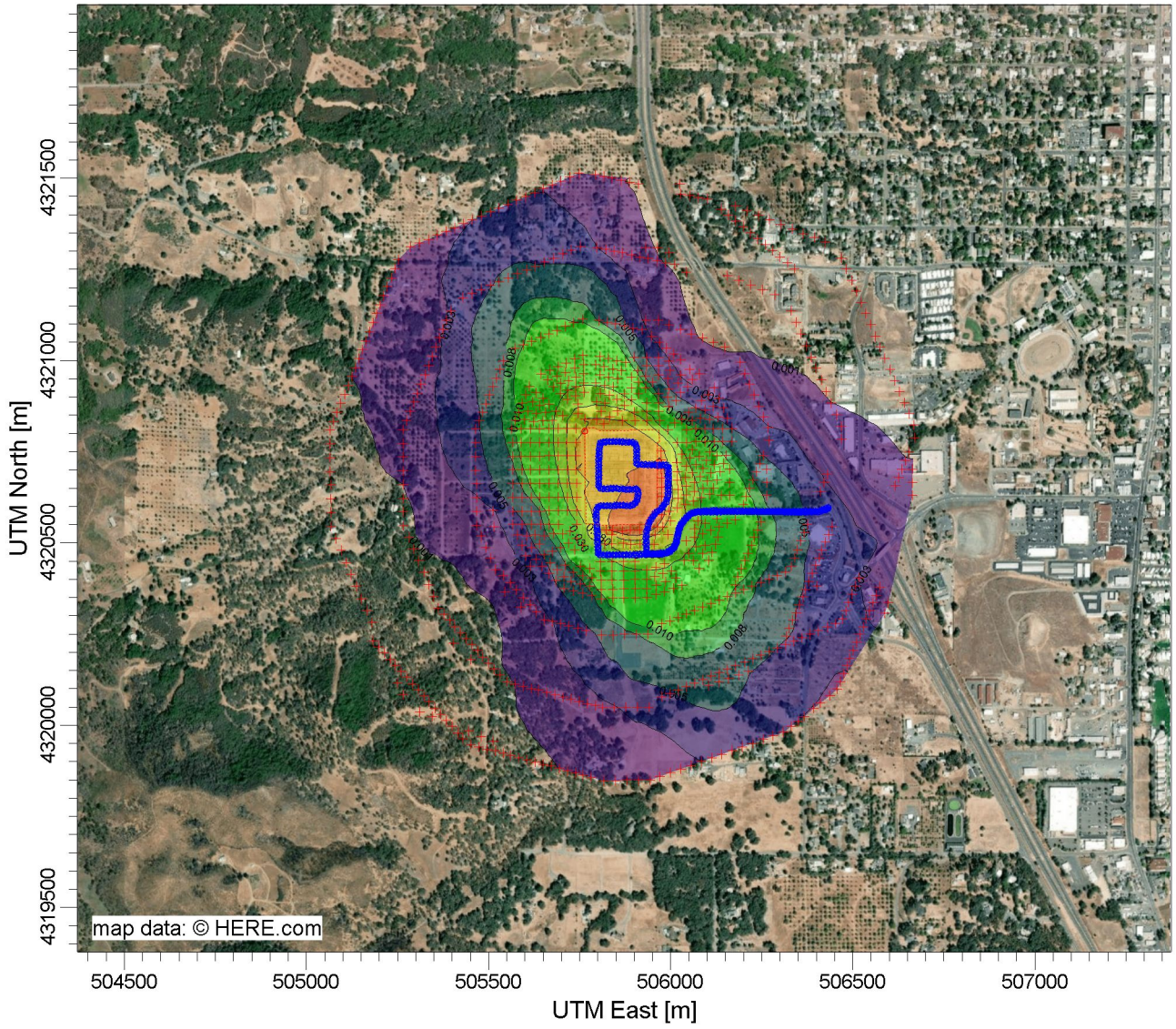
Wind Speed
Flow Vector (blowing to)



COMMENTS:	DATA PERIOD: **Start Date: 1/1/2009 - 00:00** **End Date: 1/2/2014 - 23:59**		
	CALM WINDS: **52.79%**	TOTAL COUNT: **41851 hrs.**	
	AVG. WIND SPEED: **1.58 m/s**	DATE: **4/5/2022**	PROJECT NO.:

PROJECT TITLE:

Dispersion Modeling Inputs and Concentration Trend
(Unmitigated Construction Emissions)



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL ug/m^3

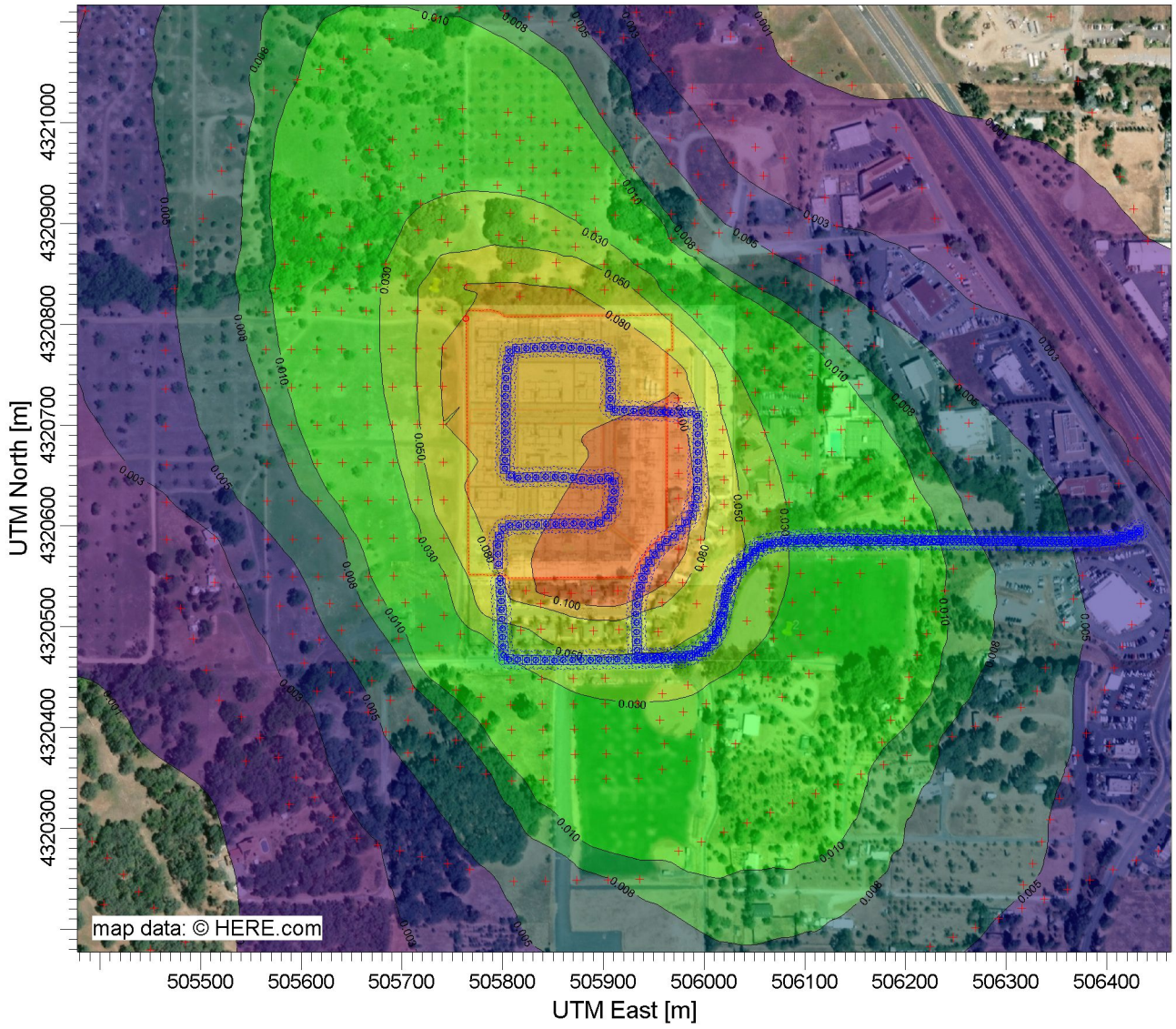
Max: 0.122 [ug/m^3] at (505914.38, 4320536.14)

0.001 0.003 0.005 0.008 0.010 0.030 0.050 0.080 0.100 0.122

COMMENTS:	SOURCES: **4**		
	RECEPTORS: **829**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:18,896 0 0.5 km	
	MAX: **0.122 ug/m^3**	DATE: **4/5/2022**	PROJECT NO.:

PROJECT TITLE:

Dispersion Modeling Inputs and Concentration Trend (Zoomed In)
(Unmitigated Construction Emissions)



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL ug/m^3

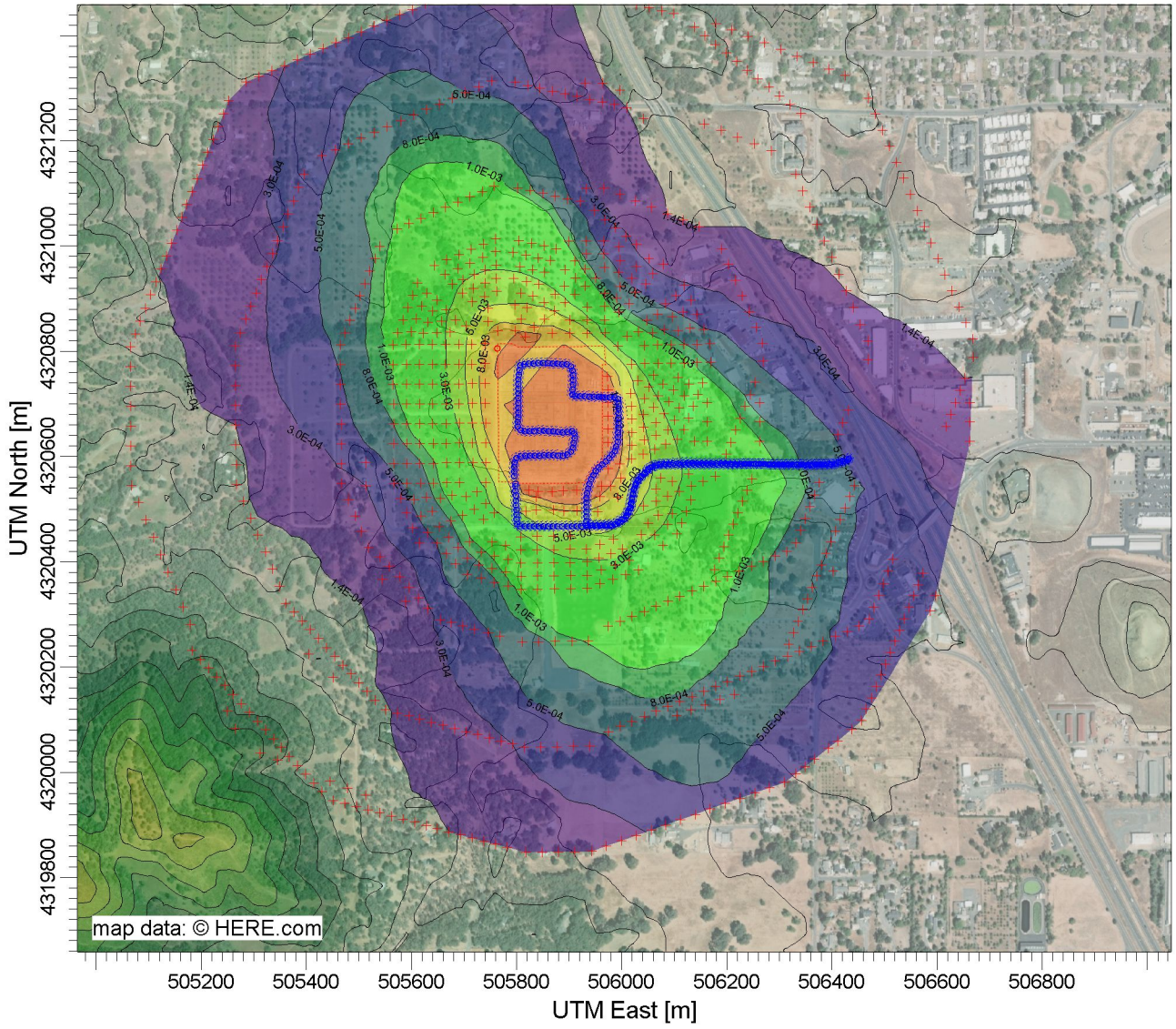
Max: 0.122 [ug/m^3] at (505914.38, 4320536.14)

0.001 0.003 0.005 0.008 0.010 0.030 0.050 0.080 0.100 0.122

COMMENTS:	SOURCES: **4**		
	RECEPTORS: **829**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:6,835 0 0.2 km	
	MAX: **0.122 ug/m^3**	DATE: **4/5/2022**	PROJECT NO.:

PROJECT TITLE:

Dispersion Modeling Inputs and Concentration Trend (Zoomed In)
(Mitigated Construction Emissions)



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 1.4E-02 [ug/m^3] at (505914.38, 4320536.14)

1.4E-04 3.0E-04 5.0E-04 8.0E-04 1.0E-03 3.0E-03 5.0E-03 8.0E-03 1.0E-02 1.4E-02

COMMENTS:	SOURCES: **4**		
	RECEPTORS: **829**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:13,093 0 0.4 km	
	MAX: **1.4E-02 ug/m^3**	DATE: **4/5/2022**	PROJECT NO.:

OEHHA Cancer Risk Methodology

Cancer Risk = DPM x CPF x ASF x DBR x ED x EF x TAH x AF/ AT

Cancer Risk = probability of an individual contracting cancer out of a population of 1 million people over a lifetime exposure duration of 30 years

DPM = long-term average concentration of diesel PM as predicted by the air dispersion model (ug/m3)

CPF = cancer potency factor for DPM (mg.ke-day)

ASF = age sensitivity factors that are dependent on the age of the exposed individual (unitless)

DBR = daily breathing rates that are dependent on the age of the exposed individual (liters/kg-day)

ED = exposure duration (years)

EF = exposure frequency (days/year)

TAH = time at home factors that are dependent on the age of the exposed individual (%)

AT = averaging time over the lifetime of an individual (days)

AF = adjustment factor for workers and students (unitless)

Cancer Risk Equation Values as recommended by the California Office of Environmental Health Hazards Assessment

Health Risk Assessment

Lakeport Waterstone Residential Project

Construction Health Risk Calculations
Unmitigated Scenario

Lakeport Waterstone Residential Project

Project Site

Estimation of Annual Onsite Construction Emissions

Start of Construction	6/1/2022	
End of Construction	12/1/2023	**Total**
Number of Days	548	548
Number of Hours	13,152	13,152

Size of the construction area source: **50,670.8** **sq-meters**

CalEEMod Run	Year	On-site Construction Activity	Unmitigated On-site DPM (tons)
Project Construction	2022	On-site Site Preparation	0.00806
Project Construction	2022	On-site Grading	0.02450
Project Construction	2022	On-site Paving	0.00568
Project Construction	2022	On-site Building Construction	0.03760
Project Construction	2023	On-site Building Construction	0.07700
Project Construction	2023	On-site Architectural Coating	0.00071

Total Unmitigated DPM (On-site) 1.536E-01 tons

Average Emission*	1.394E+05	grams
	2.945E-03	grams/sec
	5.811E-08	grams/m2/sec

*Size of the construction area source accounted for in AERMOD.

Lakeport Waterstone Residential Project

Estimation of Annual Offsite Construction DPM Emissions (Unmitigated)

Start of Construction	6/1/2022		
End of Construction	12/1/2023	**Total**	
Number of Days	548	548	
Number of Hours	13,152	13152	

Construction Trip Type	2022 Site Preparation	2022 Grading	2022 Paving	2022 Building Construction	2023 Building Construction	2023 Architectural Coating
Haul Truck	0.00001	0.00054	0.00001	0.00001	0.00001	0.00000
Vendor Truck	0.00000	0.00000	0.00003	0.00113	0.00133	0.00000
Worker	0.00001	0.00003	0.00001	0.00067	0.00147	0.00003
Total	0.00002	0.00057	0.00005	0.00181	0.00281	0.00003

	Haul Truck (tons)	**Vendor Truck (tons)**	**Worker (tons)**	**Total (tons)**
Total DPM	5.800E-04	2.490E-03	2.220E-03	5.290E-03
Average Emissions				
Grams	5.266E+02	2.261E+03	2.016E+03	
Grams/sec	1.112E-05	4.775E-05	4.257E-05	
Default Distance*	20	6.6	16.8	

*Default Vehicle Travel Distance in CalEEMod

Vehicle Travel Distances in the Construction HRA (miles)				
Road Segment 1	0.39	0.39	0.39	
Road Segment 2	0.49	0.49	0.49	
Road Segment 3	0.53	0.53	0.53	
Trip Distribution (percent)				
Road Segment 1	100.0%	100.0%	100.0%	on-site
Road Segment 2	50.0%	50.0%	50.0%	off-site
Road Segment 3	50.0%	50.0%	50.0%	off-site

Total Average Offsite Vehicle Emissions Along Travel Distance (g/sec)				**Total**
Road Segment 1	2.187E-07	2.845E-06	9.963E-07	4.060E-06
Road Segment 2	1.355E-07	1.763E-06	6.176E-07	2.516E-06
Road Segment 3	1.487E-07	1.934E-06	6.775E-07	2.760E-06

Cancer Risk Calculations Using OEHHA Cancer Risk Assumptions
Lakeport Waterstone Residential Project

Cancer Risk Impacts from Construction at the Maximum Impacted Sensitive Receptor - Infant

UTM: 505914.38 4320536.14

Cancer Potency Factor: 1.1 $(mg/kg\text{-}day)^{-1}$
Exposure Frequency 350 days/year
Averaging Period 25550 days

Construction Annual DPM Emissions (as PM10 Exhaust) Unmitigated

Year	Maximum DPM Concentration (ug/m3)	Age Sensitivity Factor	Daily Breathing Rate (L/kg-day)	Time At Home Factor	Exposure Duration (years)	Cancer Risk (/million)
3rd Trimester	0.1222	10	361	0.85	0.25	1.4126
0-<1	0.1222	10	1090	0.85	1.00	17.0603
1-<2	0.1222	10	1090	0.85	0.25	4.2884
					Total	22.7613

Cancer Risk Impacts from Construction at the Maximum Impacted Sensitive Receptor - Child

UTM: 505914.38 4320536.14

Cancer Potency Factor: 1.1 $(mg/kg\text{-}day)^{-1}$
Exposure Frequency 350 days/year
Averaging Period 25550 days

Construction Annual DPM Emissions (as PM10Exhaust) Unmitigated

Construction Year	Maximum DPM Concentration (ug/m3)	Age Sensitivity Factor	Daily Breathing Rate (L/kg-day)	Time At Home Factor	Exposure Duration (years)	Unit Risk Factor $(ug/m3)^{-1}$
Total	0.1222	3	745	0.72	1.50	4.4488
					Total	4.4488

Cancer Risk Impacts from Construction at the Maximum Impacted Sensitive Receptor - Adult

UTM: 505914.38 4320536.14

Cancer Potency Factor: 1.1 $(mg/kg\text{-}day)^{-1}$
Exposure Frequency 350 days/year
Averaging Period 25550 days

Construction Annual DPM Emissions (as PM10 Exhaust) Unmitigated

Construction Year	Maximum DPM Concentration (ug/m3)	Age Sensitivity Factor	Daily Breathing Rate (L/kg-day)	Time At Home Factor	Exposure Duration (years)	Unit Risk Factor $(ug/m3)^{-1}$
Total	0.1222	1	290	0.73	1.50	0.5853
					Total	0.5853

Lakeport Waterstone Residential Project

UTM: 505914.38 4320536.14

Estimates of Chronic Non-Cancer Hazard Index (CNCHI)

Unmitigated

Chronic Non-Cancer Hazard Index at the Maximum Impacted Sensitive Receptor

Reference Exposure Level (REL) for DPM: 5 ug/m3

CNCHI = DPM/REL

X (m)	Y (m)	Average DPM (ug/m3)	Max DPM (ug/m3)	CNCHI
505914.38	4320536.14	1.2220E-01	1.2220E-01	2.4440E-02

Lakeport Waterstone Residential Project

Unmitigated Construction Scenario

Maximum Concentration	0.1222
X	Y
505914.38	4320536.14

* AERMOD (21112): G:\LWR_HRA\S1\S1.isc 4/5/2022
* AERMET (14134): 10:30:45 AM
* MODELING OPTIONS USED: Reg DFAULT CONC ELEV FLGPOL RURAL
* PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL
* FOR A TOTAL OF 829 RECEPTORS.
* FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)

* X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	NUM YRS	NET ID
505797.42	4320838.34	0.08338	419.93	664.53	1.5	ANNUAL	ALL	5	
505808.60	4320860.70	0.05955	422.8	664.53	1.5	ANNUAL	ALL	5	
505819.78	4320883.06	0.04576	422.58	664.53	1.5	ANNUAL	ALL	5	
505796.18	4320888.32	0.04355	424.22	664.53	1.5	ANNUAL	ALL	5	
505830.96	4320905.42	0.03556	421.56	664.53	1.5	ANNUAL	ALL	5	
505807.36	4320910.68	0.03484	423.81	664.53	1.5	ANNUAL	ALL	5	
505842.14	4320927.78	0.02721	421.62	664.53	1.5	ANNUAL	ALL	5	
505818.54	4320933.04	0.02832	422.72	664.53	1.5	ANNUAL	ALL	5	
505794.94	4320938.31	0.02823	423.83	664.53	1.5	ANNUAL	ALL	5	
505853.32	4320950.14	0.02066	422.1	664.53	1.5	ANNUAL	ALL	5	
505829.72	4320955.40	0.02244	422.04	664.53	1.5	ANNUAL	ALL	5	
505806.12	4320960.67	0.02335	423.07	664.53	1.5	ANNUAL	ALL	5	
505864.50	4320972.50	0.01529	423.41	442.02	1.5	ANNUAL	ALL	5	
505840.90	4320977.76	0.01744	423	442.45	1.5	ANNUAL	ALL	5	
505817.30	4320983.03	0.01856	423.3	596.35	1.5	ANNUAL	ALL	5	
505793.70	4320988.29	0.01925	424.13	596.35	1.5	ANNUAL	ALL	5	
505875.68	4320994.86	0.01143	424.71	442.02	1.5	ANNUAL	ALL	5	
505852.08	4321000.12	0.01328	424.19	442.45	1.5	ANNUAL	ALL	5	
505828.48	4321005.39	0.01472	424.28	442.45	1.5	ANNUAL	ALL	5	
505804.88	4321010.65	0.01576	424.46	442.45	1.5	ANNUAL	ALL	5	
505920.40	4321084.30	0.00355	435.06	440	1.5	ANNUAL	ALL	5	
505896.80	4321089.57	0.00443	433.44	442.02	1.5	ANNUAL	ALL	5	
505873.20	4321094.83	0.0053	433.54	442.45	1.5	ANNUAL	ALL	5	
505849.60	4321100.09	0.00613	433.99	442.45	1.5	ANNUAL	ALL	5	
505826.00	4321105.36	0.00701	433.08	442.45	1.5	ANNUAL	ALL	5	
505802.40	4321110.62	0.00782	432.1	442.45	1.5	ANNUAL	ALL	5	
506009.85	4321263.19	0.00112	429.45	442.4	1.5	ANNUAL	ALL	5	
505986.25	4321268.45	0.0012	432.03	442.4	1.5	ANNUAL	ALL	5	
505962.65	4321273.72	0.00129	435.13	442.4	1.5	ANNUAL	ALL	5	
505939.05	4321278.98	0.00142	438.12	442.4	1.5	ANNUAL	ALL	5	
505915.45	4321284.24	0.00158	440.6	442.4	1.5	ANNUAL	ALL	5	
505891.85	4321289.51	0.00179	441.85	441.85	1.5	ANNUAL	ALL	5	
505868.25	4321294.77	0.00204	442.04	442.04	1.5	ANNUAL	ALL	5	
505844.64	4321300.03	0.00235	440.84	440.84	1.5	ANNUAL	ALL	5	
505821.04	4321305.30	0.00269	439.53	439.53	1.5	ANNUAL	ALL	5	
505797.44	4321310.56	0.00302	438.74	445.44	1.5	ANNUAL	ALL	5	
506099.29	4321442.07	0.00048	434.03	434.03	1.5	ANNUAL	ALL	5	
506075.69	4321447.34	0.00054	434.06	434.06	1.5	ANNUAL	ALL	5	
506052.09	4321452.60	0.00063	431.32	434	1.5	ANNUAL	ALL	5	
506028.49	4321457.86	0.00073	427.88	436	1.5	ANNUAL	ALL	5	
505910.49	4321484.18	0.00109	426.24	443.43	1.5	ANNUAL	ALL	5	
505886.89	4321489.44	0.00117	427.33	443.43	1.5	ANNUAL	ALL	5	
505863.29	4321494.71	0.00126	428.97	443.43	1.5	ANNUAL	ALL	5	
505839.69	4321499.97	0.00138	429.87	443.58	1.5	ANNUAL	ALL	5	
505816.09	4321505.23	0.00153	431	443.58	1.5	ANNUAL	ALL	5	
505792.49	4321510.50	0.00166	433.97	435.63	1.5	ANNUAL	ALL	5	
505817.13	4320827.55	0.09524	420.16	664.53	1.5	ANNUAL	ALL	5	
505833.31	4320845.87	0.07112	421.11	664.53	1.5	ANNUAL	ALL	5	
505853.03	4320861.34	0.05567	420.09	664.53	1.5	ANNUAL	ALL	5	
505872.33	4320877.14	0.04129	420.1	664.53	1.5	ANNUAL	ALL	5	
505852.34	4320893.29	0.03761	420.16	664.53	1.5	ANNUAL	ALL	5	
505891.97	4320892.66	0.02804	422.98	664.53	1.5	ANNUAL	ALL	5	
505872.75	4320908.19	0.02778	421.5	664.53	1.5	ANNUAL	ALL	5	
505911.35	4320908.40	0.01744	425.42	427.89	1.5	ANNUAL	ALL	5	
505891.36	4320924.55	0.01889	423.83	664.53	1.5	ANNUAL	ALL	5	
505930.95	4320923.96	0.01061	427.7	427.7	1.5	ANNUAL	ALL	5	
505911.52	4320939.66	0.01218	426.72	429.32	1.5	ANNUAL	ALL	5	
505892.08	4320955.36	0.01356	425.02	436.77	1.5	ANNUAL	ALL	5	
505950.37	4320939.66	0.00691	427.96	427.96	1.5	ANNUAL	ALL	5	
505930.38	4320955.81	0.00781	429.22	429.22	1.5	ANNUAL	ALL	5	
505910.39	4320971.96	0.0091	427.78	436.77	1.5	ANNUAL	ALL	5	
506028.41	4321002.19	0.00231	425.29	440.04	1.5	ANNUAL	ALL	5	
506008.42	4321018.34	0.00253	425.43	440.04	1.5	ANNUAL	ALL	5	
505988.43	4321034.49	0.00266	428.41	440	1.5	ANNUAL	ALL	5	
505968.44	4321050.64	0.00271	433.28	439.58	1.5	ANNUAL	ALL	5	
505948.44	4321066.79	0.00285	437.75	437.75	1.5	ANNUAL	ALL	5	
506041.63	4321242.65	0.00099	428.25	441.34	1.5	ANNUAL	ALL	5	
506340.54	4321252.33	0.00039	419.03	427.78	1.5	ANNUAL	ALL	5	
506320.25	4321268.71	0.00038	420.12	427.78	1.5	ANNUAL	ALL	5	
506299.97	4321285.10	0.00038	421.28	427.48	1.5	ANNUAL	ALL	5	
506279.69	4321301.48	0.00038	422.12	422.12	1.5	ANNUAL	ALL	5	
506259.41	4321317.87	0.00038	423.14	439.23	1.5	ANNUAL	ALL	5	

506239.12	4321334.25	0.00037	425.57	439.23	1.5	ANNUAL	ALL	5
506218.84	4321350.63	0.00037	428.15	439.23	1.5	ANNUAL	ALL	5
506198.56	4321367.02	0.00038	430.23	439.23	1.5	ANNUAL	ALL	5
506178.28	4321383.40	0.00038	431.45	439.23	1.5	ANNUAL	ALL	5
506157.99	4321399.79	0.00039	434.14	439.23	1.5	ANNUAL	ALL	5
506137.71	4321416.17	0.0004	437.03	437.03	1.5	ANNUAL	ALL	5
505867.32	4320834.05	0.08166	417.96	664.53	1.5	ANNUAL	ALL	5
505900.90	4320834.32	0.06946	417.89	664.53	1.5	ANNUAL	ALL	5
505934.48	4320834.60	0.04693	417.07	664.53	1.5	ANNUAL	ALL	5
505968.06	4320834.87	0.02055	416.4	664.53	1.5	ANNUAL	ALL	5
505900.69	4320859.32	0.0438	420.1	664.53	1.5	ANNUAL	ALL	5
505934.27	4320859.59	0.02836	420.34	664.53	1.5	ANNUAL	ALL	5
505967.85	4320859.87	0.01352	421.52	664.53	1.5	ANNUAL	ALL	5
505934.07	4320884.59	0.01741	423.93	664.53	1.5	ANNUAL	ALL	5
505967.65	4320884.87	0.00954	423.61	664.53	1.5	ANNUAL	ALL	5
505967.44	4320909.87	0.00741	424.72	427.32	1.5	ANNUAL	ALL	5
505967.04	4320959.87	0.00498	426.6	438.67	1.5	ANNUAL	ALL	5
505933.25	4320984.59	0.00589	430.84	430.84	1.5	ANNUAL	ALL	5
505966.83	4320984.86	0.00416	428.38	438.67	1.5	ANNUAL	ALL	5
505899.47	4321009.32	0.00763	428.68	440	1.5	ANNUAL	ALL	5
505933.05	4321009.59	0.00484	432.99	432.99	1.5	ANNUAL	ALL	5
505966.63	4321009.86	0.00351	430.3	438.67	1.5	ANNUAL	ALL	5
505932.23	4321109.59	0.00267	439.87	439.87	1.5	ANNUAL	ALL	5
505965.81	4321109.86	0.00206	437.49	439.58	1.5	ANNUAL	ALL	5
505930.60	4321309.58	0.00136	438.52	442.4	1.5	ANNUAL	ALL	5
505964.18	4321309.85	0.00117	435.12	442.4	1.5	ANNUAL	ALL	5
505993.26	4320810.36	0.02271	417.46	664.53	1.5	ANNUAL	ALL	5
506010.69	4320828.28	0.01278	417.67	664.53	1.5	ANNUAL	ALL	5
506018.93	4320775.89	0.0285	417.44	664.53	1.5	ANNUAL	ALL	5
506031.90	4320837.48	0.0092	418.3	664.53	1.5	ANNUAL	ALL	5
505994.10	4320874.25	0.00785	421.17	664.53	1.5	ANNUAL	ALL	5
506043.25	4320811.33	0.01213	417	664.53	1.5	ANNUAL	ALL	5
506043.93	4320776.38	0.01954	417.64	664.53	1.5	ANNUAL	ALL	5
506058.16	4320835.06	0.0078	417.54	664.53	1.5	ANNUAL	ALL	5
506048.07	4320858.31	0.00635	417.94	664.53	1.5	ANNUAL	ALL	5
506014.47	4320890.99	0.0056	420.58	664.53	1.5	ANNUAL	ALL	5
505990.96	4320900.43	0.00634	422.28	427.32	1.5	ANNUAL	ALL	5
506068.24	4320811.82	0.00967	417.16	664.53	1.5	ANNUAL	ALL	5
506068.92	4320776.87	0.01448	417.04	664.53	1.5	ANNUAL	ALL	5
506080.63	4320841.36	0.00628	417.45	664.53	1.5	ANNUAL	ALL	5
506068.03	4320870.41	0.00502	418.38	664.53	1.5	ANNUAL	ALL	5
506026.03	4320911.27	0.00428	421.93	435.94	1.5	ANNUAL	ALL	5
505996.63	4320923.07	0.005	422.82	436.77	1.5	ANNUAL	ALL	5
506093.24	4320812.30	0.00797	417.27	664.53	1.5	ANNUAL	ALL	5
506093.92	4320777.35	0.01133	416.5	664.53	1.5	ANNUAL	ALL	5
506106.89	4320838.94	0.00555	417.42	664.53	1.5	ANNUAL	ALL	5
506095.54	4320865.09	0.00459	417.91	664.53	1.5	ANNUAL	ALL	5
506084.20	4320891.24	0.00376	420.35	435.94	1.5	ANNUAL	ALL	5
506046.40	4320928.01	0.00331	422.83	438.16	1.5	ANNUAL	ALL	5
506019.94	4320938.63	0.00354	423.79	435.94	1.5	ANNUAL	ALL	5
505993.49	4320949.25	0.00415	424.45	438.67	1.5	ANNUAL	ALL	5
506118.23	4320812.79	0.0067	416.76	664.53	1.5	ANNUAL	ALL	5
506118.91	4320777.84	0.00919	416.54	664.53	1.5	ANNUAL	ALL	5
506129.99	4320843.78	0.00471	417.5	664.53	1.5	ANNUAL	ALL	5
506116.76	4320874.29	0.00384	418.85	435.94	1.5	ANNUAL	ALL	5
506103.52	4320904.80	0.00311	420.91	435.94	1.5	ANNUAL	ALL	5
506059.42	4320947.70	0.0026	424.3	438.16	1.5	ANNUAL	ALL	5
506028.56	4320960.09	0.00288	424.7	438.16	1.5	ANNUAL	ALL	5
505997.69	4320972.48	0.00347	425.04	438.67	1.5	ANNUAL	ALL	5
506143.23	4320813.27	0.00574	416.6	664.53	1.5	ANNUAL	ALL	5
506143.91	4320778.32	0.00764	416.17	664.53	1.5	ANNUAL	ALL	5
506156.12	4320841.65	0.00423	417.1	664.53	1.5	ANNUAL	ALL	5
506144.02	4320869.55	0.00357	418.05	435.94	1.5	ANNUAL	ALL	5
506131.92	4320897.44	0.00299	419.87	435.94	1.5	ANNUAL	ALL	5
506119.82	4320925.34	0.00257	420.09	440.04	1.5	ANNUAL	ALL	5
506079.50	4320964.56	0.00207	427.35	435.94	1.5	ANNUAL	ALL	5
506051.28	4320975.88	0.00229	424.9	440.04	1.5	ANNUAL	ALL	5
505994.85	4320998.54	0.00309	425.76	440	1.5	ANNUAL	ALL	5
506168.22	4320813.76	0.00498	416.16	664.53	1.5	ANNUAL	ALL	5
506168.90	4320778.81	0.00645	415.47	664.53	1.5	ANNUAL	ALL	5
506255.24	4320845.59	0.00271	415.9	427.23	1.5	ANNUAL	ALL	5
506242.27	4320875.48	0.00237	416.2	428.06	1.5	ANNUAL	ALL	5
506229.31	4320905.36	0.00208	416.73	435.94	1.5	ANNUAL	ALL	5
506216.34	4320935.25	0.00185	417.95	440.04	1.5	ANNUAL	ALL	5
506203.37	4320965.14	0.00161	420.39	440.04	1.5	ANNUAL	ALL	5
506190.41	4320995.02	0.00139	422.03	440.08	1.5	ANNUAL	ALL	5
506147.21	4321037.05	0.00113	427.85	440.08	1.5	ANNUAL	ALL	5
506116.98	4321049.18	0.00112	433.01	440.04	1.5	ANNUAL	ALL	5
506086.74	4321061.32	0.00116	436.27	436.27	1.5	ANNUAL	ALL	5
506056.51	4321073.45	0.00129	434.96	439.66	1.5	ANNUAL	ALL	5
506026.28	4321085.59	0.00151	434.3	439.66	1.5	ANNUAL	ALL	5
505996.05	4321097.72	0.00178	434.7	439.58	1.5	ANNUAL	ALL	5
506268.20	4320815.71	0.00307	415.54	664.53	1.5	ANNUAL	ALL	5
506268.88	4320780.76	0.00373	415.62	664.53	1.5	ANNUAL	ALL	5
506454.41	4320851.29	0.00134	413.61	423.83	1.5	ANNUAL	ALL	5
506440.66	4320882.99	0.00123	415.61	421.52	1.5	ANNUAL	ALL	5
506426.91	4320914.69	0.00113	416.58	423.24	1.5	ANNUAL	ALL	5

506413.16	4320946.39	0.00106	418.3	425.77	1.5	ANNUAL	ALL	5
506399.41	4320978.08	0.00097	421.62	422.94	1.5	ANNUAL	ALL	5
506385.66	4321009.78	0.00087	424.24	424.24	1.5	ANNUAL	ALL	5
506371.90	4321041.48	0.00081	424.44	424.44	1.5	ANNUAL	ALL	5
506358.15	4321073.18	0.00075	422.66	422.66	1.5	ANNUAL	ALL	5
506344.40	4321104.88	0.00067	421.34	421.34	1.5	ANNUAL	ALL	5
506330.65	4321136.57	0.00059	420.98	424.76	1.5	ANNUAL	ALL	5
506284.83	4321181.14	0.00052	422.59	423.78	1.5	ANNUAL	ALL	5
506252.77	4321194.01	0.00053	422.42	440.08	1.5	ANNUAL	ALL	5
506220.70	4321206.88	0.00053	424.77	440.08	1.5	ANNUAL	ALL	5
506188.64	4321219.76	0.00055	425.66	440.08	1.5	ANNUAL	ALL	5
506156.57	4321232.63	0.00059	425.39	440.08	1.5	ANNUAL	ALL	5
505996.25	4321296.98	0.00105	432.96	441.34	1.5	ANNUAL	ALL	5
506468.17	4320819.60	0.00147	413.24	422.85	1.5	ANNUAL	ALL	5
506468.85	4320784.65	0.00169	413.22	422.07	1.5	ANNUAL	ALL	5
506654.89	4320854.00	0.00082	416.3	416.3	1.5	ANNUAL	ALL	5
506641.66	4320884.50	0.00075	417.64	417.64	1.5	ANNUAL	ALL	5
506628.42	4320915.01	0.00068	420.83	422.01	1.5	ANNUAL	ALL	5
506615.18	4320945.52	0.00063	421.94	421.94	1.5	ANNUAL	ALL	5
506601.95	4320976.03	0.00059	422.4	422.4	1.5	ANNUAL	ALL	5
506588.71	4321006.54	0.00057	423.09	423.09	1.5	ANNUAL	ALL	5
506575.48	4321037.05	0.00055	423.59	423.59	1.5	ANNUAL	ALL	5
506562.24	4321067.56	0.00056	422.85	422.85	1.5	ANNUAL	ALL	5
506549.00	4321098.07	0.00055	421.55	421.55	1.5	ANNUAL	ALL	5
506535.77	4321128.58	0.00053	420.63	420.63	1.5	ANNUAL	ALL	5
506522.53	4321159.09	0.00049	415.67	421.44	1.5	ANNUAL	ALL	5
506509.30	4321189.60	0.00044	413.85	422.04	1.5	ANNUAL	ALL	5
506496.06	4321220.10	0.0004	417.62	422.04	1.5	ANNUAL	ALL	5
506482.83	4321250.61	0.00035	420.02	420.02	1.5	ANNUAL	ALL	5
506469.59	4321281.12	0.00032	421.05	426.19	1.5	ANNUAL	ALL	5
506425.49	4321324.02	0.00027	423.58	423.58	1.5	ANNUAL	ALL	5
506394.63	4321336.41	0.00027	425.09	427.16	1.5	ANNUAL	ALL	5
506363.77	4321348.80	0.00027	427.32	427.32	1.5	ANNUAL	ALL	5
506332.90	4321361.19	0.00028	427.63	428.13	1.5	ANNUAL	ALL	5
506302.04	4321373.57	0.0003	424.25	428.13	1.5	ANNUAL	ALL	5
506271.18	4321385.96	0.00032	421.99	439.23	1.5	ANNUAL	ALL	5
506240.31	4321398.35	0.00033	425.41	439.23	1.5	ANNUAL	ALL	5
506209.45	4321410.74	0.00034	427.63	439.23	1.5	ANNUAL	ALL	5
506178.59	4321423.13	0.00036	429.61	439.23	1.5	ANNUAL	ALL	5
506024.27	4321485.07	0.00072	426.52	434.71	1.5	ANNUAL	ALL	5
506668.13	4320823.49	0.00088	414.63	415.76	1.5	ANNUAL	ALL	5
506668.81	4320788.54	0.00098	411.96	415.98	1.5	ANNUAL	ALL	5
505973.40	4320751.79	0.08967	418.57	664.53	1.5	ANNUAL	ALL	5
505974.04	4320727.06	0.10108	418.33	664.53	1.5	ANNUAL	ALL	5
505974.29	4320702.17	0.10945	418.14	664.53	1.5	ANNUAL	ALL	5
506017.13	4320720.16	0.04791	417.69	664.53	1.5	ANNUAL	ALL	5
506031.06	4320743.99	0.03252	417.16	664.53	1.5	ANNUAL	ALL	5
505974.43	4320677.23	0.11538	418.34	664.53	1.5	ANNUAL	ALL	5
506018.37	4320695.68	0.0527	417.7	664.53	1.5	ANNUAL	ALL	5
506042.53	4320710.44	0.03434	416.47	664.53	1.5	ANNUAL	ALL	5
506051.33	4320732.58	0.02656	416.3	664.53	1.5	ANNUAL	ALL	5
506060.13	4320754.72	0.01992	416.82	664.53	1.5	ANNUAL	ALL	5
505974.52	4320652.26	0.11904	418.16	664.53	1.5	ANNUAL	ALL	5
506019.14	4320671.00	0.05655	417.64	664.53	1.5	ANNUAL	ALL	5
506041.45	4320680.37	0.03997	416.58	664.53	1.5	ANNUAL	ALL	5
506060.42	4320693.02	0.02995	416.32	664.53	1.5	ANNUAL	ALL	5
506069.35	4320715.51	0.02392	416.32	664.53	1.5	ANNUAL	ALL	5
506078.28	4320738.00	0.01857	416.27	664.53	1.5	ANNUAL	ALL	5
505974.58	4320627.29	0.12042	418.08	664.53	1.5	ANNUAL	ALL	5
506019.67	4320646.22	0.05936	417.5	664.53	1.5	ANNUAL	ALL	5
506042.21	4320655.69	0.04278	416.48	664.53	1.5	ANNUAL	ALL	5
506064.76	4320665.16	0.03187	416.37	664.53	1.5	ANNUAL	ALL	5
506080.55	4320681.25	0.02523	416.38	664.53	1.5	ANNUAL	ALL	5
506089.57	4320703.98	0.02054	416.33	664.53	1.5	ANNUAL	ALL	5
506098.60	4320726.71	0.01633	416.24	664.53	1.5	ANNUAL	ALL	5
506107.63	4320749.43	0.01274	416.32	664.53	1.5	ANNUAL	ALL	5
506020.05	4320621.38	0.06111	417.5	664.53	1.5	ANNUAL	ALL	5
506042.77	4320630.92	0.04481	416.43	664.53	1.5	ANNUAL	ALL	5
506065.49	4320640.46	0.03395	416.34	664.53	1.5	ANNUAL	ALL	5
506088.20	4320650.00	0.02614	416.39	664.53	1.5	ANNUAL	ALL	5
506100.70	4320669.56	0.02158	416.31	664.53	1.5	ANNUAL	ALL	5
506109.80	4320692.46	0.01786	416.23	664.53	1.5	ANNUAL	ALL	5
506118.89	4320715.36	0.01451	416.25	664.53	1.5	ANNUAL	ALL	5
506127.99	4320738.25	0.01159	416.44	664.53	1.5	ANNUAL	ALL	5
505974.43	4320577.23	0.11056	417.23	664.53	1.5	ANNUAL	ALL	5
505996.40	4320586.45	0.0841	417.47	664.53	1.5	ANNUAL	ALL	5
506018.37	4320595.68	0.06205	416.56	664.53	1.5	ANNUAL	ALL	5
506040.34	4320604.90	0.04752	416.65	664.53	1.5	ANNUAL	ALL	5
506062.30	4320614.13	0.03688	416.33	664.53	1.5	ANNUAL	ALL	5
506084.27	4320623.35	0.02903	416.16	664.53	1.5	ANNUAL	ALL	5
506106.24	4320632.57	0.02309	416.06	664.53	1.5	ANNUAL	ALL	5
506118.33	4320651.49	0.01957	416.13	664.53	1.5	ANNUAL	ALL	5
506127.12	4320673.63	0.01664	416.23	664.53	1.5	ANNUAL	ALL	5
506135.92	4320695.77	0.01392	416.4	664.53	1.5	ANNUAL	ALL	5
506144.71	4320717.92	0.01149	416.53	664.53	1.5	ANNUAL	ALL	5
506153.51	4320740.06	0.00937	416.29	664.53	1.5	ANNUAL	ALL	5
506042.21	4320505.69	0.03672	419.7	664.53	1.5	ANNUAL	ALL	5

506064.76	4320515.16	0.03199	419.82	664.53	1.5	ANNUAL	ALL	5
506087.31	4320524.62	0.02756	419.76	664.53	1.5	ANNUAL	ALL	5
506109.85	4320534.09	0.02359	419.72	664.53	1.5	ANNUAL	ALL	5
506132.40	4320543.56	0.02016	419.6	664.53	1.5	ANNUAL	ALL	5
506154.94	4320553.03	0.01722	419.48	664.53	1.5	ANNUAL	ALL	5
506177.49	4320562.49	0.0148	418.7	664.53	1.5	ANNUAL	ALL	5
506198.92	4320604.63	0.01205	415.65	664.53	1.5	ANNUAL	ALL	5
506207.95	4320627.36	0.01059	414.77	664.53	1.5	ANNUAL	ALL	5
506216.98	4320650.08	0.00925	414.33	664.53	1.5	ANNUAL	ALL	5
506226.00	4320672.81	0.008	414.51	664.53	1.5	ANNUAL	ALL	5
506235.03	4320695.53	0.00687	415.14	664.53	1.5	ANNUAL	ALL	5
506244.06	4320718.26	0.00586	415.29	664.53	1.5	ANNUAL	ALL	5
506253.09	4320740.99	0.00497	415.49	664.53	1.5	ANNUAL	ALL	5
505974.61	4320277.30	0.0106	423.88	664.53	1.5	ANNUAL	ALL	5
505997.27	4320286.82	0.0111	424.99	664.53	1.5	ANNUAL	ALL	5
506019.94	4320296.33	0.01111	427.35	664.53	1.5	ANNUAL	ALL	5
506042.60	4320305.85	0.0114	427.47	664.53	1.5	ANNUAL	ALL	5
506065.27	4320315.37	0.01186	425.92	664.53	1.5	ANNUAL	ALL	5
506087.93	4320324.89	0.01205	424.29	664.53	1.5	ANNUAL	ALL	5
506110.60	4320334.41	0.01185	423.48	664.53	1.5	ANNUAL	ALL	5
506133.26	4320343.92	0.01127	424.31	664.53	1.5	ANNUAL	ALL	5
506155.93	4320353.44	0.01035	426.91	664.53	1.5	ANNUAL	ALL	5
506178.59	4320362.96	0.00932	430.27	664.53	1.5	ANNUAL	ALL	5
506201.26	4320372.48	0.00871	431.31	664.53	1.5	ANNUAL	ALL	5
506223.92	4320381.99	0.00828	430.85	664.53	1.5	ANNUAL	ALL	5
506246.59	4320391.51	0.0075	433.44	664.53	1.5	ANNUAL	ALL	5
506269.25	4320401.03	0.00681	436.12	664.53	1.5	ANNUAL	ALL	5
506291.92	4320410.55	0.00636	435.57	664.53	1.5	ANNUAL	ALL	5
506314.58	4320420.06	0.00592	434.54	664.53	1.5	ANNUAL	ALL	5
506330.45	4320436.25	0.00563	434.19	664.53	1.5	ANNUAL	ALL	5
506339.53	4320459.09	0.0055	433.01	664.53	1.5	ANNUAL	ALL	5
506348.60	4320481.94	0.00548	428.06	664.53	1.5	ANNUAL	ALL	5
506357.68	4320504.78	0.00547	421.96	664.53	1.5	ANNUAL	ALL	5
506366.75	4320527.63	0.0052	419.53	664.53	1.5	ANNUAL	ALL	5
506375.83	4320550.48	0.00488	419.49	664.53	1.5	ANNUAL	ALL	5
506412.13	4320641.86	0.00342	413.33	664.53	1.5	ANNUAL	ALL	5
506421.20	4320664.70	0.00307	414.78	664.53	1.5	ANNUAL	ALL	5
506430.28	4320687.55	0.00276	418.13	418.13	1.5	ANNUAL	ALL	5
505974.62	4320077.30	0.00437	423.15	664.53	1.5	ANNUAL	ALL	5
505997.34	4320086.84	0.00478	422.78	664.53	1.5	ANNUAL	ALL	5
506020.05	4320096.38	0.0052	422.59	664.53	1.5	ANNUAL	ALL	5
506042.77	4320105.92	0.00561	422.38	664.53	1.5	ANNUAL	ALL	5
506065.49	4320115.46	0.00595	422.17	664.53	1.5	ANNUAL	ALL	5
506088.20	4320125.00	0.00618	422.2	664.53	1.5	ANNUAL	ALL	5
506110.92	4320134.54	0.00629	422.5	664.53	1.5	ANNUAL	ALL	5
506133.64	4320144.08	0.00628	422.97	664.53	1.5	ANNUAL	ALL	5
506156.35	4320153.62	0.00598	423.66	664.53	1.5	ANNUAL	ALL	5
506179.07	4320163.16	0.00573	424.72	664.53	1.5	ANNUAL	ALL	5
506201.79	4320172.70	0.0054	426.49	664.53	1.5	ANNUAL	ALL	5
506224.50	4320182.24	0.00518	427.38	664.53	1.5	ANNUAL	ALL	5
506247.22	4320191.78	0.00517	425.93	664.53	1.5	ANNUAL	ALL	5
506269.94	4320201.31	0.00511	425	664.53	1.5	ANNUAL	ALL	5
506292.65	4320210.85	0.00497	425.28	664.53	1.5	ANNUAL	ALL	5
506315.37	4320220.39	0.00482	425.58	664.53	1.5	ANNUAL	ALL	5
506338.09	4320229.93	0.00474	424.59	664.53	1.5	ANNUAL	ALL	5
506360.80	4320239.47	0.0046	424.19	664.53	1.5	ANNUAL	ALL	5
506383.52	4320249.01	0.00439	424.54	664.53	1.5	ANNUAL	ALL	5
506406.24	4320258.55	0.00398	428.42	664.53	1.5	ANNUAL	ALL	5
506428.95	4320268.09	0.00386	426.91	664.53	1.5	ANNUAL	ALL	5
506451.67	4320277.63	0.00366	426.59	664.53	1.5	ANNUAL	ALL	5
506470.98	4320290.51	0.00352	425.98	664.53	1.5	ANNUAL	ALL	5
506480.08	4320313.41	0.00346	425.74	664.53	1.5	ANNUAL	ALL	5
506489.17	4320336.30	0.00337	425.6	664.53	1.5	ANNUAL	ALL	5
506498.27	4320359.20	0.00326	425.72	664.53	1.5	ANNUAL	ALL	5
506507.36	4320382.10	0.00313	425.51	664.53	1.5	ANNUAL	ALL	5
506516.46	4320405.00	0.00299	425.07	664.53	1.5	ANNUAL	ALL	5
506616.51	4320656.87	0.00156	415.36	432.02	1.5	ANNUAL	ALL	5
506625.60	4320679.77	0.00145	414.69	432.02	1.5	ANNUAL	ALL	5
506634.70	4320702.67	0.00135	415.14	415.14	1.5	ANNUAL	ALL	5
506643.79	4320725.57	0.00125	414.92	414.92	1.5	ANNUAL	ALL	5
506652.89	4320748.47	0.00115	414.74	414.74	1.5	ANNUAL	ALL	5
506137.78	4320629.63	0.01771	415.75	664.53	1.5	ANNUAL	ALL	5
506162.78	4320702.28	0.01085	416.51	664.53	1.5	ANNUAL	ALL	5
506162.78	4320665.95	0.01281	415.75	664.53	1.5	ANNUAL	ALL	5
506162.78	4320629.63	0.01453	415.4	664.53	1.5	ANNUAL	ALL	5
506262.78	4320702.28	0.00568	415.2	664.53	1.5	ANNUAL	ALL	5
506262.78	4320665.95	0.0066	414.82	664.53	1.5	ANNUAL	ALL	5
506262.78	4320629.63	0.00747	414.19	664.53	1.5	ANNUAL	ALL	5
506662.78	4320702.28	0.00125	415.22	432.02	1.5	ANNUAL	ALL	5
506662.78	4320665.95	0.00134	415.38	432.04	1.5	ANNUAL	ALL	5
506662.78	4320629.63	0.00143	416.98	432.12	1.5	ANNUAL	ALL	5
505998.75	4320559.60	0.07183	416.5	664.53	1.5	ANNUAL	ALL	5
506064.88	4320538.31	0.0343	419.46	664.53	1.5	ANNUAL	ALL	5
506073.75	4320559.60	0.03312	419.13	664.53	1.5	ANNUAL	ALL	5
506069.20	4320488.63	0.02803	420.44	664.53	1.5	ANNUAL	ALL	5
506095.79	4320552.50	0.02702	419.55	664.53	1.5	ANNUAL	ALL	5
506086.81	4320470.89	0.02345	420.6	664.53	1.5	ANNUAL	ALL	5

506095.68	4320492.18	0.02382	420.1	664.53	1.5	ANNUAL	ALL	5
506126.70	4320566.70	0.02142	418.39	664.53	1.5	ANNUAL	ALL	5
506104.42	4320453.15	0.02001	420.04	664.53	1.5	ANNUAL	ALL	5
506113.29	4320474.44	0.02031	419.87	664.53	1.5	ANNUAL	ALL	5
506122.15	4320495.73	0.02022	419.99	664.53	1.5	ANNUAL	ALL	5
506131.02	4320517.02	0.01979	419.82	664.53	1.5	ANNUAL	ALL	5
506176.37	4320385.78	0.01033	428.61	664.53	1.5	ANNUAL	ALL	5
506185.31	4320407.24	0.0109	426.55	664.53	1.5	ANNUAL	ALL	5
506194.25	4320428.71	0.01132	424.3	664.53	1.5	ANNUAL	ALL	5
506203.19	4320450.18	0.01163	422.74	664.53	1.5	ANNUAL	ALL	5
506212.13	4320471.65	0.0114	422.59	664.53	1.5	ANNUAL	ALL	5
506221.07	4320493.12	0.01098	422.85	664.53	1.5	ANNUAL	ALL	5
506230.01	4320514.59	0.01049	422.55	664.53	1.5	ANNUAL	ALL	5
506238.94	4320536.06	0.00999	421.03	664.53	1.5	ANNUAL	ALL	5
506247.88	4320557.53	0.00951	418.54	664.53	1.5	ANNUAL	ALL	5
506317.28	4320243.85	0.0051	424.88	664.53	1.5	ANNUAL	ALL	5
506326.24	4320265.35	0.00515	425.8	664.53	1.5	ANNUAL	ALL	5
506335.19	4320286.86	0.00509	427.51	664.53	1.5	ANNUAL	ALL	5
506344.14	4320308.37	0.00496	429.87	664.53	1.5	ANNUAL	ALL	5
506353.10	4320329.87	0.00491	430.73	664.53	1.5	ANNUAL	ALL	5
506362.05	4320351.38	0.00491	430.24	664.53	1.5	ANNUAL	ALL	5
506371.01	4320372.88	0.0049	429.43	664.53	1.5	ANNUAL	ALL	5
506379.96	4320394.39	0.00477	429.83	664.53	1.5	ANNUAL	ALL	5
506388.91	4320415.89	0.0046	430.4	664.53	1.5	ANNUAL	ALL	5
506397.87	4320437.40	0.00447	429.56	664.53	1.5	ANNUAL	ALL	5
506406.82	4320458.90	0.00436	426.88	664.53	1.5	ANNUAL	ALL	5
506415.77	4320480.41	0.00431	422.03	664.53	1.5	ANNUAL	ALL	5
506424.73	4320501.91	0.00411	419.54	664.53	1.5	ANNUAL	ALL	5
506433.68	4320523.42	0.00386	419.59	664.53	1.5	ANNUAL	ALL	5
506442.63	4320544.92	0.00365	418.81	664.53	1.5	ANNUAL	ALL	5
506456.70	4320098.33	0.00266	431.68	664.53	1.5	ANNUAL	ALL	5
506465.66	4320119.85	0.00272	431.49	664.53	1.5	ANNUAL	ALL	5
506474.62	4320141.37	0.00292	428.07	664.53	1.5	ANNUAL	ALL	5
506483.58	4320162.89	0.00311	424.17	664.53	1.5	ANNUAL	ALL	5
506492.54	4320184.42	0.00325	420.33	664.53	1.5	ANNUAL	ALL	5
506501.50	4320205.94	0.00325	419.33	664.53	1.5	ANNUAL	ALL	5
506510.46	4320227.46	0.00321	420.78	664.53	1.5	ANNUAL	ALL	5
506519.42	4320248.98	0.00315	422.34	664.53	1.5	ANNUAL	ALL	5
506528.38	4320270.50	0.00309	421.92	664.53	1.5	ANNUAL	ALL	5
506537.34	4320292.02	0.00301	422.1	664.53	1.5	ANNUAL	ALL	5
506546.30	4320313.54	0.00292	422.33	664.53	1.5	ANNUAL	ALL	5
506555.26	4320335.06	0.00275	424.24	664.53	1.5	ANNUAL	ALL	5
506564.22	4320356.58	0.00264	424.21	664.53	1.5	ANNUAL	ALL	5
506573.18	4320378.10	0.00254	423.26	664.53	1.5	ANNUAL	ALL	5
505978.86	4320543.72	0.083	418.03	664.53	1.5	ANNUAL	ALL	5
505992.39	4320522.70	0.06113	418.28	664.53	1.5	ANNUAL	ALL	5
506050.73	4320472.36	0.02903	421.94	664.53	1.5	ANNUAL	ALL	5
506063.24	4320450.51	0.02417	422.96	664.53	1.5	ANNUAL	ALL	5
506077.79	4320430.31	0.02057	422.79	664.53	1.5	ANNUAL	ALL	5
506348.95	4320010.33	0.00311	422.21	664.53	1.5	ANNUAL	ALL	5
506366.55	4320024.47	0.00298	423.39	664.53	1.5	ANNUAL	ALL	5
506392.96	4320045.68	0.00293	425.17	664.53	1.5	ANNUAL	ALL	5
506410.56	4320059.82	0.0029	426.25	664.53	1.5	ANNUAL	ALL	5
506436.97	4320081.03	0.00276	429.48	664.53	1.5	ANNUAL	ALL	5
506330.56	4319997.08	0.00317	420.57	664.53	1.5	ANNUAL	ALL	5
505962.19	4320544.18	0.10093	418.25	664.53	1.5	ANNUAL	ALL	5
506402.30	4320382.20	0.00445	428.28	664.53	1.5	ANNUAL	ALL	5
506587.43	4320306.52	0.00258	421.82	664.53	1.5	ANNUAL	ALL	5
506597.55	4320335.43	0.00246	421.11	664.53	1.5	ANNUAL	ALL	5
505914.38	4320536.14	0.1222	419.09	664.53	1.5	ANNUAL	ALL	5
505915.55	4320497.00	0.06738	419.56	664.53	1.5	ANNUAL	ALL	5
505867.94	4320533.08	0.11248	419.59	664.53	1.5	ANNUAL	ALL	5
505837.60	4320522.92	0.08385	419.79	664.53	1.5	ANNUAL	ALL	5
505890.04	4320495.89	0.06519	419.83	664.53	1.5	ANNUAL	ALL	5
505869.36	4320498.43	0.0642	419.88	664.53	1.5	ANNUAL	ALL	5
505838.01	4320497.92	0.05482	420.3	664.53	1.5	ANNUAL	ALL	5
505901.53	4320448.95	0.03727	420.78	664.53	1.5	ANNUAL	ALL	5
505870.18	4320448.44	0.03419	421.29	664.53	1.5	ANNUAL	ALL	5
505838.83	4320447.93	0.02887	422.84	664.53	1.5	ANNUAL	ALL	5
505807.47	4320447.41	0.02122	425.02	664.53	1.5	ANNUAL	ALL	5
505958.49	4320433.47	0.03184	421.2	664.53	1.5	ANNUAL	ALL	5
505983.69	4320442.48	0.03282	420.5	664.53	1.5	ANNUAL	ALL	5
505933.29	4320424.47	0.02975	421.58	664.53	1.5	ANNUAL	ALL	5
505901.94	4320423.95	0.02883	421.57	664.53	1.5	ANNUAL	ALL	5
505870.59	4320423.44	0.02644	421.87	664.53	1.5	ANNUAL	ALL	5
505839.24	4320422.93	0.02118	424.62	664.53	1.5	ANNUAL	ALL	5
505807.88	4320422.42	0.01543	428.46	664.53	1.5	ANNUAL	ALL	5
505956.38	4320407.58	0.02563	421.77	664.53	1.5	ANNUAL	ALL	5
505979.06	4320415.68	0.02672	421.46	664.53	1.5	ANNUAL	ALL	5
506001.74	4320423.79	0.02692	421.76	664.53	1.5	ANNUAL	ALL	5
506037.50	4320452.13	0.0269	423.59	664.53	1.5	ANNUAL	ALL	5
505933.70	4320399.47	0.02395	422.08	664.53	1.5	ANNUAL	ALL	5
505902.35	4320398.96	0.023	421.96	664.53	1.5	ANNUAL	ALL	5
505871.00	4320398.45	0.02104	422.36	664.53	1.5	ANNUAL	ALL	5
505839.64	4320397.93	0.01675	425.51	664.53	1.5	ANNUAL	ALL	5
505808.29	4320397.42	0.01251	429.64	664.53	1.5	ANNUAL	ALL	5
505960.57	4320383.93	0.02135	422.14	664.53	1.5	ANNUAL	ALL	5

505987.03	4320393.39	0.02248	421.7	664.53	1.5	ANNUAL	ALL	5
506013.49	4320402.85	0.02132	424.72	664.53	1.5	ANNUAL	ALL	5
505934.11	4320374.47	0.01967	422.53	664.53	1.5	ANNUAL	ALL	5
505902.76	4320373.96	0.01871	422.52	664.53	1.5	ANNUAL	ALL	5
505871.41	4320373.45	0.01708	422.95	664.53	1.5	ANNUAL	ALL	5
505840.05	4320372.94	0.01384	425.57	664.53	1.5	ANNUAL	ALL	5
505808.70	4320372.42	0.01083	428.9	664.53	1.5	ANNUAL	ALL	5
505958.71	4320358.12	0.01776	422.62	664.53	1.5	ANNUAL	ALL	5
505982.90	4320366.77	0.01881	422.26	664.53	1.5	ANNUAL	ALL	5
506007.10	4320375.42	0.01923	423.09	664.53	1.5	ANNUAL	ALL	5
506031.29	4320384.07	0.01802	425.55	664.53	1.5	ANNUAL	ALL	5
505934.52	4320349.48	0.01641	422.95	664.53	1.5	ANNUAL	ALL	5
505903.17	4320348.96	0.0155	422.95	664.53	1.5	ANNUAL	ALL	5
505871.81	4320348.45	0.01358	423.6	664.53	1.5	ANNUAL	ALL	5
505840.46	4320347.94	0.01129	426.8	664.53	1.5	ANNUAL	ALL	5
505809.11	4320347.43	0.00902	430.32	664.53	1.5	ANNUAL	ALL	5
505936.15	4320249.49	0.00851	424.78	664.53	1.5	ANNUAL	ALL	5
505904.80	4320248.98	0.00787	424.85	664.53	1.5	ANNUAL	ALL	5
505873.45	4320248.47	0.00708	425.88	664.53	1.5	ANNUAL	ALL	5
505842.10	4320247.95	0.00616	428.8	664.53	1.5	ANNUAL	ALL	5
505810.74	4320247.44	0.00532	431.8	664.53	1.5	ANNUAL	ALL	5
506104.37	4320108.48	0.00587	421.63	664.53	1.5	ANNUAL	ALL	5
506131.86	4320118.30	0.0059	421.93	664.53	1.5	ANNUAL	ALL	5
506159.36	4320128.13	0.00578	422.6	664.53	1.5	ANNUAL	ALL	5
506186.85	4320137.96	0.00538	423.7	664.53	1.5	ANNUAL	ALL	5
506214.34	4320147.78	0.00507	424.94	664.53	1.5	ANNUAL	ALL	5
505939.42	4320049.52	0.0035	423.79	664.53	1.5	ANNUAL	ALL	5
505908.07	4320049.00	0.00333	424.48	664.53	1.5	ANNUAL	ALL	5
505876.72	4320048.49	0.00314	425.94	664.53	1.5	ANNUAL	ALL	5
505845.36	4320047.98	0.00292	427.67	664.53	1.5	ANNUAL	ALL	5
505814.01	4320047.47	0.0027	429.68	664.53	1.5	ANNUAL	ALL	5
505970.92	4319859.63	0.00189	426.17	664.53	1.5	ANNUAL	ALL	5
505999.14	4319869.72	0.00207	424.92	664.53	1.5	ANNUAL	ALL	5
506027.37	4319879.81	0.00232	423.97	664.53	1.5	ANNUAL	ALL	5
506055.59	4319889.90	0.00263	423.34	664.53	1.5	ANNUAL	ALL	5
506083.81	4319899.99	0.003	422.69	664.53	1.5	ANNUAL	ALL	5
506112.04	4319910.07	0.00327	422.15	664.53	1.5	ANNUAL	ALL	5
506140.26	4319920.16	0.0035	420.71	664.53	1.5	ANNUAL	ALL	5
506168.49	4319930.25	0.00364	419.59	664.53	1.5	ANNUAL	ALL	5
506196.71	4319940.34	0.00368	418.94	664.53	1.5	ANNUAL	ALL	5
506224.94	4319950.43	0.00363	418.59	664.53	1.5	ANNUAL	ALL	5
506253.16	4319960.52	0.00352	418.29	664.53	1.5	ANNUAL	ALL	5
506281.39	4319970.61	0.00338	418.01	664.53	1.5	ANNUAL	ALL	5
506309.61	4319980.69	0.00324	418.28	664.53	1.5	ANNUAL	ALL	5
505942.69	4319849.54	0.00178	427.72	664.53	1.5	ANNUAL	ALL	5
505911.34	4319849.03	0.00173	429.67	664.53	1.5	ANNUAL	ALL	5
505879.99	4319848.52	0.00169	430.77	664.53	1.5	ANNUAL	ALL	5
505848.63	4319848.01	0.00161	432.16	664.53	1.5	ANNUAL	ALL	5
505817.28	4319847.49	0.00148	434.84	664.53	1.5	ANNUAL	ALL	5
505817.78	4320496.68	0.04613	420.78	664.53	1.5	ANNUAL	ALL	5
505741.54	4320510.86	0.01926	422.16	664.53	1.5	ANNUAL	ALL	5
505758.45	4320492.49	0.02121	422.57	664.53	1.5	ANNUAL	ALL	5
505719.24	4320499.62	0.0124	423.18	664.53	1.5	ANNUAL	ALL	5
505736.58	4320480.78	0.01382	423.44	664.53	1.5	ANNUAL	ALL	5
505696.92	4320488.42	0.0088	424.1	664.53	1.5	ANNUAL	ALL	5
505753.49	4320437.16	0.01072	428.65	664.53	1.5	ANNUAL	ALL	5
505778.60	4320430.36	0.01256	429.87	664.53	1.5	ANNUAL	ALL	5
505674.58	4320477.23	0.00673	423.77	664.53	1.5	ANNUAL	ALL	5
505710.17	4320438.54	0.00771	426.15	664.53	1.5	ANNUAL	ALL	5
505732.19	4320418.05	0.00773	429.69	664.53	1.5	ANNUAL	ALL	5
505757.56	4320411.18	0.0088	432.82	664.53	1.5	ANNUAL	ALL	5
505782.92	4320404.30	0.01041	432.6	664.53	1.5	ANNUAL	ALL	5
505652.23	4320466.04	0.00527	423.76	664.53	1.5	ANNUAL	ALL	5
505670.16	4320446.55	0.00559	424.98	664.53	1.5	ANNUAL	ALL	5
505688.09	4320427.07	0.00612	425.69	664.53	1.5	ANNUAL	ALL	5
505706.02	4320407.58	0.00623	427.96	664.53	1.5	ANNUAL	ALL	5
505727.76	4320394.37	0.00649	431.39	664.53	1.5	ANNUAL	ALL	5
505753.32	4320387.44	0.00731	435.05	664.53	1.5	ANNUAL	ALL	5
505778.88	4320380.51	0.0087	433.46	664.53	1.5	ANNUAL	ALL	5
505629.87	4320454.86	0.00411	424.9	664.53	1.5	ANNUAL	ALL	5
505647.91	4320435.27	0.00417	426.86	664.53	1.5	ANNUAL	ALL	5
505665.94	4320415.67	0.00459	427.2	664.53	1.5	ANNUAL	ALL	5
505683.97	4320396.07	0.0051	427.39	664.53	1.5	ANNUAL	ALL	5
505706.29	4320375.31	0.00529	430.01	664.53	1.5	ANNUAL	ALL	5
505731.99	4320368.34	0.00575	434.72	664.53	1.5	ANNUAL	ALL	5
505757.70	4320361.37	0.00641	438.23	664.53	1.5	ANNUAL	ALL	5
505783.40	4320354.40	0.00768	434.36	664.53	1.5	ANNUAL	ALL	5
505540.43	4320410.19	0.00187	428.39	664.53	1.5	ANNUAL	ALL	5
505558.70	4320390.32	0.00184	429.72	664.53	1.5	ANNUAL	ALL	5
505576.98	4320370.46	0.00182	433.04	664.53	1.5	ANNUAL	ALL	5
505595.26	4320350.59	0.00189	437.15	664.53	1.5	ANNUAL	ALL	5
505613.53	4320330.73	0.00209	437.95	664.53	1.5	ANNUAL	ALL	5
505631.81	4320310.86	0.00244	434.4	664.53	1.5	ANNUAL	ALL	5
505654.43	4320289.82	0.00267	436.79	664.53	1.5	ANNUAL	ALL	5
505676.14	4320283.94	0.00296	438.32	664.53	1.5	ANNUAL	ALL	5
505697.85	4320278.05	0.00333	437.81	664.53	1.5	ANNUAL	ALL	5
505719.56	4320272.16	0.00372	436.88	664.53	1.5	ANNUAL	ALL	5

505745.61	4320265.10	0.00416	436.45	664.53	1.5	ANNUAL	ALL	5
505767.32	4320259.21	0.00453	435.63	664.53	1.5	ANNUAL	ALL	5
505361.49	4320320.88	0.00063	442.92	664.53	1.5	ANNUAL	ALL	5
505376.89	4320304.15	0.0006	444.56	664.53	1.5	ANNUAL	ALL	5
505392.28	4320287.41	0.00059	444.73	664.53	1.5	ANNUAL	ALL	5
505407.68	4320270.68	0.00059	445.72	664.53	1.5	ANNUAL	ALL	5
505423.08	4320253.94	0.00059	447.56	664.53	1.5	ANNUAL	ALL	5
505438.47	4320237.21	0.00061	448.61	664.53	1.5	ANNUAL	ALL	5
505453.87	4320220.47	0.00064	449.16	664.53	1.5	ANNUAL	ALL	5
505469.27	4320203.74	0.0007	448.51	664.53	1.5	ANNUAL	ALL	5
505484.66	4320187.01	0.00077	447.56	664.53	1.5	ANNUAL	ALL	5
505500.06	4320170.27	0.00087	444.87	664.53	1.5	ANNUAL	ALL	5
505515.46	4320153.54	0.00099	441.74	664.53	1.5	ANNUAL	ALL	5
505530.85	4320136.80	0.00105	443.65	664.53	1.5	ANNUAL	ALL	5
505550.64	4320118.88	0.00111	446.43	664.53	1.5	ANNUAL	ALL	5
505572.59	4320112.93	0.00123	445.63	664.53	1.5	ANNUAL	ALL	5
505594.54	4320106.98	0.00134	445.44	664.53	1.5	ANNUAL	ALL	5
505616.48	4320101.02	0.00147	444.27	664.53	1.5	ANNUAL	ALL	5
505638.43	4320095.07	0.00157	444.22	664.53	1.5	ANNUAL	ALL	5
505660.38	4320089.12	0.00167	444.12	664.53	1.5	ANNUAL	ALL	5
505682.33	4320083.17	0.0018	442.12	664.53	1.5	ANNUAL	ALL	5
505704.27	4320077.22	0.00193	440.06	664.53	1.5	ANNUAL	ALL	5
505726.22	4320071.27	0.00207	438.06	664.53	1.5	ANNUAL	ALL	5
505748.17	4320065.32	0.00221	436.5	664.53	1.5	ANNUAL	ALL	5
505770.12	4320059.37	0.00235	434.75	664.53	1.5	ANNUAL	ALL	5
505792.06	4320053.42	0.00253	432.1	664.53	1.5	ANNUAL	ALL	5
505182.53	4320231.60	0.00029	466.84	664.53	1.5	ANNUAL	ALL	5
505198.00	4320214.78	0.00028	471.75	664.53	1.5	ANNUAL	ALL	5
505213.47	4320197.97	0.00026	475.28	664.53	1.5	ANNUAL	ALL	5
505228.94	4320181.16	0.00026	474.6	664.53	1.5	ANNUAL	ALL	5
505244.41	4320164.34	0.00026	472.69	664.53	1.5	ANNUAL	ALL	5
505259.88	4320147.53	0.00026	470.65	664.53	1.5	ANNUAL	ALL	5
505275.35	4320130.72	0.00027	466.02	664.53	1.5	ANNUAL	ALL	5
505290.82	4320113.90	0.00028	468.27	664.53	1.5	ANNUAL	ALL	5
505306.29	4320097.09	0.00028	474.58	664.53	1.5	ANNUAL	ALL	5
505321.75	4320080.28	0.00029	476.24	664.53	1.5	ANNUAL	ALL	5
505337.22	4320063.46	0.00031	475.87	664.53	1.5	ANNUAL	ALL	5
505352.69	4320046.65	0.00034	472.31	664.53	1.5	ANNUAL	ALL	5
505368.16	4320029.84	0.00038	467.85	664.53	1.5	ANNUAL	ALL	5
505383.63	4320013.02	0.00043	461.24	664.53	1.5	ANNUAL	ALL	5
505399.10	4319996.21	0.00048	456.49	664.53	1.5	ANNUAL	ALL	5
505414.57	4319979.40	0.00052	458.36	664.53	1.5	ANNUAL	ALL	5
505430.04	4319962.58	0.00055	459.3	664.53	1.5	ANNUAL	ALL	5
505451.24	4319946.74	0.00061	456.23	664.53	1.5	ANNUAL	ALL	5
505473.29	4319940.76	0.00069	452.52	664.53	1.5	ANNUAL	ALL	5
505495.34	4319934.78	0.00075	449.66	664.53	1.5	ANNUAL	ALL	5
505517.39	4319928.81	0.00081	447.84	664.53	1.5	ANNUAL	ALL	5
505539.44	4319922.83	0.00087	446.17	664.53	1.5	ANNUAL	ALL	5
505561.49	4319916.85	0.00093	444.41	664.53	1.5	ANNUAL	ALL	5
505583.54	4319910.87	0.00099	443.15	664.53	1.5	ANNUAL	ALL	5
505605.59	4319904.89	0.00101	444.44	664.53	1.5	ANNUAL	ALL	5
505627.64	4319898.91	0.00103	445.83	664.53	1.5	ANNUAL	ALL	5
505649.69	4319892.93	0.00107	445.02	664.53	1.5	ANNUAL	ALL	5
505671.74	4319886.95	0.00114	442.13	664.53	1.5	ANNUAL	ALL	5
505693.80	4319880.97	0.00123	438.73	664.53	1.5	ANNUAL	ALL	5
505715.85	4319875.00	0.00135	434.62	664.53	1.5	ANNUAL	ALL	5
505737.90	4319869.02	0.00135	436.28	664.53	1.5	ANNUAL	ALL	5
505759.95	4319863.04	0.00131	441.44	664.53	1.5	ANNUAL	ALL	5
505782.00	4319857.06	0.00135	440.15	664.53	1.5	ANNUAL	ALL	5
505741.78	4320550.62	0.02853	420.86	664.53	1.5	ANNUAL	ALL	5
505741.49	4320588.22	0.04589	419.73	664.53	1.5	ANNUAL	ALL	5
505741.19	4320625.81	0.06266	419.24	664.53	1.5	ANNUAL	ALL	5
505740.90	4320663.41	0.07361	418.98	664.53	1.5	ANNUAL	ALL	5
505740.60	4320701.00	0.07967	419.01	664.53	1.5	ANNUAL	ALL	5
505740.31	4320738.60	0.08217	419.1	664.53	1.5	ANNUAL	ALL	5
505740.02	4320776.19	0.08056	419.45	664.53	1.5	ANNUAL	ALL	5
505739.72	4320813.78	0.07322	419.92	664.53	1.5	ANNUAL	ALL	5
505724.34	4320532.71	0.01775	421.47	664.53	1.5	ANNUAL	ALL	5
505716.49	4320588.02	0.02605	419.86	664.53	1.5	ANNUAL	ALL	5
505716.19	4320625.62	0.03471	419.46	664.53	1.5	ANNUAL	ALL	5
505715.90	4320663.21	0.04208	419.29	664.53	1.5	ANNUAL	ALL	5
505715.60	4320700.81	0.04731	419.29	664.53	1.5	ANNUAL	ALL	5
505715.31	4320738.40	0.05052	419.28	664.53	1.5	ANNUAL	ALL	5
505715.02	4320775.99	0.05117	419.75	664.53	1.5	ANNUAL	ALL	5
505714.72	4320813.59	0.04885	420.07	664.53	1.5	ANNUAL	ALL	5
505703.12	4320523.66	0.01247	421.93	664.53	1.5	ANNUAL	ALL	5
505691.78	4320550.23	0.0131	421.16	664.53	1.5	ANNUAL	ALL	5
505691.49	4320587.83	0.01689	421.07	664.53	1.5	ANNUAL	ALL	5
505691.19	4320625.42	0.0218	420.21	664.53	1.5	ANNUAL	ALL	5
505690.90	4320663.02	0.02679	419.52	664.53	1.5	ANNUAL	ALL	5
505690.61	4320700.61	0.03072	419.68	664.53	1.5	ANNUAL	ALL	5
505690.31	4320738.20	0.03363	419.67	664.53	1.5	ANNUAL	ALL	5
505690.02	4320775.80	0.03488	420.21	664.53	1.5	ANNUAL	ALL	5
505689.72	4320813.39	0.03447	420.38	664.53	1.5	ANNUAL	ALL	5
505676.86	4320526.42	0.00943	422.06	664.53	1.5	ANNUAL	ALL	5
505666.78	4320550.04	0.00973	422.13	664.53	1.5	ANNUAL	ALL	5
505666.49	4320587.63	0.01109	424.53	664.53	1.5	ANNUAL	ALL	5

505666.19	4320625.23	0.01497	421.64	664.53	1.5	ANNUAL	ALL	5
505665.90	4320662.82	0.01854	419.75	664.53	1.5	ANNUAL	ALL	5
505665.61	4320700.41	0.02139	419.85	664.53	1.5	ANNUAL	ALL	5
505665.31	4320738.01	0.02364	420.05	664.53	1.5	ANNUAL	ALL	5
505665.02	4320775.60	0.02494	420.57	664.53	1.5	ANNUAL	ALL	5
505664.72	4320813.20	0.02525	420.77	664.53	1.5	ANNUAL	ALL	5
505654.38	4320520.32	0.00734	422.11	664.53	1.5	ANNUAL	ALL	5
505641.78	4320549.84	0.0072	423.6	664.53	1.5	ANNUAL	ALL	5
505641.49	4320587.44	0.00801	426.74	664.53	1.5	ANNUAL	ALL	5
505641.20	4320625.03	0.01067	423.19	664.53	1.5	ANNUAL	ALL	5
505640.90	4320662.62	0.01363	420.08	664.53	1.5	ANNUAL	ALL	5
505640.61	4320700.22	0.01569	419.96	664.53	1.5	ANNUAL	ALL	5
505640.31	4320737.81	0.01734	420.31	664.53	1.5	ANNUAL	ALL	5
505640.02	4320775.41	0.01849	420.77	664.53	1.5	ANNUAL	ALL	5
505639.72	4320813.00	0.01903	421.07	664.53	1.5	ANNUAL	ALL	5
505628.12	4320523.07	0.00594	422.77	664.53	1.5	ANNUAL	ALL	5
505639.46	4320496.50	0.00578	422.31	664.53	1.5	ANNUAL	ALL	5
505616.78	4320549.65	0.00571	424.86	664.53	1.5	ANNUAL	ALL	5
505616.49	4320587.24	0.00659	426.02	664.53	1.5	ANNUAL	ALL	5
505616.20	4320624.83	0.00827	423.79	664.53	1.5	ANNUAL	ALL	5
505615.90	4320662.43	0.01037	421.18	664.53	1.5	ANNUAL	ALL	5
505615.61	4320700.02	0.01194	420.2	664.53	1.5	ANNUAL	ALL	5
505615.31	4320737.62	0.01315	420.62	664.53	1.5	ANNUAL	ALL	5
505615.02	4320775.21	0.01411	420.91	664.53	1.5	ANNUAL	ALL	5
505614.72	4320812.81	0.01467	421.31	664.53	1.5	ANNUAL	ALL	5
505605.01	4320518.45	0.00452	424.61	664.53	1.5	ANNUAL	ALL	5
505618.24	4320487.45	0.00444	423.42	664.53	1.5	ANNUAL	ALL	5
505591.79	4320549.45	0.00453	426.84	664.53	1.5	ANNUAL	ALL	5
505591.49	4320587.04	0.00561	424.94	664.53	1.5	ANNUAL	ALL	5
505591.20	4320624.64	0.00704	422.83	664.53	1.5	ANNUAL	ALL	5
505590.90	4320662.23	0.00827	421.17	664.53	1.5	ANNUAL	ALL	5
505590.61	4320699.83	0.00939	420.42	664.53	1.5	ANNUAL	ALL	5
505590.31	4320737.42	0.01033	420.51	664.53	1.5	ANNUAL	ALL	5
505590.02	4320775.02	0.01106	420.99	664.53	1.5	ANNUAL	ALL	5
505589.73	4320812.61	0.01161	421.02	664.53	1.5	ANNUAL	ALL	5
505578.88	4320520.91	0.00364	426.88	664.53	1.5	ANNUAL	ALL	5
505590.97	4320492.57	0.00351	426.21	664.53	1.5	ANNUAL	ALL	5
505603.06	4320464.23	0.00354	424.85	664.53	1.5	ANNUAL	ALL	5
505615.15	4320435.88	0.00329	426.53	664.53	1.5	ANNUAL	ALL	5
505566.79	4320549.25	0.00377	427.9	664.53	1.5	ANNUAL	ALL	5
505566.49	4320586.85	0.00476	424.85	664.53	1.5	ANNUAL	ALL	5
505566.20	4320624.44	0.00585	422.67	664.53	1.5	ANNUAL	ALL	5
505565.90	4320662.04	0.00674	421.28	664.53	1.5	ANNUAL	ALL	5
505565.61	4320699.63	0.00754	420.87	664.53	1.5	ANNUAL	ALL	5
505565.31	4320737.23	0.00827	420.86	664.53	1.5	ANNUAL	ALL	5
505565.02	4320774.82	0.00884	421.23	664.53	1.5	ANNUAL	ALL	5
505564.73	4320812.41	0.00931	421.17	664.53	1.5	ANNUAL	ALL	5
505479.74	4320518.10	0.00192	433.1	664.53	1.5	ANNUAL	ALL	5
505492.70	4320487.74	0.00171	436.12	664.53	1.5	ANNUAL	ALL	5
505505.65	4320457.37	0.0017	432.29	664.53	1.5	ANNUAL	ALL	5
505518.61	4320427.00	0.00172	429.81	664.53	1.5	ANNUAL	ALL	5
505544.52	4320366.27	0.00149	432.86	664.53	1.5	ANNUAL	ALL	5
505588.17	4320323.75	0.0017	439.49	664.53	1.5	ANNUAL	ALL	5
505466.79	4320548.47	0.0023	428.47	664.53	1.5	ANNUAL	ALL	5
505466.49	4320586.07	0.00262	427.19	664.53	1.5	ANNUAL	ALL	5
505466.20	4320623.66	0.00289	426.3	664.53	1.5	ANNUAL	ALL	5
505465.91	4320661.25	0.00342	423.08	664.53	1.5	ANNUAL	ALL	5
505465.61	4320698.85	0.00375	422.58	664.53	1.5	ANNUAL	ALL	5
505465.32	4320736.44	0.00407	422.26	664.53	1.5	ANNUAL	ALL	5
505465.02	4320774.04	0.0043	422.31	664.53	1.5	ANNUAL	ALL	5
505464.73	4320811.63	0.00449	422.46	664.53	1.5	ANNUAL	ALL	5
505280.54	4320514.70	0.00106	430.26	664.53	1.5	ANNUAL	ALL	5
505294.28	4320482.49	0.00105	428.69	664.53	1.5	ANNUAL	ALL	5
505308.02	4320450.28	0.00096	431.08	664.53	1.5	ANNUAL	ALL	5
505321.76	4320418.07	0.00087	433.93	664.53	1.5	ANNUAL	ALL	5
505335.50	4320385.87	0.00078	436.78	664.53	1.5	ANNUAL	ALL	5
505349.24	4320353.66	0.00071	439.42	664.53	1.5	ANNUAL	ALL	5
505404.20	4320224.83	0.00051	449.45	664.53	1.5	ANNUAL	ALL	5
505450.50	4320179.74	0.00064	447.35	664.53	1.5	ANNUAL	ALL	5
505266.80	4320546.91	0.00093	440.37	664.53	1.5	ANNUAL	ALL	5
505266.50	4320584.50	0.00099	441.64	664.53	1.5	ANNUAL	ALL	5
505266.21	4320622.09	0.00111	436.1	664.53	1.5	ANNUAL	ALL	5
505265.91	4320659.69	0.00122	432.49	664.53	1.5	ANNUAL	ALL	5
505265.62	4320697.28	0.0014	426.84	664.53	1.5	ANNUAL	ALL	5
505265.32	4320734.88	0.00149	425.82	664.53	1.5	ANNUAL	ALL	5
505265.03	4320772.47	0.00157	425.08	664.53	1.5	ANNUAL	ALL	5
505264.74	4320810.07	0.00168	423.3	664.53	1.5	ANNUAL	ALL	5
505080.91	4320512.27	0.00053	446.55	664.53	1.5	ANNUAL	ALL	5
505095.01	4320479.21	0.00051	442.43	664.53	1.5	ANNUAL	ALL	5
505109.12	4320446.14	0.00049	441.82	664.53	1.5	ANNUAL	ALL	5
505123.23	4320413.07	0.00049	440.76	664.53	1.5	ANNUAL	ALL	5
505137.33	4320380.01	0.00047	442.67	664.53	1.5	ANNUAL	ALL	5
505151.44	4320346.94	0.00044	448.87	664.53	1.5	ANNUAL	ALL	5
505165.55	4320313.87	0.00039	455.88	664.53	1.5	ANNUAL	ALL	5
505179.65	4320280.81	0.00034	463.4	664.53	1.5	ANNUAL	ALL	5
505250.19	4320115.47	0.00024	474.68	664.53	1.5	ANNUAL	ALL	5
505264.29	4320082.40	0.00024	479.8	664.53	1.5	ANNUAL	ALL	5

505311.83	4320036.11	0.00028	481.79	664.53	1.5	ANNUAL	ALL	5
505345.26	4320022.89	0.00034	471.02	664.53	1.5	ANNUAL	ALL	5
505445.54	4319983.21	0.00062	454.22	664.53	1.5	ANNUAL	ALL	5
505478.97	4319969.98	0.00073	450.08	664.53	1.5	ANNUAL	ALL	5
505512.40	4319956.75	0.00083	447.11	664.53	1.5	ANNUAL	ALL	5
505066.80	4320545.34	0.00055	445.41	664.53	1.5	ANNUAL	ALL	5
505066.51	4320582.93	0.00059	442.24	664.53	1.5	ANNUAL	ALL	5
505066.21	4320620.53	0.0006	447.24	664.53	1.5	ANNUAL	ALL	5
505065.92	4320658.12	0.00062	448.2	664.53	1.5	ANNUAL	ALL	5
505065.62	4320695.72	0.00067	441.08	664.53	1.5	ANNUAL	ALL	5
505065.33	4320733.31	0.00065	446.01	664.53	1.5	ANNUAL	ALL	5
505065.04	4320770.91	0.00065	445.03	664.53	1.5	ANNUAL	ALL	5
505064.74	4320808.50	0.00069	439.12	664.53	1.5	ANNUAL	ALL	5
505764.10	4320838.97	0.08123	419.82	664.53	1.5	ANNUAL	ALL	5
505746.14	4320856.36	0.05777	421.68	664.53	1.5	ANNUAL	ALL	5
505745.52	4320881.35	0.04413	424.32	664.53	1.5	ANNUAL	ALL	5
505703.79	4320848.56	0.03839	420.55	664.53	1.5	ANNUAL	ALL	5
505739.12	4320903.81	0.03515	425.99	664.53	1.5	ANNUAL	ALL	5
505715.99	4320893.67	0.03368	424.33	664.53	1.5	ANNUAL	ALL	5
505683.48	4320860.08	0.03017	418.68	664.53	1.5	ANNUAL	ALL	5
505674.10	4320836.64	0.02797	420.22	664.53	1.5	ANNUAL	ALL	5
505762.24	4320913.95	0.03453	425.53	664.53	1.5	ANNUAL	ALL	5
505739.94	4320929.43	0.02955	425.94	664.53	1.5	ANNUAL	ALL	5
505718.26	4320919.93	0.02955	424.17	664.53	1.5	ANNUAL	ALL	5
505696.58	4320910.42	0.02783	422.37	664.53	1.5	ANNUAL	ALL	5
505666.11	4320878.94	0.02401	420.68	664.53	1.5	ANNUAL	ALL	5
505657.31	4320856.96	0.02303	419.52	664.53	1.5	ANNUAL	ALL	5
505648.52	4320834.98	0.02105	420.85	664.53	1.5	ANNUAL	ALL	5
505761.62	4320938.94	0.02857	425.4	664.53	1.5	ANNUAL	ALL	5
505740.19	4320954.81	0.02512	425.64	664.53	1.5	ANNUAL	ALL	5
505719.38	4320945.68	0.02552	424.5	664.53	1.5	ANNUAL	ALL	5
505698.56	4320936.55	0.02492	422.93	664.53	1.5	ANNUAL	ALL	5
505677.75	4320927.43	0.02275	422.69	664.53	1.5	ANNUAL	ALL	5
505648.50	4320897.20	0.01946	423.05	664.53	1.5	ANNUAL	ALL	5
505640.05	4320876.10	0.01882	421.43	664.53	1.5	ANNUAL	ALL	5
505631.61	4320855.00	0.01772	420.75	664.53	1.5	ANNUAL	ALL	5
505623.17	4320833.91	0.01621	421.21	664.53	1.5	ANNUAL	ALL	5
505761.00	4320963.93	0.02393	425.32	597.35	1.5	ANNUAL	ALL	5
505736.10	4320978.28	0.02129	426.73	597.35	1.5	ANNUAL	ALL	5
505711.82	4320967.63	0.02195	424.85	664.53	1.5	ANNUAL	ALL	5
505687.54	4320956.98	0.02144	422.89	664.53	1.5	ANNUAL	ALL	5
505663.26	4320946.34	0.01898	423.74	664.53	1.5	ANNUAL	ALL	5
505629.12	4320911.07	0.01577	424.28	664.53	1.5	ANNUAL	ALL	5
505619.27	4320886.46	0.01492	423.87	664.53	1.5	ANNUAL	ALL	5
505609.43	4320861.84	0.01423	422.21	664.53	1.5	ANNUAL	ALL	5
505599.58	4320837.23	0.01296	421.4	664.53	1.5	ANNUAL	ALL	5
505760.38	4320988.93	0.02008	425.98	597.35	1.5	ANNUAL	ALL	5
505736.64	4321003.78	0.01814	427.52	596.35	1.5	ANNUAL	ALL	5
505713.51	4320993.64	0.01886	426.57	597.35	1.5	ANNUAL	ALL	5
505690.39	4320983.50	0.01894	424.11	664.53	1.5	ANNUAL	ALL	5
505667.26	4320973.36	0.01775	423.89	664.53	1.5	ANNUAL	ALL	5
505644.14	4320963.22	0.01569	425.74	664.53	1.5	ANNUAL	ALL	5
505611.63	4320929.63	0.01328	425.45	664.53	1.5	ANNUAL	ALL	5
505602.25	4320906.19	0.01243	426.33	664.53	1.5	ANNUAL	ALL	5
505592.87	4320882.75	0.01141	427.23	664.53	1.5	ANNUAL	ALL	5
505583.49	4320859.30	0.01053	426.54	664.53	1.5	ANNUAL	ALL	5
505574.11	4320835.86	0.01034	421.45	664.53	1.5	ANNUAL	ALL	5
505759.76	4321013.92	0.01711	426.1	442.02	1.5	ANNUAL	ALL	5
505734.16	4321103.75	0.01007	432.14	445.19	1.5	ANNUAL	ALL	5
505711.03	4321093.61	0.01072	432.71	432.71	1.5	ANNUAL	ALL	5
505687.91	4321083.47	0.01108	432.63	432.63	1.5	ANNUAL	ALL	5
505664.78	4321073.33	0.01153	428.79	433.79	1.5	ANNUAL	ALL	5
505641.66	4321063.19	0.01148	426.28	597.35	1.5	ANNUAL	ALL	5
505618.53	4321053.05	0.01083	426.41	597.35	1.5	ANNUAL	ALL	5
505595.41	4321042.90	0.00994	426.86	597.35	1.5	ANNUAL	ALL	5
505572.28	4321032.76	0.0088	428.49	597.35	1.5	ANNUAL	ALL	5
505539.78	4320999.18	0.00726	431.13	597.35	1.5	ANNUAL	ALL	5
505530.39	4320975.74	0.00684	431.59	597.35	1.5	ANNUAL	ALL	5
505521.01	4320952.29	0.00641	431.9	664.53	1.5	ANNUAL	ALL	5
505511.63	4320928.85	0.00598	431.84	664.53	1.5	ANNUAL	ALL	5
505502.25	4320905.41	0.00566	430.16	664.53	1.5	ANNUAL	ALL	5
505492.87	4320881.96	0.00541	427.37	664.53	1.5	ANNUAL	ALL	5
505483.49	4320858.52	0.00513	424.82	664.53	1.5	ANNUAL	ALL	5
505474.11	4320835.08	0.0049	422.65	664.53	1.5	ANNUAL	ALL	5
505757.28	4321113.89	0.00934	429.99	447.52	1.5	ANNUAL	ALL	5
505727.55	4321302.96	0.00388	444.78	444.78	1.5	ANNUAL	ALL	5
505702.77	4321292.10	0.00421	447.1	447.1	1.5	ANNUAL	ALL	5
505677.99	4321281.23	0.00452	447.9	447.9	1.5	ANNUAL	ALL	5
505653.22	4321270.37	0.00481	446.66	446.66	1.5	ANNUAL	ALL	5
505628.44	4321259.50	0.00507	443.32	455.4	1.5	ANNUAL	ALL	5
505603.66	4321248.64	0.00528	439.73	456.23	1.5	ANNUAL	ALL	5
505578.89	4321237.77	0.00535	437.38	456.23	1.5	ANNUAL	ALL	5
505554.11	4321226.91	0.0053	435.6	456.23	1.5	ANNUAL	ALL	5
505529.33	4321216.04	0.00518	433.73	466.41	1.5	ANNUAL	ALL	5
505504.55	4321205.18	0.00489	433.77	466.41	1.5	ANNUAL	ALL	5
505479.78	4321194.31	0.00447	435.92	465.87	1.5	ANNUAL	ALL	5
505455.00	4321183.45	0.00406	437.36	444.29	1.5	ANNUAL	ALL	5

505430.22	4321172.58	0.00362	439.99	441.33	1.5	ANNUAL	ALL	5
505395.40	4321136.60	0.00307	442.01	442.88	1.5	ANNUAL	ALL	5
505385.35	4321111.48	0.003	437.5	597.35	1.5	ANNUAL	ALL	5
505375.29	4321086.37	0.00294	433.14	597.35	1.5	ANNUAL	ALL	5
505365.24	4321061.25	0.00284	430.81	597.35	1.5	ANNUAL	ALL	5
505355.19	4321036.13	0.00267	431.57	597.35	1.5	ANNUAL	ALL	5
505345.14	4321011.01	0.00247	433.99	597.35	1.5	ANNUAL	ALL	5
505335.09	4320985.89	0.00235	433.48	597.35	1.5	ANNUAL	ALL	5
505325.04	4320960.77	0.00242	427.19	664.53	1.5	ANNUAL	ALL	5
505314.99	4320935.66	0.00236	424.36	664.53	1.5	ANNUAL	ALL	5
505304.94	4320910.54	0.00222	423.91	664.53	1.5	ANNUAL	ALL	5
505294.89	4320885.42	0.00207	424.07	664.53	1.5	ANNUAL	ALL	5
505284.84	4320860.30	0.00194	423.88	664.53	1.5	ANNUAL	ALL	5
505274.79	4320835.18	0.00186	422.03	664.53	1.5	ANNUAL	ALL	5
505752.32	4321313.83	0.00351	442.44	445.44	1.5	ANNUAL	ALL	5
505723.08	4321503.12	0.00219	438.13	438.13	1.5	ANNUAL	ALL	5
505698.80	4321492.47	0.00245	437.36	437.36	1.5	ANNUAL	ALL	5
505674.52	4321481.82	0.00271	435.47	456.23	1.5	ANNUAL	ALL	5
505650.24	4321471.18	0.00293	434.29	460.13	1.5	ANNUAL	ALL	5
505625.96	4321460.53	0.00302	436.2	460.13	1.5	ANNUAL	ALL	5
505601.68	4321449.88	0.00312	436.38	467.77	1.5	ANNUAL	ALL	5
505577.40	4321439.23	0.00318	437.02	468.06	1.5	ANNUAL	ALL	5
505553.11	4321428.59	0.00316	439.76	467.77	1.5	ANNUAL	ALL	5
505528.83	4321417.94	0.00312	442.92	467.77	1.5	ANNUAL	ALL	5
505504.55	4321407.29	0.00308	444.86	467.77	1.5	ANNUAL	ALL	5
505480.27	4321396.64	0.00306	444.45	468.06	1.5	ANNUAL	ALL	5
505455.99	4321386.00	0.003	444.65	468.06	1.5	ANNUAL	ALL	5
505431.71	4321375.35	0.00287	446.94	468.06	1.5	ANNUAL	ALL	5
505407.43	4321364.70	0.00273	448.29	468.06	1.5	ANNUAL	ALL	5
505383.14	4321354.05	0.00264	445.22	469.36	1.5	ANNUAL	ALL	5
505358.86	4321343.41	0.00251	442.64	469.36	1.5	ANNUAL	ALL	5
505334.58	4321332.76	0.00236	441.04	469.63	1.5	ANNUAL	ALL	5
505310.30	4321322.11	0.0022	439.56	470.12	1.5	ANNUAL	ALL	5
505286.02	4321311.46	0.00202	439.35	470.12	1.5	ANNUAL	ALL	5
505251.89	4321276.20	0.00181	437.45	470.53	1.5	ANNUAL	ALL	5
505242.04	4321251.58	0.00172	438.47	469.36	1.5	ANNUAL	ALL	5
505232.19	4321226.97	0.00163	440.3	469.36	1.5	ANNUAL	ALL	5
505222.34	4321202.35	0.00156	440.26	596.35	1.5	ANNUAL	ALL	5
505212.49	4321177.74	0.00152	437	597.35	1.5	ANNUAL	ALL	5
505202.64	4321153.12	0.00149	434.49	597.35	1.5	ANNUAL	ALL	5
505192.79	4321128.51	0.00142	434.53	597.35	1.5	ANNUAL	ALL	5
505182.94	4321103.89	0.00135	436.01	597.35	1.5	ANNUAL	ALL	5
505173.09	4321079.27	0.00131	435.17	597.35	1.5	ANNUAL	ALL	5
505163.24	4321054.66	0.00133	431.11	597.35	1.5	ANNUAL	ALL	5
505153.39	4321030.04	0.00136	427.3	664.53	1.5	ANNUAL	ALL	5
505143.54	4321005.43	0.00135	425.73	664.53	1.5	ANNUAL	ALL	5
505133.69	4320980.81	0.00131	425.16	664.53	1.5	ANNUAL	ALL	5
505123.84	4320956.20	0.00123	426.11	664.53	1.5	ANNUAL	ALL	5
505113.99	4320931.58	0.00106	432.12	664.53	1.5	ANNUAL	ALL	5
505104.14	4320906.96	0.00097	433.43	664.53	1.5	ANNUAL	ALL	5
505094.29	4320882.35	0.00095	431.2	664.53	1.5	ANNUAL	ALL	5
505084.44	4320857.73	0.0009	429.87	664.53	1.5	ANNUAL	ALL	5
505074.59	4320833.12	0.00077	435.85	664.53	1.5	ANNUAL	ALL	5
505747.37	4321513.76	0.00199	435.76	438.35	1.5	ANNUAL	ALL	5
505822.76	4320536.13	0.09661	419.83	664.53	1.5	ANNUAL	ALL	5
505841.59	4320533.58	0.10342	419.78	664.53	1.5	ANNUAL	ALL	5
505888.71	4320535.14	0.1202	419.42	664.53	1.5	ANNUAL	ALL	5
505954.57	4320494.88	0.05984	418.81	664.53	1.5	ANNUAL	ALL	5
505958.31	4320523.60	0.08231	418.67	664.53	1.5	ANNUAL	ALL	5
505513.25	4320588.10	0.00289	433.55	664.53	1.5	ANNUAL	ALL	5
505514.27	4320543.88	0.0025	432.69	664.53	1.5	ANNUAL	ALL	5

** CONCUNIT ug/m^3
** DEPUNIT g/m^2

Health Risk Assessment

Lakeport Waterstone Residential Project

Construction Health Risk Calculations
Mitigated Scenario

Lakeport Waterstone Residential Project

Project Site (Mitigated Scenario)

Estimation of Annual Onsite Construction Emissions

Start of Construction	6/1/2022	
End of Construction	12/1/2023	**Total**
Number of Days	548	548
Number of Hours	13,152	13,152

Size of the construction area source: **50,670.8** **sq-meters**

CalEEMod Run	Year	On-site Construction Activity	Unmitigated On-site DPM (tons)
Project Construction	2022	On-site Site Preparation	0.00031
Project Construction	2022	On-site Grading	0.00152
Project Construction	2022	On-site Paving	0.00037
Project Construction	2022	On-site Building Construction	0.00473
Project Construction	2023	On-site Building Construction	0.01020
Project Construction	2023	On-site Architectural Coating	0.00071

Total Unmitigated DPM (On-site) 1.784E-02 tons

Average Emission*	1.620E+04	grams
	3.421E-04	grams/sec
	6.752E-09	grams/m2/sec

*Size of the construction area source accounted for in AERMOD.

Lakeport Waterstone Residential Project

Estimation of Annual Offsite Construction DPM Emissions (Unmitigated)

Start of Construction	6/1/2022		
End of Construction	12/1/2023	**Total**	
Number of Days	548	548	
Number of Hours	13,152	13152	

Construction Trip Type	2022 Site Preparation	2022 Grading	2022 Paving	2022 Building Construction	2023 Building Construction	2023 Architectural Coating
Haul Truck	0.00001	0.00054	0.00001	0.00001	0.00001	0.00000
Vendor Truck	0.00000	0.00000	0.00003	0.00113	0.00133	0.00000
Worker	0.00001	0.00003	0.00001	0.00067	0.00147	0.00003
Total	0.00002	0.00057	0.00005	0.00181	0.00281	0.00003

	Haul Truck (tons)	**Vendor Truck (tons)**	**Worker (tons)**	**Total (tons)**
Total DPM	5.800E-04	2.490E-03	2.220E-03	5.290E-03
Average Emissions				
Grams	5.266E+02	2.261E+03	2.016E+03	
Grams/sec	1.112E-05	4.775E-05	4.257E-05	
Default Distance*	20	6.6	16.8	

*Default Vehicle Travel Distance in CalEEMod

Vehicle Travel Distances in the Construction HRA (miles)				
Road Segment 1	0.39	0.39	0.39	
Road Segment 2	0.49	0.49	0.49	
Road Segment 3	0.53	0.53	0.53	
Trip Distribution (percent)				
Road Segment 1	100.0%	100.0%	100.0%	on-site
Road Segment 2	50.0%	50.0%	50.0%	off-site
Road Segment 3	50.0%	50.0%	50.0%	off-site

Total Average Offsite Vehicle Emissions Along Travel Distance (g/sec)				**Total**
Road Segment 1	2.187E-07	2.845E-06	9.963E-07	4.060E-06
Road Segment 2	1.355E-07	1.763E-06	6.176E-07	2.516E-06
Road Segment 3	1.487E-07	1.934E-06	6.775E-07	2.760E-06

Cancer Risk Calculations Using OEHHA Cancer Risk Assumptions
Lakeport Waterstone Residential Project

Cancer Risk Impacts from Construction at the Maximum Impacted Sensitive Receptor - Infant

UTM: 505914.38 4320536.14

Cancer Potency Factor: 1.1 $(mg/kg\text{-}day)^{-1}$
Exposure Frequency 350 days/year
Averaging Period 25550 days

Construction Annual DPM Emissions (as PM10 Exhaust) Mitigated Construction Scenario

Year	Maximum DPM Concentration (ug/m3)	Age Sensitivity Factor	Daily Breathing Rate (L/kg-day)	Time At Home Factor	Exposure Duration (years)	Cancer Risk (/million)
3rd Trimester	0.01449	10	361	0.85	0.25	0.1675
0-<1	0.01449	10	1090	0.85	1.00	2.0229
1-<2	0.01449	10	1090	0.85	0.25	0.5085
					Total	2.6989

Cancer Risk Impacts from Construction at the Maximum Impacted Sensitive Receptor - Child

UTM: 505914.38 4320536.14

Cancer Potency Factor: 1.1 $(mg/kg\text{-}day)^{-1}$
Exposure Frequency 350 days/year
Averaging Period 25550 days

Construction Annual DPM Emissions (as PM10Exhaust) Mitigated Construction Scenario

Construction Year	Maximum DPM Concentration (ug/m3)	Age Sensitivity Factor	Daily Breathing Rate (L/kg-day)	Time At Home Factor	Exposure Duration (years)	Unit Risk Factor $(ug/m3)^{-1}$
Total	0.01449	3	745	0.72	1.50	0.5275
					Total	0.5275

Cancer Risk Impacts from Construction at the Maximum Impacted Sensitive Receptor - Adult

UTM: 505914.38 4320536.14

Cancer Potency Factor: 1.1 $(mg/kg\text{-}day)^{-1}$
Exposure Frequency 350 days/year
Averaging Period 25550 days

Construction Annual DPM Emissions (as PM10 Exhaust) Mitigated Construction Scenario

Construction Year	Maximum DPM Concentration (ug/m3)	Age Sensitivity Factor	Daily Breathing Rate (L/kg-day)	Time At Home Factor	Exposure Duration (years)	Unit Risk Factor $(ug/m3)^{-1}$
Total	0.01449	1	290	0.73	1.50	0.0694
					Total	0.0694

Lakeport Waterstone Residential Project

UTM: 505914.38 4320536.14

Estimates of Chronic Non-Cancer Hazard Index (CNCHI)

Mitigated Construction Scenario

Chronic Non-Cancer Hazard Index at the Maximum Impacted Sensitive Receptor

Reference Exposure Level (REL) for DPM: 5 ug/m3

CNCHI = DPM/REL

X (m)	Y (m)	Average DPM (ug/m3)	Max DPM (ug/m3)	CNCHI
505914.38	4320536.14	1.4490E-02	1.4490E-02	2.8980E-03

Lakeport Waterstone Residential Project

Mitigated Construction Scenario

Maximum Concentration	0.01449
X	Y
505914.38	4320536.14

* AERMOD (21112): G:\LWR_HRA\S1 (Mit)\S1 (Mit).isc 4/5/2022
* AERMET (14134): 12:31:04 PM
* MODELING OPTIONS USED: Reg DFAULT CONC ELEV FLGPOL RURAL
* PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 5 YEARS FOR SOURCE GROUP: ALL
* FOR A TOTAL OF 829 RECEPTORS.
* FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)

* X	Y	AVERAGE CONC	ZELEV	ZHILL	ZFLAG	AVE	GRP	NUM YRS	NET ID
505797.42	4320838.34	0.00981	419.93	664.53	1.5	ANNUAL	ALL	5	
505808.60	4320860.70	0.00701	422.8	664.53	1.5	ANNUAL	ALL	5	
505819.78	4320883.06	0.00539	422.58	664.53	1.5	ANNUAL	ALL	5	
505796.18	4320888.32	0.00513	424.22	664.53	1.5	ANNUAL	ALL	5	
505830.96	4320905.42	0.00419	421.56	664.53	1.5	ANNUAL	ALL	5	
505807.36	4320910.68	0.0041	423.81	664.53	1.5	ANNUAL	ALL	5	
505842.14	4320927.78	0.00321	421.62	664.53	1.5	ANNUAL	ALL	5	
505818.54	4320933.04	0.00334	422.72	664.53	1.5	ANNUAL	ALL	5	
505794.94	4320938.31	0.00333	423.83	664.53	1.5	ANNUAL	ALL	5	
505853.32	4320950.14	0.00244	422.1	664.53	1.5	ANNUAL	ALL	5	
505829.72	4320955.40	0.00265	422.04	664.53	1.5	ANNUAL	ALL	5	
505806.12	4320960.67	0.00275	423.07	664.53	1.5	ANNUAL	ALL	5	
505864.50	4320972.50	0.00181	423.41	442.02	1.5	ANNUAL	ALL	5	
505840.90	4320977.76	0.00206	423	442.45	1.5	ANNUAL	ALL	5	
505817.30	4320983.03	0.00219	423.3	596.35	1.5	ANNUAL	ALL	5	
505793.70	4320988.29	0.00227	424.13	596.35	1.5	ANNUAL	ALL	5	
505875.68	4320994.86	0.00135	424.71	442.02	1.5	ANNUAL	ALL	5	
505852.08	4321000.12	0.00157	424.19	442.45	1.5	ANNUAL	ALL	5	
505828.48	4321005.39	0.00174	424.28	442.45	1.5	ANNUAL	ALL	5	
505804.88	4321010.65	0.00186	424.46	442.45	1.5	ANNUAL	ALL	5	
505920.40	4321084.30	0.00042	435.06	440	1.5	ANNUAL	ALL	5	
505896.80	4321089.57	0.00053	433.44	442.02	1.5	ANNUAL	ALL	5	
505873.20	4321094.83	0.00063	433.54	442.45	1.5	ANNUAL	ALL	5	
505849.60	4321100.09	0.00073	433.99	442.45	1.5	ANNUAL	ALL	5	
505826.00	4321105.36	0.00083	433.08	442.45	1.5	ANNUAL	ALL	5	
505802.40	4321110.62	0.00092	432.1	442.45	1.5	ANNUAL	ALL	5	
506009.85	4321263.19	0.00014	429.45	442.4	1.5	ANNUAL	ALL	5	
505986.25	4321268.45	0.00015	432.03	442.4	1.5	ANNUAL	ALL	5	
505962.65	4321273.72	0.00016	435.13	442.4	1.5	ANNUAL	ALL	5	
505939.05	4321278.98	0.00017	438.12	442.4	1.5	ANNUAL	ALL	5	
505915.45	4321284.24	0.00019	440.6	442.4	1.5	ANNUAL	ALL	5	
505891.85	4321289.51	0.00021	441.85	441.85	1.5	ANNUAL	ALL	5	
505868.25	4321294.77	0.00024	442.04	442.04	1.5	ANNUAL	ALL	5	
505844.64	4321300.03	0.00028	440.84	440.84	1.5	ANNUAL	ALL	5	
505821.04	4321305.30	0.00032	439.53	439.53	1.5	ANNUAL	ALL	5	
505797.44	4321310.56	0.00036	438.74	445.44	1.5	ANNUAL	ALL	5	
506099.29	4321442.07	0.00006	434.03	434.03	1.5	ANNUAL	ALL	5	
506075.69	4321447.34	0.00007	434.06	434.06	1.5	ANNUAL	ALL	5	
506052.09	4321452.60	0.00008	431.32	434	1.5	ANNUAL	ALL	5	
506028.49	4321457.86	0.00009	427.88	436	1.5	ANNUAL	ALL	5	
505910.49	4321484.18	0.00013	426.24	443.43	1.5	ANNUAL	ALL	5	
505886.89	4321489.44	0.00014	427.33	443.43	1.5	ANNUAL	ALL	5	
505863.29	4321494.71	0.00015	428.97	443.43	1.5	ANNUAL	ALL	5	
505839.69	4321499.97	0.00017	429.87	443.58	1.5	ANNUAL	ALL	5	
505816.09	4321505.23	0.00018	431	443.58	1.5	ANNUAL	ALL	5	
505792.49	4321510.50	0.0002	433.97	435.63	1.5	ANNUAL	ALL	5	
505817.13	4320827.55	0.01121	420.16	664.53	1.5	ANNUAL	ALL	5	
505833.31	4320845.87	0.00837	421.11	664.53	1.5	ANNUAL	ALL	5	
505853.03	4320861.34	0.00656	420.09	664.53	1.5	ANNUAL	ALL	5	
505872.33	4320877.14	0.00486	420.1	664.53	1.5	ANNUAL	ALL	5	
505852.34	4320893.29	0.00443	420.16	664.53	1.5	ANNUAL	ALL	5	
505891.97	4320892.66	0.0033	422.98	664.53	1.5	ANNUAL	ALL	5	
505872.75	4320908.19	0.00328	421.5	664.53	1.5	ANNUAL	ALL	5	
505911.35	4320908.40	0.00206	425.42	427.89	1.5	ANNUAL	ALL	5	
505891.36	4320924.55	0.00223	423.83	664.53	1.5	ANNUAL	ALL	5	
505930.95	4320923.96	0.00126	427.7	427.7	1.5	ANNUAL	ALL	5	
505911.52	4320939.66	0.00144	426.72	429.32	1.5	ANNUAL	ALL	5	
505892.08	4320955.36	0.0016	425.02	436.77	1.5	ANNUAL	ALL	5	
505950.37	4320939.66	0.00082	427.96	427.96	1.5	ANNUAL	ALL	5	
505930.38	4320955.81	0.00093	429.22	429.22	1.5	ANNUAL	ALL	5	
505910.39	4320971.96	0.00108	427.78	436.77	1.5	ANNUAL	ALL	5	
506028.41	4321002.19	0.00028	425.29	440.04	1.5	ANNUAL	ALL	5	
506008.42	4321018.34	0.00031	425.43	440.04	1.5	ANNUAL	ALL	5	
505988.43	4321034.49	0.00032	428.41	440	1.5	ANNUAL	ALL	5	
505968.44	4321050.64	0.00033	433.28	439.58	1.5	ANNUAL	ALL	5	
505948.44	4321066.79	0.00034	437.75	437.75	1.5	ANNUAL	ALL	5	
506041.63	4321242.65	0.00012	428.25	441.34	1.5	ANNUAL	ALL	5	
506340.54	4321252.33	0.00005	419.03	427.78	1.5	ANNUAL	ALL	5	
506320.25	4321268.71	0.00005	420.12	427.78	1.5	ANNUAL	ALL	5	
506299.97	4321285.10	0.00005	421.28	427.48	1.5	ANNUAL	ALL	5	
506279.69	4321301.48	0.00005	422.12	422.12	1.5	ANNUAL	ALL	5	
506259.41	4321317.87	0.00005	423.14	439.23	1.5	ANNUAL	ALL	5	

506239.12	4321334.25	0.00005	425.57	439.23	1.5	ANNUAL	ALL	5
506218.84	4321350.63	0.00005	428.15	439.23	1.5	ANNUAL	ALL	5
506198.56	4321367.02	0.00005	430.23	439.23	1.5	ANNUAL	ALL	5
506178.28	4321383.40	0.00005	431.45	439.23	1.5	ANNUAL	ALL	5
506157.99	4321399.79	0.00005	434.14	439.23	1.5	ANNUAL	ALL	5
506137.71	4321416.17	0.00005	437.03	437.03	1.5	ANNUAL	ALL	5
505867.32	4320834.05	0.00962	417.96	664.53	1.5	ANNUAL	ALL	5
505900.90	4320834.32	0.00817	417.89	664.53	1.5	ANNUAL	ALL	5
505934.48	4320834.60	0.00552	417.07	664.53	1.5	ANNUAL	ALL	5
505968.06	4320834.87	0.00244	416.4	664.53	1.5	ANNUAL	ALL	5
505900.69	4320859.32	0.00515	420.1	664.53	1.5	ANNUAL	ALL	5
505934.27	4320859.59	0.00334	420.34	664.53	1.5	ANNUAL	ALL	5
505967.85	4320859.87	0.00161	421.52	664.53	1.5	ANNUAL	ALL	5
505934.07	4320884.59	0.00206	423.93	664.53	1.5	ANNUAL	ALL	5
505967.65	4320884.87	0.00114	423.61	664.53	1.5	ANNUAL	ALL	5
505967.44	4320909.87	0.00089	424.72	427.32	1.5	ANNUAL	ALL	5
505967.04	4320959.87	0.0006	426.6	438.67	1.5	ANNUAL	ALL	5
505933.25	4320984.59	0.0007	430.84	430.84	1.5	ANNUAL	ALL	5
505966.83	4320984.86	0.0005	428.38	438.67	1.5	ANNUAL	ALL	5
505899.47	4321009.32	0.00091	428.68	440	1.5	ANNUAL	ALL	5
505933.05	4321009.59	0.00058	432.99	432.99	1.5	ANNUAL	ALL	5
505966.63	4321009.86	0.00042	430.3	438.67	1.5	ANNUAL	ALL	5
505932.23	4321109.59	0.00032	439.87	439.87	1.5	ANNUAL	ALL	5
505965.81	4321109.86	0.00025	437.49	439.58	1.5	ANNUAL	ALL	5
505930.60	4321309.58	0.00016	438.52	442.4	1.5	ANNUAL	ALL	5
505964.18	4321309.85	0.00014	435.12	442.4	1.5	ANNUAL	ALL	5
505993.26	4320810.36	0.00269	417.46	664.53	1.5	ANNUAL	ALL	5
506010.69	4320828.28	0.00152	417.67	664.53	1.5	ANNUAL	ALL	5
506018.93	4320775.89	0.00337	417.44	664.53	1.5	ANNUAL	ALL	5
506031.90	4320837.48	0.0011	418.3	664.53	1.5	ANNUAL	ALL	5
505994.10	4320874.25	0.00094	421.17	664.53	1.5	ANNUAL	ALL	5
506043.25	4320811.33	0.00145	417	664.53	1.5	ANNUAL	ALL	5
506043.93	4320776.38	0.00232	417.64	664.53	1.5	ANNUAL	ALL	5
506058.16	4320835.06	0.00094	417.54	664.53	1.5	ANNUAL	ALL	5
506048.07	4320858.31	0.00076	417.94	664.53	1.5	ANNUAL	ALL	5
506014.47	4320890.99	0.00067	420.58	664.53	1.5	ANNUAL	ALL	5
505990.96	4320900.43	0.00076	422.28	427.32	1.5	ANNUAL	ALL	5
506068.24	4320811.82	0.00116	417.16	664.53	1.5	ANNUAL	ALL	5
506068.92	4320776.87	0.00173	417.04	664.53	1.5	ANNUAL	ALL	5
506080.63	4320841.36	0.00076	417.45	664.53	1.5	ANNUAL	ALL	5
506068.03	4320870.41	0.00061	418.38	664.53	1.5	ANNUAL	ALL	5
506026.03	4320911.27	0.00052	421.93	435.94	1.5	ANNUAL	ALL	5
505996.63	4320923.07	0.0006	422.82	436.77	1.5	ANNUAL	ALL	5
506093.24	4320812.30	0.00096	417.27	664.53	1.5	ANNUAL	ALL	5
506093.92	4320777.35	0.00136	416.5	664.53	1.5	ANNUAL	ALL	5
506106.89	4320838.94	0.00067	417.42	664.53	1.5	ANNUAL	ALL	5
506095.54	4320865.09	0.00056	417.91	664.53	1.5	ANNUAL	ALL	5
506084.20	4320891.24	0.00046	420.35	435.94	1.5	ANNUAL	ALL	5
506046.40	4320928.01	0.0004	422.83	438.16	1.5	ANNUAL	ALL	5
506019.94	4320938.63	0.00043	423.79	435.94	1.5	ANNUAL	ALL	5
505993.49	4320949.25	0.0005	424.45	438.67	1.5	ANNUAL	ALL	5
506118.23	4320812.79	0.00081	416.76	664.53	1.5	ANNUAL	ALL	5
506118.91	4320777.84	0.00111	416.54	664.53	1.5	ANNUAL	ALL	5
506129.99	4320843.78	0.00057	417.5	664.53	1.5	ANNUAL	ALL	5
506116.76	4320874.29	0.00047	418.85	435.94	1.5	ANNUAL	ALL	5
506103.52	4320904.80	0.00038	420.91	435.94	1.5	ANNUAL	ALL	5
506059.42	4320947.70	0.00032	424.3	438.16	1.5	ANNUAL	ALL	5
506028.56	4320960.09	0.00035	424.7	438.16	1.5	ANNUAL	ALL	5
505997.69	4320972.48	0.00042	425.04	438.67	1.5	ANNUAL	ALL	5
506143.23	4320813.27	0.0007	416.6	664.53	1.5	ANNUAL	ALL	5
506143.91	4320778.32	0.00092	416.17	664.53	1.5	ANNUAL	ALL	5
506156.12	4320841.65	0.00051	417.1	664.53	1.5	ANNUAL	ALL	5
506144.02	4320869.55	0.00043	418.05	435.94	1.5	ANNUAL	ALL	5
506131.92	4320897.44	0.00036	419.87	435.94	1.5	ANNUAL	ALL	5
506119.82	4320925.34	0.00031	420.09	440.04	1.5	ANNUAL	ALL	5
506079.50	4320964.56	0.00025	427.35	435.94	1.5	ANNUAL	ALL	5
506051.28	4320975.88	0.00028	424.9	440.04	1.5	ANNUAL	ALL	5
505994.85	4320998.54	0.00037	425.76	440	1.5	ANNUAL	ALL	5
506168.22	4320813.76	0.00061	416.16	664.53	1.5	ANNUAL	ALL	5
506168.90	4320778.81	0.00078	415.47	664.53	1.5	ANNUAL	ALL	5
506255.24	4320845.59	0.00033	415.9	427.23	1.5	ANNUAL	ALL	5
506242.27	4320875.48	0.00029	416.2	428.06	1.5	ANNUAL	ALL	5
506229.31	4320905.36	0.00025	416.73	435.94	1.5	ANNUAL	ALL	5
506216.34	4320935.25	0.00023	417.95	440.04	1.5	ANNUAL	ALL	5
506203.37	4320965.14	0.0002	420.39	440.04	1.5	ANNUAL	ALL	5
506190.41	4320995.02	0.00017	422.03	440.08	1.5	ANNUAL	ALL	5
506147.21	4321037.05	0.00014	427.85	440.08	1.5	ANNUAL	ALL	5
506116.98	4321049.18	0.00014	433.01	440.04	1.5	ANNUAL	ALL	5
506086.74	4321061.32	0.00014	436.27	436.27	1.5	ANNUAL	ALL	5
506056.51	4321073.45	0.00016	434.96	439.66	1.5	ANNUAL	ALL	5
506026.28	4321085.59	0.00018	434.3	439.66	1.5	ANNUAL	ALL	5
505996.05	4321097.72	0.00022	434.7	439.58	1.5	ANNUAL	ALL	5
506268.20	4320815.71	0.00038	415.54	664.53	1.5	ANNUAL	ALL	5
506268.88	4320780.76	0.00046	415.62	664.53	1.5	ANNUAL	ALL	5
506454.41	4320851.29	0.00016	413.61	423.83	1.5	ANNUAL	ALL	5
506440.66	4320882.99	0.00015	415.61	421.52	1.5	ANNUAL	ALL	5
506426.91	4320914.69	0.00014	416.58	423.24	1.5	ANNUAL	ALL	5

506413.16	4320946.39	0.00013	418.3	425.77	1.5	ANNUAL	ALL	5
506399.41	4320978.08	0.00012	421.62	422.94	1.5	ANNUAL	ALL	5
506385.66	4321009.78	0.0001	424.24	424.24	1.5	ANNUAL	ALL	5
506371.90	4321041.48	0.0001	424.44	424.44	1.5	ANNUAL	ALL	5
506358.15	4321073.18	0.00009	422.66	422.66	1.5	ANNUAL	ALL	5
506344.40	4321104.88	0.00008	421.34	421.34	1.5	ANNUAL	ALL	5
506330.65	4321136.57	0.00007	420.98	424.76	1.5	ANNUAL	ALL	5
506284.83	4321181.14	0.00006	422.59	423.78	1.5	ANNUAL	ALL	5
506252.77	4321194.01	0.00006	422.42	440.08	1.5	ANNUAL	ALL	5
506220.70	4321206.88	0.00006	424.77	440.08	1.5	ANNUAL	ALL	5
506188.64	4321219.76	0.00007	425.66	440.08	1.5	ANNUAL	ALL	5
506156.57	4321232.63	0.00007	425.39	440.08	1.5	ANNUAL	ALL	5
505996.25	4321296.98	0.00013	432.96	441.34	1.5	ANNUAL	ALL	5
506468.17	4320819.60	0.00018	413.24	422.85	1.5	ANNUAL	ALL	5
506468.85	4320784.65	0.0002	413.22	422.07	1.5	ANNUAL	ALL	5
506654.89	4320854.00	0.0001	416.3	416.3	1.5	ANNUAL	ALL	5
506641.66	4320884.50	0.00009	417.64	417.64	1.5	ANNUAL	ALL	5
506628.42	4320915.01	0.00008	420.83	422.01	1.5	ANNUAL	ALL	5
506615.18	4320945.52	0.00008	421.94	421.94	1.5	ANNUAL	ALL	5
506601.95	4320976.03	0.00007	422.4	422.4	1.5	ANNUAL	ALL	5
506588.71	4321006.54	0.00007	423.09	423.09	1.5	ANNUAL	ALL	5
506575.48	4321037.05	0.00007	423.59	423.59	1.5	ANNUAL	ALL	5
506562.24	4321067.56	0.00007	422.85	422.85	1.5	ANNUAL	ALL	5
506549.00	4321098.07	0.00007	421.55	421.55	1.5	ANNUAL	ALL	5
506535.77	4321128.58	0.00006	420.63	420.63	1.5	ANNUAL	ALL	5
506522.53	4321159.09	0.00006	415.67	421.44	1.5	ANNUAL	ALL	5
506509.30	4321189.60	0.00005	413.85	422.04	1.5	ANNUAL	ALL	5
506496.06	4321220.10	0.00005	417.62	422.04	1.5	ANNUAL	ALL	5
506482.83	4321250.61	0.00004	420.02	420.02	1.5	ANNUAL	ALL	5
506469.59	4321281.12	0.00004	421.05	426.19	1.5	ANNUAL	ALL	5
506425.49	4321324.02	0.00003	423.58	423.58	1.5	ANNUAL	ALL	5
506394.63	4321336.41	0.00003	425.09	427.16	1.5	ANNUAL	ALL	5
506363.77	4321348.80	0.00003	427.32	427.32	1.5	ANNUAL	ALL	5
506332.90	4321361.19	0.00003	427.63	428.13	1.5	ANNUAL	ALL	5
506302.04	4321373.57	0.00004	424.25	428.13	1.5	ANNUAL	ALL	5
506271.18	4321385.96	0.00004	421.99	439.23	1.5	ANNUAL	ALL	5
506240.31	4321398.35	0.00004	425.41	439.23	1.5	ANNUAL	ALL	5
506209.45	4321410.74	0.00004	427.63	439.23	1.5	ANNUAL	ALL	5
506178.59	4321423.13	0.00004	429.61	439.23	1.5	ANNUAL	ALL	5
506024.27	4321485.07	0.00009	426.52	434.71	1.5	ANNUAL	ALL	5
506668.13	4320823.49	0.00011	414.63	415.76	1.5	ANNUAL	ALL	5
506668.81	4320788.54	0.00012	411.96	415.98	1.5	ANNUAL	ALL	5
505973.40	4320751.79	0.01058	418.57	664.53	1.5	ANNUAL	ALL	5
505974.04	4320727.06	0.01204	418.33	664.53	1.5	ANNUAL	ALL	5
505974.29	4320702.17	0.01313	418.14	664.53	1.5	ANNUAL	ALL	5
506017.13	4320720.16	0.0057	417.69	664.53	1.5	ANNUAL	ALL	5
506031.06	4320743.99	0.00386	417.16	664.53	1.5	ANNUAL	ALL	5
505974.43	4320677.23	0.01372	418.34	664.53	1.5	ANNUAL	ALL	5
506018.37	4320695.68	0.00631	417.7	664.53	1.5	ANNUAL	ALL	5
506042.53	4320710.44	0.00409	416.47	664.53	1.5	ANNUAL	ALL	5
506051.33	4320732.58	0.00316	416.3	664.53	1.5	ANNUAL	ALL	5
506060.13	4320754.72	0.00237	416.82	664.53	1.5	ANNUAL	ALL	5
505974.52	4320652.26	0.01413	418.16	664.53	1.5	ANNUAL	ALL	5
506019.14	4320671.00	0.00679	417.64	664.53	1.5	ANNUAL	ALL	5
506041.45	4320680.37	0.00478	416.58	664.53	1.5	ANNUAL	ALL	5
506060.42	4320693.02	0.00358	416.32	664.53	1.5	ANNUAL	ALL	5
506069.35	4320715.51	0.00286	416.32	664.53	1.5	ANNUAL	ALL	5
506078.28	4320738.00	0.00222	416.27	664.53	1.5	ANNUAL	ALL	5
505974.58	4320627.29	0.0143	418.08	664.53	1.5	ANNUAL	ALL	5
506019.67	4320646.22	0.00713	417.5	664.53	1.5	ANNUAL	ALL	5
506042.21	4320655.69	0.00514	416.48	664.53	1.5	ANNUAL	ALL	5
506064.76	4320665.16	0.00383	416.37	664.53	1.5	ANNUAL	ALL	5
506080.55	4320681.25	0.00303	416.38	664.53	1.5	ANNUAL	ALL	5
506089.57	4320703.98	0.00246	416.33	664.53	1.5	ANNUAL	ALL	5
506098.60	4320726.71	0.00196	416.24	664.53	1.5	ANNUAL	ALL	5
506107.63	4320749.43	0.00153	416.32	664.53	1.5	ANNUAL	ALL	5
506020.05	4320621.38	0.00736	417.5	664.53	1.5	ANNUAL	ALL	5
506042.77	4320630.92	0.00541	416.43	664.53	1.5	ANNUAL	ALL	5
506065.49	4320640.46	0.00411	416.34	664.53	1.5	ANNUAL	ALL	5
506088.20	4320650.00	0.00317	416.39	664.53	1.5	ANNUAL	ALL	5
506100.70	4320669.56	0.00261	416.31	664.53	1.5	ANNUAL	ALL	5
506109.80	4320692.46	0.00215	416.23	664.53	1.5	ANNUAL	ALL	5
506118.89	4320715.36	0.00175	416.25	664.53	1.5	ANNUAL	ALL	5
506127.99	4320738.25	0.0014	416.44	664.53	1.5	ANNUAL	ALL	5
505974.43	4320577.23	0.01321	417.23	664.53	1.5	ANNUAL	ALL	5
505996.40	4320586.45	0.0101	417.47	664.53	1.5	ANNUAL	ALL	5
506018.37	4320595.68	0.00751	416.56	664.53	1.5	ANNUAL	ALL	5
506040.34	4320604.90	0.0058	416.65	664.53	1.5	ANNUAL	ALL	5
506062.30	4320614.13	0.00452	416.33	664.53	1.5	ANNUAL	ALL	5
506084.27	4320623.35	0.00357	416.16	664.53	1.5	ANNUAL	ALL	5
506106.24	4320632.57	0.00284	416.06	664.53	1.5	ANNUAL	ALL	5
506118.33	4320651.49	0.00239	416.13	664.53	1.5	ANNUAL	ALL	5
506127.12	4320673.63	0.00202	416.23	664.53	1.5	ANNUAL	ALL	5
506135.92	4320695.77	0.00169	416.4	664.53	1.5	ANNUAL	ALL	5
506144.71	4320717.92	0.00139	416.53	664.53	1.5	ANNUAL	ALL	5
506153.51	4320740.06	0.00113	416.29	664.53	1.5	ANNUAL	ALL	5
506042.21	4320505.69	0.00456	419.7	664.53	1.5	ANNUAL	ALL	5

506064.76	4320515.16	0.00392	419.82	664.53	1.5	ANNUAL	ALL	5
506087.31	4320524.62	0.00337	419.76	664.53	1.5	ANNUAL	ALL	5
506109.85	4320534.09	0.00291	419.72	664.53	1.5	ANNUAL	ALL	5
506132.40	4320543.56	0.00252	419.6	664.53	1.5	ANNUAL	ALL	5
506154.94	4320553.03	0.0022	419.48	664.53	1.5	ANNUAL	ALL	5
506177.49	4320562.49	0.00197	418.7	664.53	1.5	ANNUAL	ALL	5
506198.92	4320604.63	0.00168	415.65	664.53	1.5	ANNUAL	ALL	5
506207.95	4320627.36	0.00139	414.77	664.53	1.5	ANNUAL	ALL	5
506216.98	4320650.08	0.00118	414.33	664.53	1.5	ANNUAL	ALL	5
506226.00	4320672.81	0.001	414.51	664.53	1.5	ANNUAL	ALL	5
506235.03	4320695.53	0.00085	415.14	664.53	1.5	ANNUAL	ALL	5
506244.06	4320718.26	0.00073	415.29	664.53	1.5	ANNUAL	ALL	5
506253.09	4320740.99	0.00061	415.49	664.53	1.5	ANNUAL	ALL	5
505974.61	4320277.30	0.00127	423.88	664.53	1.5	ANNUAL	ALL	5
505997.27	4320286.82	0.00133	424.99	664.53	1.5	ANNUAL	ALL	5
506019.94	4320296.33	0.00133	427.35	664.53	1.5	ANNUAL	ALL	5
506042.60	4320305.85	0.00136	427.47	664.53	1.5	ANNUAL	ALL	5
506065.27	4320315.37	0.00142	425.92	664.53	1.5	ANNUAL	ALL	5
506087.93	4320324.89	0.00145	424.29	664.53	1.5	ANNUAL	ALL	5
506110.60	4320334.41	0.00142	423.48	664.53	1.5	ANNUAL	ALL	5
506133.26	4320343.92	0.00135	424.31	664.53	1.5	ANNUAL	ALL	5
506155.93	4320353.44	0.00124	426.91	664.53	1.5	ANNUAL	ALL	5
506178.59	4320362.96	0.00112	430.27	664.53	1.5	ANNUAL	ALL	5
506201.26	4320372.48	0.00105	431.31	664.53	1.5	ANNUAL	ALL	5
506223.92	4320381.99	0.001	430.85	664.53	1.5	ANNUAL	ALL	5
506246.59	4320391.51	0.00091	433.44	664.53	1.5	ANNUAL	ALL	5
506269.25	4320401.03	0.00083	436.12	664.53	1.5	ANNUAL	ALL	5
506291.92	4320410.55	0.00077	435.57	664.53	1.5	ANNUAL	ALL	5
506314.58	4320420.06	0.00072	434.54	664.53	1.5	ANNUAL	ALL	5
506330.45	4320436.25	0.00069	434.19	664.53	1.5	ANNUAL	ALL	5
506339.53	4320459.09	0.00068	433.01	664.53	1.5	ANNUAL	ALL	5
506348.60	4320481.94	0.00069	428.06	664.53	1.5	ANNUAL	ALL	5
506357.68	4320504.78	0.00071	421.96	664.53	1.5	ANNUAL	ALL	5
506366.75	4320527.63	0.00071	419.53	664.53	1.5	ANNUAL	ALL	5
506375.83	4320550.48	0.00072	419.49	664.53	1.5	ANNUAL	ALL	5
506412.13	4320641.86	0.00047	413.33	664.53	1.5	ANNUAL	ALL	5
506421.20	4320664.70	0.00039	414.78	664.53	1.5	ANNUAL	ALL	5
506430.28	4320687.55	0.00034	418.13	418.13	1.5	ANNUAL	ALL	5
505974.62	4320077.30	0.00052	423.15	664.53	1.5	ANNUAL	ALL	5
505997.34	4320086.84	0.00057	422.78	664.53	1.5	ANNUAL	ALL	5
506020.05	4320096.38	0.00062	422.59	664.53	1.5	ANNUAL	ALL	5
506042.77	4320105.92	0.00067	422.38	664.53	1.5	ANNUAL	ALL	5
506065.49	4320115.46	0.00071	422.17	664.53	1.5	ANNUAL	ALL	5
506088.20	4320125.00	0.00074	422.2	664.53	1.5	ANNUAL	ALL	5
506110.92	4320134.54	0.00075	422.5	664.53	1.5	ANNUAL	ALL	5
506133.64	4320144.08	0.00075	422.97	664.53	1.5	ANNUAL	ALL	5
506156.35	4320153.62	0.00071	423.66	664.53	1.5	ANNUAL	ALL	5
506179.07	4320163.16	0.00069	424.72	664.53	1.5	ANNUAL	ALL	5
506201.79	4320172.70	0.00065	426.49	664.53	1.5	ANNUAL	ALL	5
506224.50	4320182.24	0.00062	427.38	664.53	1.5	ANNUAL	ALL	5
506247.22	4320191.78	0.00062	425.93	664.53	1.5	ANNUAL	ALL	5
506269.94	4320201.31	0.00061	425	664.53	1.5	ANNUAL	ALL	5
506292.65	4320210.85	0.0006	425.28	664.53	1.5	ANNUAL	ALL	5
506315.37	4320220.39	0.00058	425.58	664.53	1.5	ANNUAL	ALL	5
506338.09	4320229.93	0.00057	424.59	664.53	1.5	ANNUAL	ALL	5
506360.80	4320239.47	0.00055	424.19	664.53	1.5	ANNUAL	ALL	5
506383.52	4320249.01	0.00053	424.54	664.53	1.5	ANNUAL	ALL	5
506406.24	4320258.55	0.00048	428.42	664.53	1.5	ANNUAL	ALL	5
506428.95	4320268.09	0.00047	426.91	664.53	1.5	ANNUAL	ALL	5
506451.67	4320277.63	0.00044	426.59	664.53	1.5	ANNUAL	ALL	5
506470.98	4320290.51	0.00043	425.98	664.53	1.5	ANNUAL	ALL	5
506480.08	4320313.41	0.00042	425.74	664.53	1.5	ANNUAL	ALL	5
506489.17	4320336.30	0.00041	425.6	664.53	1.5	ANNUAL	ALL	5
506498.27	4320359.20	0.0004	425.72	664.53	1.5	ANNUAL	ALL	5
506507.36	4320382.10	0.00038	425.51	664.53	1.5	ANNUAL	ALL	5
506516.46	4320405.00	0.00037	425.07	664.53	1.5	ANNUAL	ALL	5
506616.51	4320656.87	0.00019	415.36	432.02	1.5	ANNUAL	ALL	5
506625.60	4320679.77	0.00018	414.69	432.02	1.5	ANNUAL	ALL	5
506634.70	4320702.67	0.00016	415.14	415.14	1.5	ANNUAL	ALL	5
506643.79	4320725.57	0.00015	414.92	414.92	1.5	ANNUAL	ALL	5
506652.89	4320748.47	0.00014	414.74	414.74	1.5	ANNUAL	ALL	5
506137.78	4320629.63	0.00222	415.75	664.53	1.5	ANNUAL	ALL	5
506162.78	4320702.28	0.00132	416.51	664.53	1.5	ANNUAL	ALL	5
506162.78	4320665.95	0.00158	415.75	664.53	1.5	ANNUAL	ALL	5
506162.78	4320629.63	0.00184	415.4	664.53	1.5	ANNUAL	ALL	5
506262.78	4320702.28	0.00071	415.2	664.53	1.5	ANNUAL	ALL	5
506262.78	4320665.95	0.00084	414.82	664.53	1.5	ANNUAL	ALL	5
506262.78	4320629.63	0.00101	414.19	664.53	1.5	ANNUAL	ALL	5
506662.78	4320702.28	0.00015	415.22	432.02	1.5	ANNUAL	ALL	5
506662.78	4320665.95	0.00016	415.38	432.04	1.5	ANNUAL	ALL	5
506662.78	4320629.63	0.00017	416.98	432.12	1.5	ANNUAL	ALL	5
505998.75	4320559.60	0.00866	416.5	664.53	1.5	ANNUAL	ALL	5
506064.88	4320538.31	0.00423	419.46	664.53	1.5	ANNUAL	ALL	5
506073.75	4320559.60	0.00415	419.13	664.53	1.5	ANNUAL	ALL	5
506069.20	4320488.63	0.00342	420.44	664.53	1.5	ANNUAL	ALL	5
506095.79	4320552.50	0.00337	419.55	664.53	1.5	ANNUAL	ALL	5
506086.81	4320470.89	0.00285	420.6	664.53	1.5	ANNUAL	ALL	5

506095.68	4320492.18	0.0029	420.1	664.53	1.5	ANNUAL	ALL	5
506126.70	4320566.70	0.00279	418.39	664.53	1.5	ANNUAL	ALL	5
506104.42	4320453.15	0.00242	420.04	664.53	1.5	ANNUAL	ALL	5
506113.29	4320474.44	0.00246	419.87	664.53	1.5	ANNUAL	ALL	5
506122.15	4320495.73	0.00246	419.99	664.53	1.5	ANNUAL	ALL	5
506131.02	4320517.02	0.00243	419.82	664.53	1.5	ANNUAL	ALL	5
506176.37	4320385.78	0.00124	428.61	664.53	1.5	ANNUAL	ALL	5
506185.31	4320407.24	0.00132	426.55	664.53	1.5	ANNUAL	ALL	5
506194.25	4320428.71	0.00137	424.3	664.53	1.5	ANNUAL	ALL	5
506203.19	4320450.18	0.00141	422.74	664.53	1.5	ANNUAL	ALL	5
506212.13	4320471.65	0.00139	422.59	664.53	1.5	ANNUAL	ALL	5
506221.07	4320493.12	0.00135	422.85	664.53	1.5	ANNUAL	ALL	5
506230.01	4320514.59	0.00131	422.55	664.53	1.5	ANNUAL	ALL	5
506238.94	4320536.06	0.00129	421.03	664.53	1.5	ANNUAL	ALL	5
506247.88	4320557.53	0.00132	418.54	664.53	1.5	ANNUAL	ALL	5
506317.28	4320243.85	0.00061	424.88	664.53	1.5	ANNUAL	ALL	5
506326.24	4320265.35	0.00062	425.8	664.53	1.5	ANNUAL	ALL	5
506335.19	4320286.86	0.00061	427.51	664.53	1.5	ANNUAL	ALL	5
506344.14	4320308.37	0.0006	429.87	664.53	1.5	ANNUAL	ALL	5
506353.10	4320329.87	0.00059	430.73	664.53	1.5	ANNUAL	ALL	5
506362.05	4320351.38	0.0006	430.24	664.53	1.5	ANNUAL	ALL	5
506371.01	4320372.88	0.0006	429.43	664.53	1.5	ANNUAL	ALL	5
506379.96	4320394.39	0.00058	429.83	664.53	1.5	ANNUAL	ALL	5
506388.91	4320415.89	0.00057	430.4	664.53	1.5	ANNUAL	ALL	5
506397.87	4320437.40	0.00055	429.56	664.53	1.5	ANNUAL	ALL	5
506406.82	4320458.90	0.00055	426.88	664.53	1.5	ANNUAL	ALL	5
506415.77	4320480.41	0.00055	422.03	664.53	1.5	ANNUAL	ALL	5
506424.73	4320501.91	0.00054	419.54	664.53	1.5	ANNUAL	ALL	5
506433.68	4320523.42	0.00052	419.59	664.53	1.5	ANNUAL	ALL	5
506442.63	4320544.92	0.00052	418.81	664.53	1.5	ANNUAL	ALL	5
506456.70	4320098.33	0.00032	431.68	664.53	1.5	ANNUAL	ALL	5
506465.66	4320119.85	0.00033	431.49	664.53	1.5	ANNUAL	ALL	5
506474.62	4320141.37	0.00035	428.07	664.53	1.5	ANNUAL	ALL	5
506483.58	4320162.89	0.00037	424.17	664.53	1.5	ANNUAL	ALL	5
506492.54	4320184.42	0.00039	420.33	664.53	1.5	ANNUAL	ALL	5
506501.50	4320205.94	0.00039	419.33	664.53	1.5	ANNUAL	ALL	5
506510.46	4320227.46	0.00039	420.78	664.53	1.5	ANNUAL	ALL	5
506519.42	4320248.98	0.00038	422.34	664.53	1.5	ANNUAL	ALL	5
506528.38	4320270.50	0.00037	421.92	664.53	1.5	ANNUAL	ALL	5
506537.34	4320292.02	0.00036	422.1	664.53	1.5	ANNUAL	ALL	5
506546.30	4320313.54	0.00035	422.33	664.53	1.5	ANNUAL	ALL	5
506555.26	4320335.06	0.00033	424.24	664.53	1.5	ANNUAL	ALL	5
506564.22	4320356.58	0.00032	424.21	664.53	1.5	ANNUAL	ALL	5
506573.18	4320378.10	0.00031	423.26	664.53	1.5	ANNUAL	ALL	5
505978.86	4320543.72	0.00993	418.03	664.53	1.5	ANNUAL	ALL	5
505992.39	4320522.70	0.00742	418.28	664.53	1.5	ANNUAL	ALL	5
506050.73	4320472.36	0.00356	421.94	664.53	1.5	ANNUAL	ALL	5
506063.24	4320450.51	0.00294	422.96	664.53	1.5	ANNUAL	ALL	5
506077.79	4320430.31	0.00249	422.79	664.53	1.5	ANNUAL	ALL	5
506348.95	4320010.33	0.00037	422.21	664.53	1.5	ANNUAL	ALL	5
506366.55	4320024.47	0.00036	423.39	664.53	1.5	ANNUAL	ALL	5
506392.96	4320045.68	0.00035	425.17	664.53	1.5	ANNUAL	ALL	5
506410.56	4320059.82	0.00035	426.25	664.53	1.5	ANNUAL	ALL	5
506436.97	4320081.03	0.00033	429.48	664.53	1.5	ANNUAL	ALL	5
506330.56	4319997.08	0.00038	420.57	664.53	1.5	ANNUAL	ALL	5
505962.19	4320544.18	0.01204	418.25	664.53	1.5	ANNUAL	ALL	5
506402.30	4320382.20	0.00054	428.28	664.53	1.5	ANNUAL	ALL	5
506587.43	4320306.52	0.00031	421.82	664.53	1.5	ANNUAL	ALL	5
506597.55	4320335.43	0.0003	421.11	664.53	1.5	ANNUAL	ALL	5
505914.38	4320536.14	0.01449	419.09	664.53	1.5	ANNUAL	ALL	5
505915.55	4320497.00	0.00813	419.56	664.53	1.5	ANNUAL	ALL	5
505867.94	4320533.08	0.01328	419.59	664.53	1.5	ANNUAL	ALL	5
505837.60	4320522.92	0.00994	419.79	664.53	1.5	ANNUAL	ALL	5
505890.04	4320495.89	0.00779	419.83	664.53	1.5	ANNUAL	ALL	5
505869.36	4320498.43	0.00766	419.88	664.53	1.5	ANNUAL	ALL	5
505838.01	4320497.92	0.00658	420.3	664.53	1.5	ANNUAL	ALL	5
505901.53	4320448.95	0.00456	420.78	664.53	1.5	ANNUAL	ALL	5
505870.18	4320448.44	0.00418	421.29	664.53	1.5	ANNUAL	ALL	5
505838.83	4320447.93	0.00354	422.84	664.53	1.5	ANNUAL	ALL	5
505807.47	4320447.41	0.00259	425.02	664.53	1.5	ANNUAL	ALL	5
505958.49	4320433.47	0.0039	421.2	664.53	1.5	ANNUAL	ALL	5
505983.69	4320442.48	0.00408	420.5	664.53	1.5	ANNUAL	ALL	5
505933.29	4320424.47	0.00361	421.58	664.53	1.5	ANNUAL	ALL	5
505901.94	4320423.95	0.00348	421.57	664.53	1.5	ANNUAL	ALL	5
505870.59	4320423.44	0.00319	421.87	664.53	1.5	ANNUAL	ALL	5
505839.24	4320422.93	0.00256	424.62	664.53	1.5	ANNUAL	ALL	5
505807.88	4320422.42	0.00185	428.46	664.53	1.5	ANNUAL	ALL	5
505956.38	4320407.58	0.0031	421.77	664.53	1.5	ANNUAL	ALL	5
505979.06	4320415.68	0.00325	421.46	664.53	1.5	ANNUAL	ALL	5
506001.74	4320423.79	0.00329	421.76	664.53	1.5	ANNUAL	ALL	5
506037.50	4320452.13	0.0033	423.59	664.53	1.5	ANNUAL	ALL	5
505933.70	4320399.47	0.00288	422.08	664.53	1.5	ANNUAL	ALL	5
505902.35	4320398.96	0.00276	421.96	664.53	1.5	ANNUAL	ALL	5
505871.00	4320398.45	0.00252	422.36	664.53	1.5	ANNUAL	ALL	5
505839.64	4320397.93	0.00201	425.51	664.53	1.5	ANNUAL	ALL	5
505808.29	4320397.42	0.00149	429.64	664.53	1.5	ANNUAL	ALL	5
505960.57	4320383.93	0.00257	422.14	664.53	1.5	ANNUAL	ALL	5

505987.03	4320393.39	0.00272	421.7	664.53	1.5	ANNUAL	ALL	5
506013.49	4320402.85	0.00258	424.72	664.53	1.5	ANNUAL	ALL	5
505934.11	4320374.47	0.00236	422.53	664.53	1.5	ANNUAL	ALL	5
505902.76	4320373.96	0.00224	422.52	664.53	1.5	ANNUAL	ALL	5
505871.41	4320373.45	0.00204	422.95	664.53	1.5	ANNUAL	ALL	5
505840.05	4320372.94	0.00165	425.57	664.53	1.5	ANNUAL	ALL	5
505808.70	4320372.42	0.00129	428.9	664.53	1.5	ANNUAL	ALL	5
505958.71	4320358.12	0.00213	422.62	664.53	1.5	ANNUAL	ALL	5
505982.90	4320366.77	0.00226	422.26	664.53	1.5	ANNUAL	ALL	5
506007.10	4320375.42	0.00231	423.09	664.53	1.5	ANNUAL	ALL	5
506031.29	4320384.07	0.00217	425.55	664.53	1.5	ANNUAL	ALL	5
505934.52	4320349.48	0.00196	422.95	664.53	1.5	ANNUAL	ALL	5
505903.17	4320348.96	0.00185	422.95	664.53	1.5	ANNUAL	ALL	5
505871.81	4320348.45	0.00162	423.6	664.53	1.5	ANNUAL	ALL	5
505840.46	4320347.94	0.00134	426.8	664.53	1.5	ANNUAL	ALL	5
505809.11	4320347.43	0.00107	430.32	664.53	1.5	ANNUAL	ALL	5
505936.15	4320249.49	0.00102	424.78	664.53	1.5	ANNUAL	ALL	5
505904.80	4320248.98	0.00094	424.85	664.53	1.5	ANNUAL	ALL	5
505873.45	4320248.47	0.00084	425.88	664.53	1.5	ANNUAL	ALL	5
505842.10	4320247.95	0.00073	428.8	664.53	1.5	ANNUAL	ALL	5
505810.74	4320247.44	0.00063	431.8	664.53	1.5	ANNUAL	ALL	5
506104.37	4320108.48	0.0007	421.63	664.53	1.5	ANNUAL	ALL	5
506131.86	4320118.30	0.0007	421.93	664.53	1.5	ANNUAL	ALL	5
506159.36	4320128.13	0.00069	422.6	664.53	1.5	ANNUAL	ALL	5
506186.85	4320137.96	0.00064	423.7	664.53	1.5	ANNUAL	ALL	5
506214.34	4320147.78	0.00061	424.94	664.53	1.5	ANNUAL	ALL	5
505939.42	4320049.52	0.00042	423.79	664.53	1.5	ANNUAL	ALL	5
505908.07	4320049.00	0.0004	424.48	664.53	1.5	ANNUAL	ALL	5
505876.72	4320048.49	0.00037	425.94	664.53	1.5	ANNUAL	ALL	5
505845.36	4320047.98	0.00035	427.67	664.53	1.5	ANNUAL	ALL	5
505814.01	4320047.47	0.00032	429.68	664.53	1.5	ANNUAL	ALL	5
505970.92	4319859.63	0.00023	426.17	664.53	1.5	ANNUAL	ALL	5
505999.14	4319869.72	0.00025	424.92	664.53	1.5	ANNUAL	ALL	5
506027.37	4319879.81	0.00028	423.97	664.53	1.5	ANNUAL	ALL	5
506055.59	4319889.90	0.00031	423.34	664.53	1.5	ANNUAL	ALL	5
506083.81	4319899.99	0.00036	422.69	664.53	1.5	ANNUAL	ALL	5
506112.04	4319910.07	0.00039	422.15	664.53	1.5	ANNUAL	ALL	5
506140.26	4319920.16	0.00042	420.71	664.53	1.5	ANNUAL	ALL	5
506168.49	4319930.25	0.00043	419.59	664.53	1.5	ANNUAL	ALL	5
506196.71	4319940.34	0.00044	418.94	664.53	1.5	ANNUAL	ALL	5
506224.94	4319950.43	0.00043	418.59	664.53	1.5	ANNUAL	ALL	5
506253.16	4319960.52	0.00042	418.29	664.53	1.5	ANNUAL	ALL	5
506281.39	4319970.61	0.0004	418.01	664.53	1.5	ANNUAL	ALL	5
506309.61	4319980.69	0.00039	418.28	664.53	1.5	ANNUAL	ALL	5
505942.69	4319849.54	0.00021	427.72	664.53	1.5	ANNUAL	ALL	5
505911.34	4319849.03	0.00021	429.67	664.53	1.5	ANNUAL	ALL	5
505879.99	4319848.52	0.0002	430.77	664.53	1.5	ANNUAL	ALL	5
505848.63	4319848.01	0.00019	432.16	664.53	1.5	ANNUAL	ALL	5
505817.28	4319847.49	0.00018	434.84	664.53	1.5	ANNUAL	ALL	5
505817.78	4320496.68	0.00562	420.78	664.53	1.5	ANNUAL	ALL	5
505741.54	4320510.86	0.0023	422.16	664.53	1.5	ANNUAL	ALL	5
505758.45	4320492.49	0.00254	422.57	664.53	1.5	ANNUAL	ALL	5
505719.24	4320499.62	0.00148	423.18	664.53	1.5	ANNUAL	ALL	5
505736.58	4320480.78	0.00165	423.44	664.53	1.5	ANNUAL	ALL	5
505696.92	4320488.42	0.00105	424.1	664.53	1.5	ANNUAL	ALL	5
505753.49	4320437.16	0.00128	428.65	664.53	1.5	ANNUAL	ALL	5
505778.60	4320430.36	0.0015	429.87	664.53	1.5	ANNUAL	ALL	5
505674.58	4320477.23	0.0008	423.77	664.53	1.5	ANNUAL	ALL	5
505710.17	4320438.54	0.00092	426.15	664.53	1.5	ANNUAL	ALL	5
505732.19	4320418.05	0.00092	429.69	664.53	1.5	ANNUAL	ALL	5
505757.56	4320411.18	0.00105	432.82	664.53	1.5	ANNUAL	ALL	5
505782.92	4320404.30	0.00124	432.6	664.53	1.5	ANNUAL	ALL	5
505652.23	4320466.04	0.00063	423.76	664.53	1.5	ANNUAL	ALL	5
505670.16	4320446.55	0.00067	424.98	664.53	1.5	ANNUAL	ALL	5
505688.09	4320427.07	0.00073	425.69	664.53	1.5	ANNUAL	ALL	5
505706.02	4320407.58	0.00074	427.96	664.53	1.5	ANNUAL	ALL	5
505727.76	4320394.37	0.00077	431.39	664.53	1.5	ANNUAL	ALL	5
505753.32	4320387.44	0.00087	435.05	664.53	1.5	ANNUAL	ALL	5
505778.88	4320380.51	0.00104	433.46	664.53	1.5	ANNUAL	ALL	5
505629.87	4320454.86	0.00049	424.9	664.53	1.5	ANNUAL	ALL	5
505647.91	4320435.27	0.0005	426.86	664.53	1.5	ANNUAL	ALL	5
505665.94	4320415.67	0.00054	427.2	664.53	1.5	ANNUAL	ALL	5
505683.97	4320396.07	0.00061	427.39	664.53	1.5	ANNUAL	ALL	5
505706.29	4320375.31	0.00063	430.01	664.53	1.5	ANNUAL	ALL	5
505731.99	4320368.34	0.00068	434.72	664.53	1.5	ANNUAL	ALL	5
505757.70	4320361.37	0.00076	438.23	664.53	1.5	ANNUAL	ALL	5
505783.40	4320354.40	0.00091	434.36	664.53	1.5	ANNUAL	ALL	5
505540.43	4320410.19	0.00022	428.39	664.53	1.5	ANNUAL	ALL	5
505558.70	4320390.32	0.00022	429.72	664.53	1.5	ANNUAL	ALL	5
505576.98	4320370.46	0.00022	433.04	664.53	1.5	ANNUAL	ALL	5
505595.26	4320350.59	0.00022	437.15	664.53	1.5	ANNUAL	ALL	5
505613.53	4320330.73	0.00025	437.95	664.53	1.5	ANNUAL	ALL	5
505631.81	4320310.86	0.00029	434.4	664.53	1.5	ANNUAL	ALL	5
505654.43	4320289.82	0.00032	436.79	664.53	1.5	ANNUAL	ALL	5
505676.14	4320283.94	0.00035	438.32	664.53	1.5	ANNUAL	ALL	5
505697.85	4320278.05	0.00039	437.81	664.53	1.5	ANNUAL	ALL	5
505719.56	4320272.16	0.00044	436.88	664.53	1.5	ANNUAL	ALL	5

505745.61	4320265.10	0.00049	436.45	664.53	1.5	ANNUAL	ALL	5
505767.32	4320259.21	0.00054	435.63	664.53	1.5	ANNUAL	ALL	5
505361.49	4320320.88	0.00007	442.92	664.53	1.5	ANNUAL	ALL	5
505376.89	4320304.15	0.00007	444.56	664.53	1.5	ANNUAL	ALL	5
505392.28	4320287.41	0.00007	444.73	664.53	1.5	ANNUAL	ALL	5
505407.68	4320270.68	0.00007	445.72	664.53	1.5	ANNUAL	ALL	5
505423.08	4320253.94	0.00007	447.56	664.53	1.5	ANNUAL	ALL	5
505438.47	4320237.21	0.00007	448.61	664.53	1.5	ANNUAL	ALL	5
505453.87	4320220.47	0.00008	449.16	664.53	1.5	ANNUAL	ALL	5
505469.27	4320203.74	0.00008	448.51	664.53	1.5	ANNUAL	ALL	5
505484.66	4320187.01	0.00009	447.56	664.53	1.5	ANNUAL	ALL	5
505500.06	4320170.27	0.0001	444.87	664.53	1.5	ANNUAL	ALL	5
505515.46	4320153.54	0.00012	441.74	664.53	1.5	ANNUAL	ALL	5
505530.85	4320136.80	0.00012	443.65	664.53	1.5	ANNUAL	ALL	5
505550.64	4320118.88	0.00013	446.43	664.53	1.5	ANNUAL	ALL	5
505572.59	4320112.93	0.00015	445.63	664.53	1.5	ANNUAL	ALL	5
505594.54	4320106.98	0.00016	445.44	664.53	1.5	ANNUAL	ALL	5
505616.48	4320101.02	0.00017	444.27	664.53	1.5	ANNUAL	ALL	5
505638.43	4320095.07	0.00019	444.22	664.53	1.5	ANNUAL	ALL	5
505660.38	4320089.12	0.0002	444.12	664.53	1.5	ANNUAL	ALL	5
505682.33	4320083.17	0.00021	442.12	664.53	1.5	ANNUAL	ALL	5
505704.27	4320077.22	0.00023	440.06	664.53	1.5	ANNUAL	ALL	5
505726.22	4320071.27	0.00025	438.06	664.53	1.5	ANNUAL	ALL	5
505748.17	4320065.32	0.00026	436.5	664.53	1.5	ANNUAL	ALL	5
505770.12	4320059.37	0.00028	434.75	664.53	1.5	ANNUAL	ALL	5
505792.06	4320053.42	0.0003	432.1	664.53	1.5	ANNUAL	ALL	5
505182.53	4320231.60	0.00003	466.84	664.53	1.5	ANNUAL	ALL	5
505198.00	4320214.78	0.00003	471.75	664.53	1.5	ANNUAL	ALL	5
505213.47	4320197.97	0.00003	475.28	664.53	1.5	ANNUAL	ALL	5
505228.94	4320181.16	0.00003	474.6	664.53	1.5	ANNUAL	ALL	5
505244.41	4320164.34	0.00003	472.69	664.53	1.5	ANNUAL	ALL	5
505259.88	4320147.53	0.00003	470.65	664.53	1.5	ANNUAL	ALL	5
505275.35	4320130.72	0.00003	466.02	664.53	1.5	ANNUAL	ALL	5
505290.82	4320113.90	0.00003	468.27	664.53	1.5	ANNUAL	ALL	5
505306.29	4320097.09	0.00003	474.58	664.53	1.5	ANNUAL	ALL	5
505321.75	4320080.28	0.00003	476.24	664.53	1.5	ANNUAL	ALL	5
505337.22	4320063.46	0.00004	475.87	664.53	1.5	ANNUAL	ALL	5
505352.69	4320046.65	0.00004	472.31	664.53	1.5	ANNUAL	ALL	5
505368.16	4320029.84	0.00004	467.85	664.53	1.5	ANNUAL	ALL	5
505383.63	4320013.02	0.00005	461.24	664.53	1.5	ANNUAL	ALL	5
505399.10	4319996.21	0.00006	456.49	664.53	1.5	ANNUAL	ALL	5
505414.57	4319979.40	0.00006	458.36	664.53	1.5	ANNUAL	ALL	5
505430.04	4319962.58	0.00007	459.3	664.53	1.5	ANNUAL	ALL	5
505451.24	4319946.74	0.00007	456.23	664.53	1.5	ANNUAL	ALL	5
505473.29	4319940.76	0.00008	452.52	664.53	1.5	ANNUAL	ALL	5
505495.34	4319934.78	0.00009	449.66	664.53	1.5	ANNUAL	ALL	5
505517.39	4319928.81	0.0001	447.84	664.53	1.5	ANNUAL	ALL	5
505539.44	4319922.83	0.0001	446.17	664.53	1.5	ANNUAL	ALL	5
505561.49	4319916.85	0.00011	444.41	664.53	1.5	ANNUAL	ALL	5
505583.54	4319910.87	0.00012	443.15	664.53	1.5	ANNUAL	ALL	5
505605.59	4319904.89	0.00012	444.44	664.53	1.5	ANNUAL	ALL	5
505627.64	4319898.91	0.00012	445.83	664.53	1.5	ANNUAL	ALL	5
505649.69	4319892.93	0.00013	445.02	664.53	1.5	ANNUAL	ALL	5
505671.74	4319886.95	0.00014	442.13	664.53	1.5	ANNUAL	ALL	5
505693.80	4319880.97	0.00015	438.73	664.53	1.5	ANNUAL	ALL	5
505715.85	4319875.00	0.00016	434.62	664.53	1.5	ANNUAL	ALL	5
505737.90	4319869.02	0.00016	436.28	664.53	1.5	ANNUAL	ALL	5
505759.95	4319863.04	0.00016	441.44	664.53	1.5	ANNUAL	ALL	5
505782.00	4319857.06	0.00016	440.15	664.53	1.5	ANNUAL	ALL	5
505741.78	4320550.62	0.00339	420.86	664.53	1.5	ANNUAL	ALL	5
505741.49	4320588.22	0.00542	419.73	664.53	1.5	ANNUAL	ALL	5
505741.19	4320625.81	0.00738	419.24	664.53	1.5	ANNUAL	ALL	5
505740.90	4320663.41	0.00866	418.98	664.53	1.5	ANNUAL	ALL	5
505740.60	4320701.00	0.00937	419.01	664.53	1.5	ANNUAL	ALL	5
505740.31	4320738.60	0.00966	419.1	664.53	1.5	ANNUAL	ALL	5
505740.02	4320776.19	0.00946	419.45	664.53	1.5	ANNUAL	ALL	5
505739.72	4320813.78	0.0086	419.92	664.53	1.5	ANNUAL	ALL	5
505724.34	4320532.71	0.00211	421.47	664.53	1.5	ANNUAL	ALL	5
505716.49	4320588.02	0.00308	419.86	664.53	1.5	ANNUAL	ALL	5
505716.19	4320625.62	0.0041	419.46	664.53	1.5	ANNUAL	ALL	5
505715.90	4320663.21	0.00496	419.29	664.53	1.5	ANNUAL	ALL	5
505715.60	4320700.81	0.00557	419.29	664.53	1.5	ANNUAL	ALL	5
505715.31	4320738.40	0.00594	419.28	664.53	1.5	ANNUAL	ALL	5
505715.02	4320775.99	0.00602	419.75	664.53	1.5	ANNUAL	ALL	5
505714.72	4320813.59	0.00574	420.07	664.53	1.5	ANNUAL	ALL	5
505703.12	4320523.66	0.00148	421.93	664.53	1.5	ANNUAL	ALL	5
505691.78	4320550.23	0.00156	421.16	664.53	1.5	ANNUAL	ALL	5
505691.49	4320587.83	0.002	421.07	664.53	1.5	ANNUAL	ALL	5
505691.19	4320625.42	0.00258	420.21	664.53	1.5	ANNUAL	ALL	5
505690.90	4320663.02	0.00316	419.52	664.53	1.5	ANNUAL	ALL	5
505690.61	4320700.61	0.00362	419.68	664.53	1.5	ANNUAL	ALL	5
505690.31	4320738.20	0.00396	419.67	664.53	1.5	ANNUAL	ALL	5
505690.02	4320775.80	0.0041	420.21	664.53	1.5	ANNUAL	ALL	5
505689.72	4320813.39	0.00406	420.38	664.53	1.5	ANNUAL	ALL	5
505676.86	4320526.42	0.00112	422.06	664.53	1.5	ANNUAL	ALL	5
505666.78	4320550.04	0.00116	422.13	664.53	1.5	ANNUAL	ALL	5
505666.49	4320587.63	0.00131	424.53	664.53	1.5	ANNUAL	ALL	5

505666.19	4320625.23	0.00177	421.64	664.53	1.5	ANNUAL	ALL	5
505665.90	4320662.82	0.00219	419.75	664.53	1.5	ANNUAL	ALL	5
505665.61	4320700.41	0.00252	419.85	664.53	1.5	ANNUAL	ALL	5
505665.31	4320738.01	0.00279	420.05	664.53	1.5	ANNUAL	ALL	5
505665.02	4320775.60	0.00294	420.57	664.53	1.5	ANNUAL	ALL	5
505664.72	4320813.20	0.00297	420.77	664.53	1.5	ANNUAL	ALL	5
505654.38	4320520.32	0.00087	422.11	664.53	1.5	ANNUAL	ALL	5
505641.78	4320549.84	0.00086	423.6	664.53	1.5	ANNUAL	ALL	5
505641.49	4320587.44	0.00095	426.74	664.53	1.5	ANNUAL	ALL	5
505641.20	4320625.03	0.00126	423.19	664.53	1.5	ANNUAL	ALL	5
505640.90	4320662.62	0.00161	420.08	664.53	1.5	ANNUAL	ALL	5
505640.61	4320700.22	0.00185	419.96	664.53	1.5	ANNUAL	ALL	5
505640.31	4320737.81	0.00205	420.31	664.53	1.5	ANNUAL	ALL	5
505640.02	4320775.41	0.00218	420.77	664.53	1.5	ANNUAL	ALL	5
505639.72	4320813.00	0.00224	421.07	664.53	1.5	ANNUAL	ALL	5
505628.12	4320523.07	0.00071	422.77	664.53	1.5	ANNUAL	ALL	5
505639.46	4320496.50	0.00069	422.31	664.53	1.5	ANNUAL	ALL	5
505616.78	4320549.65	0.00068	424.86	664.53	1.5	ANNUAL	ALL	5
505616.49	4320587.24	0.00078	426.02	664.53	1.5	ANNUAL	ALL	5
505616.20	4320624.83	0.00098	423.79	664.53	1.5	ANNUAL	ALL	5
505615.90	4320662.43	0.00123	421.18	664.53	1.5	ANNUAL	ALL	5
505615.61	4320700.02	0.00141	420.2	664.53	1.5	ANNUAL	ALL	5
505615.31	4320737.62	0.00155	420.62	664.53	1.5	ANNUAL	ALL	5
505615.02	4320775.21	0.00166	420.91	664.53	1.5	ANNUAL	ALL	5
505614.72	4320812.81	0.00173	421.31	664.53	1.5	ANNUAL	ALL	5
505605.01	4320518.45	0.00054	424.61	664.53	1.5	ANNUAL	ALL	5
505618.24	4320487.45	0.00053	423.42	664.53	1.5	ANNUAL	ALL	5
505591.79	4320549.45	0.00054	426.84	664.53	1.5	ANNUAL	ALL	5
505591.49	4320587.04	0.00067	424.94	664.53	1.5	ANNUAL	ALL	5
505591.20	4320624.64	0.00083	422.83	664.53	1.5	ANNUAL	ALL	5
505590.90	4320662.23	0.00098	421.17	664.53	1.5	ANNUAL	ALL	5
505590.61	4320699.83	0.00111	420.42	664.53	1.5	ANNUAL	ALL	5
505590.31	4320737.42	0.00122	420.51	664.53	1.5	ANNUAL	ALL	5
505590.02	4320775.02	0.00131	420.99	664.53	1.5	ANNUAL	ALL	5
505589.73	4320812.61	0.00137	421.02	664.53	1.5	ANNUAL	ALL	5
505578.88	4320520.91	0.00043	426.88	664.53	1.5	ANNUAL	ALL	5
505590.97	4320492.57	0.00042	426.21	664.53	1.5	ANNUAL	ALL	5
505603.06	4320464.23	0.00042	424.85	664.53	1.5	ANNUAL	ALL	5
505615.15	4320435.88	0.00039	426.53	664.53	1.5	ANNUAL	ALL	5
505566.79	4320549.25	0.00045	427.9	664.53	1.5	ANNUAL	ALL	5
505566.49	4320586.85	0.00056	424.85	664.53	1.5	ANNUAL	ALL	5
505566.20	4320624.44	0.00069	422.67	664.53	1.5	ANNUAL	ALL	5
505565.90	4320662.04	0.0008	421.28	664.53	1.5	ANNUAL	ALL	5
505565.61	4320699.63	0.00089	420.87	664.53	1.5	ANNUAL	ALL	5
505565.31	4320737.23	0.00098	420.86	664.53	1.5	ANNUAL	ALL	5
505565.02	4320774.82	0.00104	421.23	664.53	1.5	ANNUAL	ALL	5
505564.73	4320812.41	0.0011	421.17	664.53	1.5	ANNUAL	ALL	5
505479.74	4320518.10	0.00023	433.1	664.53	1.5	ANNUAL	ALL	5
505492.70	4320487.74	0.0002	436.12	664.53	1.5	ANNUAL	ALL	5
505505.65	4320457.37	0.0002	432.29	664.53	1.5	ANNUAL	ALL	5
505518.61	4320427.00	0.00021	429.81	664.53	1.5	ANNUAL	ALL	5
505544.52	4320366.27	0.00018	432.86	664.53	1.5	ANNUAL	ALL	5
505588.17	4320323.75	0.0002	439.49	664.53	1.5	ANNUAL	ALL	5
505466.79	4320548.47	0.00027	428.47	664.53	1.5	ANNUAL	ALL	5
505466.49	4320586.07	0.00031	427.19	664.53	1.5	ANNUAL	ALL	5
505466.20	4320623.66	0.00034	426.3	664.53	1.5	ANNUAL	ALL	5
505465.91	4320661.25	0.00041	423.08	664.53	1.5	ANNUAL	ALL	5
505465.61	4320698.85	0.00044	422.58	664.53	1.5	ANNUAL	ALL	5
505465.32	4320736.44	0.00048	422.26	664.53	1.5	ANNUAL	ALL	5
505465.02	4320774.04	0.00051	422.31	664.53	1.5	ANNUAL	ALL	5
505464.73	4320811.63	0.00053	422.46	664.53	1.5	ANNUAL	ALL	5
505280.54	4320514.70	0.00013	430.26	664.53	1.5	ANNUAL	ALL	5
505294.28	4320482.49	0.00013	428.69	664.53	1.5	ANNUAL	ALL	5
505308.02	4320450.28	0.00011	431.08	664.53	1.5	ANNUAL	ALL	5
505321.76	4320418.07	0.0001	433.93	664.53	1.5	ANNUAL	ALL	5
505335.50	4320385.87	0.00009	436.78	664.53	1.5	ANNUAL	ALL	5
505349.24	4320353.66	0.00008	439.42	664.53	1.5	ANNUAL	ALL	5
505404.20	4320224.83	0.00006	449.45	664.53	1.5	ANNUAL	ALL	5
505450.50	4320179.74	0.00008	447.35	664.53	1.5	ANNUAL	ALL	5
505266.80	4320546.91	0.00011	440.37	664.53	1.5	ANNUAL	ALL	5
505266.50	4320584.50	0.00012	441.64	664.53	1.5	ANNUAL	ALL	5
505266.21	4320622.09	0.00013	436.1	664.53	1.5	ANNUAL	ALL	5
505265.91	4320659.69	0.00014	432.49	664.53	1.5	ANNUAL	ALL	5
505265.62	4320697.28	0.00017	426.84	664.53	1.5	ANNUAL	ALL	5
505265.32	4320734.88	0.00018	425.82	664.53	1.5	ANNUAL	ALL	5
505265.03	4320772.47	0.00019	425.08	664.53	1.5	ANNUAL	ALL	5
505264.74	4320810.07	0.0002	423.3	664.53	1.5	ANNUAL	ALL	5
505080.91	4320512.27	0.00006	446.55	664.53	1.5	ANNUAL	ALL	5
505095.01	4320479.21	0.00006	442.43	664.53	1.5	ANNUAL	ALL	5
505109.12	4320446.14	0.00006	441.82	664.53	1.5	ANNUAL	ALL	5
505123.23	4320413.07	0.00006	440.76	664.53	1.5	ANNUAL	ALL	5
505137.33	4320380.01	0.00006	442.67	664.53	1.5	ANNUAL	ALL	5
505151.44	4320346.94	0.00005	448.87	664.53	1.5	ANNUAL	ALL	5
505165.55	4320313.87	0.00005	455.88	664.53	1.5	ANNUAL	ALL	5
505179.65	4320280.81	0.00004	463.4	664.53	1.5	ANNUAL	ALL	5
505250.19	4320115.47	0.00003	474.68	664.53	1.5	ANNUAL	ALL	5
505264.29	4320082.40	0.00003	479.8	664.53	1.5	ANNUAL	ALL	5

505311.83	4320036.11	0.00003	481.79	664.53	1.5	ANNUAL	ALL	5
505345.26	4320022.89	0.00004	471.02	664.53	1.5	ANNUAL	ALL	5
505445.54	4319983.21	0.00007	454.22	664.53	1.5	ANNUAL	ALL	5
505478.97	4319969.98	0.00009	450.08	664.53	1.5	ANNUAL	ALL	5
505512.40	4319956.75	0.0001	447.11	664.53	1.5	ANNUAL	ALL	5
505066.80	4320545.34	0.00007	445.41	664.53	1.5	ANNUAL	ALL	5
505066.51	4320582.93	0.00007	442.24	664.53	1.5	ANNUAL	ALL	5
505066.21	4320620.53	0.00007	447.24	664.53	1.5	ANNUAL	ALL	5
505065.92	4320658.12	0.00007	448.2	664.53	1.5	ANNUAL	ALL	5
505065.62	4320695.72	0.00008	441.08	664.53	1.5	ANNUAL	ALL	5
505065.33	4320733.31	0.00008	446.01	664.53	1.5	ANNUAL	ALL	5
505065.04	4320770.91	0.00008	445.03	664.53	1.5	ANNUAL	ALL	5
505064.74	4320808.50	0.00008	439.12	664.53	1.5	ANNUAL	ALL	5
505764.10	4320838.97	0.00954	419.82	664.53	1.5	ANNUAL	ALL	5
505746.14	4320856.36	0.00679	421.68	664.53	1.5	ANNUAL	ALL	5
505745.52	4320881.35	0.00519	424.32	664.53	1.5	ANNUAL	ALL	5
505703.79	4320848.56	0.00451	420.55	664.53	1.5	ANNUAL	ALL	5
505739.12	4320903.81	0.00414	425.99	664.53	1.5	ANNUAL	ALL	5
505715.99	4320893.67	0.00396	424.33	664.53	1.5	ANNUAL	ALL	5
505683.48	4320860.08	0.00355	418.68	664.53	1.5	ANNUAL	ALL	5
505674.10	4320836.64	0.00329	420.22	664.53	1.5	ANNUAL	ALL	5
505762.24	4320913.95	0.00406	425.53	664.53	1.5	ANNUAL	ALL	5
505739.94	4320929.43	0.00348	425.94	664.53	1.5	ANNUAL	ALL	5
505718.26	4320919.93	0.00348	424.17	664.53	1.5	ANNUAL	ALL	5
505696.58	4320910.42	0.00328	422.37	664.53	1.5	ANNUAL	ALL	5
505666.11	4320878.94	0.00283	420.68	664.53	1.5	ANNUAL	ALL	5
505657.31	4320856.96	0.00271	419.52	664.53	1.5	ANNUAL	ALL	5
505648.52	4320834.98	0.00248	420.85	664.53	1.5	ANNUAL	ALL	5
505761.62	4320938.94	0.00336	425.4	664.53	1.5	ANNUAL	ALL	5
505740.19	4320954.81	0.00296	425.64	664.53	1.5	ANNUAL	ALL	5
505719.38	4320945.68	0.003	424.5	664.53	1.5	ANNUAL	ALL	5
505698.56	4320936.55	0.00293	422.93	664.53	1.5	ANNUAL	ALL	5
505677.75	4320927.43	0.00268	422.69	664.53	1.5	ANNUAL	ALL	5
505648.50	4320897.20	0.00229	423.05	664.53	1.5	ANNUAL	ALL	5
505640.05	4320876.10	0.00222	421.43	664.53	1.5	ANNUAL	ALL	5
505631.61	4320855.00	0.00209	420.75	664.53	1.5	ANNUAL	ALL	5
505623.17	4320833.91	0.00191	421.21	664.53	1.5	ANNUAL	ALL	5
505761.00	4320963.93	0.00282	425.32	597.35	1.5	ANNUAL	ALL	5
505736.10	4320978.28	0.00251	426.73	597.35	1.5	ANNUAL	ALL	5
505711.82	4320967.63	0.00258	424.85	664.53	1.5	ANNUAL	ALL	5
505687.54	4320956.98	0.00252	422.89	664.53	1.5	ANNUAL	ALL	5
505663.26	4320946.34	0.00223	423.74	664.53	1.5	ANNUAL	ALL	5
505629.12	4320911.07	0.00186	424.28	664.53	1.5	ANNUAL	ALL	5
505619.27	4320886.46	0.00176	423.87	664.53	1.5	ANNUAL	ALL	5
505609.43	4320861.84	0.00168	422.21	664.53	1.5	ANNUAL	ALL	5
505599.58	4320837.23	0.00153	421.4	664.53	1.5	ANNUAL	ALL	5
505760.38	4320988.93	0.00237	425.98	597.35	1.5	ANNUAL	ALL	5
505736.64	4321003.78	0.00214	427.52	596.35	1.5	ANNUAL	ALL	5
505713.51	4320993.64	0.00222	426.57	597.35	1.5	ANNUAL	ALL	5
505690.39	4320983.50	0.00223	424.11	664.53	1.5	ANNUAL	ALL	5
505667.26	4320973.36	0.00209	423.89	664.53	1.5	ANNUAL	ALL	5
505644.14	4320963.22	0.00185	425.74	664.53	1.5	ANNUAL	ALL	5
505611.63	4320929.63	0.00157	425.45	664.53	1.5	ANNUAL	ALL	5
505602.25	4320906.19	0.00146	426.33	664.53	1.5	ANNUAL	ALL	5
505592.87	4320882.75	0.00135	427.23	664.53	1.5	ANNUAL	ALL	5
505583.49	4320859.30	0.00124	426.54	664.53	1.5	ANNUAL	ALL	5
505574.11	4320835.86	0.00122	421.45	664.53	1.5	ANNUAL	ALL	5
505759.76	4321013.92	0.00202	426.1	442.02	1.5	ANNUAL	ALL	5
505734.16	4321103.75	0.00119	432.14	445.19	1.5	ANNUAL	ALL	5
505711.03	4321093.61	0.00126	432.71	432.71	1.5	ANNUAL	ALL	5
505687.91	4321083.47	0.00131	432.63	432.63	1.5	ANNUAL	ALL	5
505664.78	4321073.33	0.00136	428.79	433.79	1.5	ANNUAL	ALL	5
505641.66	4321063.19	0.00135	426.28	597.35	1.5	ANNUAL	ALL	5
505618.53	4321053.05	0.00128	426.41	597.35	1.5	ANNUAL	ALL	5
505595.41	4321042.90	0.00117	426.86	597.35	1.5	ANNUAL	ALL	5
505572.28	4321032.76	0.00104	428.49	597.35	1.5	ANNUAL	ALL	5
505539.78	4320999.18	0.00086	431.13	597.35	1.5	ANNUAL	ALL	5
505530.39	4320975.74	0.00081	431.59	597.35	1.5	ANNUAL	ALL	5
505521.01	4320952.29	0.00076	431.9	664.53	1.5	ANNUAL	ALL	5
505511.63	4320928.85	0.00071	431.84	664.53	1.5	ANNUAL	ALL	5
505502.25	4320905.41	0.00067	430.16	664.53	1.5	ANNUAL	ALL	5
505492.87	4320881.96	0.00064	427.37	664.53	1.5	ANNUAL	ALL	5
505483.49	4320858.52	0.00061	424.82	664.53	1.5	ANNUAL	ALL	5
505474.11	4320835.08	0.00058	422.65	664.53	1.5	ANNUAL	ALL	5
505757.28	4321113.89	0.0011	429.99	447.52	1.5	ANNUAL	ALL	5
505727.55	4321302.96	0.00046	444.78	444.78	1.5	ANNUAL	ALL	5
505702.77	4321292.10	0.0005	447.1	447.1	1.5	ANNUAL	ALL	5
505677.99	4321281.23	0.00053	447.9	447.9	1.5	ANNUAL	ALL	5
505653.22	4321270.37	0.00057	446.66	446.66	1.5	ANNUAL	ALL	5
505628.44	4321259.50	0.0006	443.32	455.4	1.5	ANNUAL	ALL	5
505603.66	4321248.64	0.00062	439.73	456.23	1.5	ANNUAL	ALL	5
505578.89	4321237.77	0.00063	437.38	456.23	1.5	ANNUAL	ALL	5
505554.11	4321226.91	0.00063	435.6	456.23	1.5	ANNUAL	ALL	5
505529.33	4321216.04	0.00061	433.73	466.41	1.5	ANNUAL	ALL	5
505504.55	4321205.18	0.00058	433.77	466.41	1.5	ANNUAL	ALL	5
505479.78	4321194.31	0.00053	435.92	465.87	1.5	ANNUAL	ALL	5
505455.00	4321183.45	0.00048	437.36	444.29	1.5	ANNUAL	ALL	5

505430.22	4321172.58	0.00043	439.99	441.33	1.5	ANNUAL	ALL	5
505395.40	4321136.60	0.00036	442.01	442.88	1.5	ANNUAL	ALL	5
505385.35	4321111.48	0.00035	437.5	597.35	1.5	ANNUAL	ALL	5
505375.29	4321086.37	0.00035	433.14	597.35	1.5	ANNUAL	ALL	5
505365.24	4321061.25	0.00034	430.81	597.35	1.5	ANNUAL	ALL	5
505355.19	4321036.13	0.00032	431.57	597.35	1.5	ANNUAL	ALL	5
505345.14	4321011.01	0.00029	433.99	597.35	1.5	ANNUAL	ALL	5
505335.09	4320985.89	0.00028	433.48	597.35	1.5	ANNUAL	ALL	5
505325.04	4320960.77	0.00029	427.19	664.53	1.5	ANNUAL	ALL	5
505314.99	4320935.66	0.00028	424.36	664.53	1.5	ANNUAL	ALL	5
505304.94	4320910.54	0.00026	423.91	664.53	1.5	ANNUAL	ALL	5
505294.89	4320885.42	0.00025	424.07	664.53	1.5	ANNUAL	ALL	5
505284.84	4320860.30	0.00023	423.88	664.53	1.5	ANNUAL	ALL	5
505274.79	4320835.18	0.00022	422.03	664.53	1.5	ANNUAL	ALL	5
505752.32	4321313.83	0.00042	442.44	445.44	1.5	ANNUAL	ALL	5
505723.08	4321503.12	0.00026	438.13	438.13	1.5	ANNUAL	ALL	5
505698.80	4321492.47	0.00029	437.36	437.36	1.5	ANNUAL	ALL	5
505674.52	4321481.82	0.00032	435.47	456.23	1.5	ANNUAL	ALL	5
505650.24	4321471.18	0.00035	434.29	460.13	1.5	ANNUAL	ALL	5
505625.96	4321460.53	0.00036	436.2	460.13	1.5	ANNUAL	ALL	5
505601.68	4321449.88	0.00037	436.38	467.77	1.5	ANNUAL	ALL	5
505577.40	4321439.23	0.00038	437.02	468.06	1.5	ANNUAL	ALL	5
505553.11	4321428.59	0.00037	439.76	467.77	1.5	ANNUAL	ALL	5
505528.83	4321417.94	0.00037	442.92	467.77	1.5	ANNUAL	ALL	5
505504.55	4321407.29	0.00036	444.86	467.77	1.5	ANNUAL	ALL	5
505480.27	4321396.64	0.00036	444.45	468.06	1.5	ANNUAL	ALL	5
505455.99	4321386.00	0.00035	444.65	468.06	1.5	ANNUAL	ALL	5
505431.71	4321375.35	0.00034	446.94	468.06	1.5	ANNUAL	ALL	5
505407.43	4321364.70	0.00032	448.29	468.06	1.5	ANNUAL	ALL	5
505383.14	4321354.05	0.00031	445.22	469.36	1.5	ANNUAL	ALL	5
505358.86	4321343.41	0.0003	442.64	469.36	1.5	ANNUAL	ALL	5
505334.58	4321332.76	0.00028	441.04	469.63	1.5	ANNUAL	ALL	5
505310.30	4321322.11	0.00026	439.56	470.12	1.5	ANNUAL	ALL	5
505286.02	4321311.46	0.00024	439.35	470.12	1.5	ANNUAL	ALL	5
505251.89	4321276.20	0.00021	437.45	470.53	1.5	ANNUAL	ALL	5
505242.04	4321251.58	0.0002	438.47	469.36	1.5	ANNUAL	ALL	5
505232.19	4321226.97	0.00019	440.3	469.36	1.5	ANNUAL	ALL	5
505222.34	4321202.35	0.00018	440.26	596.35	1.5	ANNUAL	ALL	5
505212.49	4321177.74	0.00018	437	597.35	1.5	ANNUAL	ALL	5
505202.64	4321153.12	0.00018	434.49	597.35	1.5	ANNUAL	ALL	5
505192.79	4321128.51	0.00017	434.53	597.35	1.5	ANNUAL	ALL	5
505182.94	4321103.89	0.00016	436.01	597.35	1.5	ANNUAL	ALL	5
505173.09	4321079.27	0.00016	435.17	597.35	1.5	ANNUAL	ALL	5
505163.24	4321054.66	0.00016	431.11	597.35	1.5	ANNUAL	ALL	5
505153.39	4321030.04	0.00016	427.3	664.53	1.5	ANNUAL	ALL	5
505143.54	4321005.43	0.00016	425.73	664.53	1.5	ANNUAL	ALL	5
505133.69	4320980.81	0.00015	425.16	664.53	1.5	ANNUAL	ALL	5
505123.84	4320956.20	0.00015	426.11	664.53	1.5	ANNUAL	ALL	5
505113.99	4320931.58	0.00013	432.12	664.53	1.5	ANNUAL	ALL	5
505104.14	4320906.96	0.00012	433.43	664.53	1.5	ANNUAL	ALL	5
505094.29	4320882.35	0.00011	431.2	664.53	1.5	ANNUAL	ALL	5
505084.44	4320857.73	0.00011	429.87	664.53	1.5	ANNUAL	ALL	5
505074.59	4320833.12	0.00009	435.85	664.53	1.5	ANNUAL	ALL	5
505747.37	4321513.76	0.00024	435.76	438.35	1.5	ANNUAL	ALL	5
505822.76	4320536.13	0.01146	419.83	664.53	1.5	ANNUAL	ALL	5
505841.59	4320533.58	0.01222	419.78	664.53	1.5	ANNUAL	ALL	5
505888.71	4320535.14	0.01419	419.42	664.53	1.5	ANNUAL	ALL	5
505954.57	4320494.88	0.00732	418.81	664.53	1.5	ANNUAL	ALL	5
505958.31	4320523.60	0.00987	418.67	664.53	1.5	ANNUAL	ALL	5
505513.25	4320588.10	0.00034	433.55	664.53	1.5	ANNUAL	ALL	5
505514.27	4320543.88	0.0003	432.69	664.53	1.5	ANNUAL	ALL	5

** CONCUNIT ug/m^3
** DEPUNIT g/m^2

ATTACHMENT C
Energy Consumption Calculations

Construction Vehicle Fuel Calculations

California Air Resource Board (CARB). 2022. EMFAC2017 Web Database (v1.0.2). Website: https://arb.ca.gov/emfac/2017/.

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: LAKE
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

VMT = Vehicle Miles Traveled
FE = Fuel Economy

						Given			*Calculations*	
Region	Calendar Year	Vehicle Class	Model Year	Speed	Fuel	Population	VMT (mi/day)	Consumption (1000 gallons/day)	FE (mi/gallon)	VMT*FE
LAKE	2022	HHDT	Aggregated	Aggregated	GAS	0.5462514	22.045366	0.005442399	4.05067057	89.298515
LAKE	2022	HHDT	Aggregated	Aggregated	DSL	387.865692	34895.43	5.669279524	6.155178923	214787.61
LAKE	2022	LDA	Aggregated	Aggregated	GAS	28848.7694	1119963.6	37.41911922	29.93025146	33520794
LAKE	2022	LDA	Aggregated	Aggregated	DSL	344.567939	13298.115	0.286601739	46.39928367	617023.03
LAKE	2022	LDT1	Aggregated	Aggregated	GAS	4488.40442	140290.97	5.70482867	24.59161837	3449982
LAKE	2022	LDT1	Aggregated	Aggregated	DSL	6.1271381	72.377283	0.002946871	24.56072019	1777.6382
LAKE	2022	LDT2	Aggregated	Aggregated	GAS	12464.1814	447575.43	19.52293303	22.92562445	10260946
LAKE	2022	LDT2	Aggregated	Aggregated	DSL	55.619673	2441.2752	0.068041803	35.87904918	87590.633
LAKE	2022	LHDT1	Aggregated	Aggregated	GAS	1693.72798	50650.319	6.216194632	8.148123052	412705.03
LAKE	2022	LHDT1	Aggregated	Aggregated	DSL	2080.62566	66831.696	3.862975613	17.30057414	1156226.7
LAKE	2022	LHDT2	Aggregated	Aggregated	GAS	116.300421	3905.6616	0.539573757	7.23842021	28270.82
LAKE	2022	LHDT2	Aggregated	Aggregated	DSL	570.819878	19472.413	1.258657747	15.47077705	301253.37
LAKE	2022	MDV	Aggregated	Aggregated	GAS	10458.2353	346193.25	18.30279656	18.91477327	6548166.8
LAKE	2022	MDV	Aggregated	Aggregated	DSL	237.054873	9832.1431	0.374748083	26.23667362	257962.73
LAKE	2022	MHDT	Aggregated	Aggregated	GAS	93.6690087	3888.5356	0.822718777	4.726445655	18378.952
LAKE	2022	MHDT	Aggregated	Aggregated	DSL	470.640668	25297.624	2.869101492	8.817263554	223055.82

Worker
Weighted Average Fuel Economy 26.323559

Vendor
Weighted Average Fuel Economy 11.488704

Haul
Weighted Average Fuel Economy 6.1538502

Construction Vehicle Fuel Calculations

Construction Schedule

Source: CalEEMod Output

CalEEMod Run	Phase Name	Start Date	End Date	Num Days Week	Num Days
Construction	Site Preparation	6/1/2022	6/14/2022	5	10
Construction	Grading	6/15/2022	7/26/2022	5	30
Construction	Paving	7/27/2022	8/23/2022	5	20
Construction	Building Construction	8/24/2022	11/5/2023	5	313
Construction	Architectural Coating	11/6/2023	12/1/2023	5	20

Construction Trips and VMT

		Trips per Day		Total Trips	Construction Trip Length in Miles				Trips per Phase			VMT per Phase			Fuel Consumption (gallons)		
CalEEMod Run	Phase Name	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Number of Days per Phase	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trips	Vendor Trips	Hauling Trips	Worker Trips	Vendor Trips	Hauling Trips
Construction	Site Preparation	18	0	14	16.8	6.6	20	10	180	0	14	3,024	0	280	114.88	0.00	45.50
Construction	Grading	20	0	516	16.8	6.6	20	30	600	0	516	10,080	0	10,320	382.93	0.00	1,677.00
Construction	Paving	15	4	12	16.8	6.6	20	20	300	80	12	5,040	528	240	191.46	45.96	39.00
Construction	Building Construction	152	36	18	16.8	6.6	20	313	47,576	11,268	18	799,277	74,369	360	30,363.55	6,473.21	58.50
Construction	Architectural Coating	30	0	2	16.8	6.6	20	20	600	0	2	10,080	0	40	382.93	0.00	6.50

Total Phase 1 Project Construction VMT (miles)

913,638

Total Phase 1 Project Fuel Consumption (gallons)

39,781

Construction Equipment Fuel Calculation

Source: CalEEMod Output

Construction Schedule

Construction Area	Phase Type	Start Date	End Date	Num Days Week	Num Days
Project Site	Site Preparation	6/1/2022	6/14/2022	5	10
Project Site	Grading	6/15/2022	7/26/2022	5	30
Project Site	Paving	7/27/2022	8/23/2022	5	20
Project Site	Building Construction	8/24/2022	11/5/2023	5	313
Project Site	Architectural Coating	11/6/2023	12/1/2023	5	20

Construction Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of Days	HP Hours	Fuel (gallons/HP-	Diesel Fuel Usage
Site Preparation	Rubber Tired Dozers	3	8	247	0.40	10	23,712.00	0.0205133	486.41
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	10	11,484.80	0.0190266	218.52
Grading	Excavators	2	8	158	0.38	30	28,819.20	0.0197573	569.39
Grading	Graders	1	8	187	0.41	30	18,400.80	0.0212148	390.37
Grading	Rubber Tired Dozers	1	8	247	0.40	30	23,712.00	0.0205133	486.41
Grading	Scrapers	2	8	367	0.48	30	84,556.80	0.0248867	2,104.34
Grading	Tractors/Loaders/Backhoes	2	8	97	0.37	30	17,227.20	0.0190266	327.77
Paving	Pavers	2	8	130	0.42	20	17,472.00	0.0215272	376.12
Paving	Paving Equipment	2	8	132	0.36	20	15,206.40	0.0183326	278.77
Paving	Rollers	2	8	80	0.38	20	9,728.00	0.0194042	188.76
Building Construction	Cranes	1	7	231	0.29	313	146,775.09	0.0148849	2,184.73
Building Construction	Forklifts	3	8	89	0.20	313	133,713.60	0.0208047	2,781.87
Building Construction	Generator Sets	1	8	84	0.74	313	155,648.64	0.0423576	6,592.90
Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	313	235,904.97	0.0190266	4,488.47
Building Construction	Welders	1	8	46	0.45	313	51,832.80	0.0258355	1,339.12
Architectural Coating	Air Compressors	1	6	78	0.48	20	4,492.80	0.0275358	123.71

Total Phase 1 Construction Equipment Fuel Consumption (gallons) **22,937.68**

Notes:

Equipment assumptions are provided in the CalEEMod output files.

Source of usage estimates: California Air Resource Board (CARB). 2022. OFFROAD2017 (v1.0.1) Emissions Inventory for Lake County

Website: https://www.arb.ca.gov/orion/. Accessed March 1, 2022.

Construction Equipment Fuel Calculation

OFFROAD2017 (v1.0.1) Emissions Inventory
Region Type: County
Region: Lake
Calendar Year: 2022
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2017 Equipment Types
Units: Emissions: tons/day, Fuel Consumption: gallons/year, Activity: hours/year, HP-Hours: HP-hours/year

Region	CalYr	Vehicle Class	Model Year	HP_Bin	Fuel	Fuel (gallons/year)	Horsepower Hours (HP-hours/year)	Fuel (gallons/HP-hour)
Lake	2022	Construction and Mining - Bore/Drill Rigs	Aggregated	300	Diesel	1202.1117	46738.4889	0.025719952
Lake	2022	Construction and Mining - Cranes	Aggregated	300	Diesel	4286.6045	287984.2662	0.014884857
Lake	2022	Construction and Mining - Excavators	Aggregated	175	Diesel	12745.0724	645082.5709	0.019757273
Lake	2022	Construction and Mining - Graders	Aggregated	175	Diesel	7784.2571	366926.5638	0.021214755
Lake	2022	Construction and Mining - Misc - Cement And Mortar Mixers	Aggregated	25	Diesel	76.6500	2679.1000	0.028610354
Lake	2022	Construction and Mining - Misc - Concrete/Industrial Saws	Aggregated	50	Diesel	58.4000	1324.9500	0.044077135
Lake	2022	Construction and Mining - Pavers	Aggregated	175	Diesel	1684.8709	78267.0537	0.021527205
Lake	2022	Construction and Mining - Paving Equipment	Aggregated	175	Diesel	716.1892	39066.4850	0.018332574
Lake	2022	Construction and Mining - Rollers	Aggregated	100	Diesel	4065.8881	209536.3676	0.019404212
Lake	2022	Construction and Mining - Rough Terrain Forklifts	Aggregated	100	Diesel	10422.8383	500984.2840	0.020804721
Lake	2022	Construction and Mining - Rubber Tired Dozers	Aggregated	300	Diesel	564.5130	27519.3937	0.020513278
Lake	2022	Construction and Mining - Scrapers	Aggregated	300	Diesel	4683.9464	188210.4802	0.024886746
Lake	2022	Construction and Mining - Tractors/Loaders/Backhoes	Aggregated	300	Diesel	6872.2164	361190.1966	0.019026586
Lake	2022	Light Commercial - Misc - Air Compressors	Aggregated	50	Diesel	1580.4500	57396.2500	0.027535771
Lake	2022	Light Commercial - Misc - Welders	Aggregated	50	Diesel	7274.4500	281568.3000	0.025835472
Lake	2022	Light Commercial - Misc - Generator Sets	Aggregated	50	Diesel	23662.9500	558647.1000	0.042357599

Operational Fuel Calculation—Project-generated Operational Trips

California Air Resource Board (CARB). 2022. EMFAC2017 Web Database (v1.0.2). Website: https://arb.ca.gov/emfac/2017/. Accessed March 1, 2022.

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: LAKE
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

VMT = Vehicle Miles Traveled
FE = Fuel Economy

			Given						*Calculations*	
Region	Calendar Year	Vehicle Class	Model Year	Speed	Fuel	Population	VMT	Fuel Consumption	FE	VMT*FE
LAKE	2023	LDA	Aggregated	Aggregated	GAS	29434.20868	1141719.944	37.12063226	30.75701772	35115900.55
LAKE	2023	LDA	Aggregated	Aggregated	DSL	355.6459773	13720.08867	0.287832324	47.66694894	653994.7663
								Weighted Average Fuel Economy		**30.95781201**
LAKE	2023	LDT1	Aggregated	Aggregated	GAS	4385.975578	137682.1671	5.459299375	25.21975032	3472309.879
LAKE	2023	LDT1	Aggregated	Aggregated	DSL	5.460392193	62.84018462	0.002541937	24.72137369	1553.495687
LAKE	2023	LDT2	Aggregated	Aggregated	GAS	12536.92296	447644.1433	18.94714028	23.6259476	10576017.07
LAKE	2023	LDT2	Aggregated	Aggregated	DSL	61.19677549	2657.87013	0.072141479	36.84246777	97922.49459
LAKE	2023	MDV	Aggregated	Aggregated	GAS	10272.96747	337359.7881	17.36721619	19.42509291	6553245.229
LAKE	2023	MDV	Aggregated	Aggregated	DSL	246.8474215	10027.71449	0.374438981	26.78063719	268548.5837
								Weighted Average Fuel Economy		**22.41695835**
LAKE	2023	LHDT1	Aggregated	Aggregated	GAS	1632.713785	48446.0497	5.908082898	8.199961061	397255.7211
LAKE	2023	LHDT1	Aggregated	Aggregated	DSL	1976.752594	62191.97236	3.576824987	17.38747984	1081361.666
LAKE	2023	LHDT2	Aggregated	Aggregated	GAS	112.0084189	3762.29871	0.514774664	7.308632255	27497.25771
LAKE	2023	LHDT2	Aggregated	Aggregated	DSL	551.6075895	18420.5953	1.183565351	15.56364866	286691.6734
LAKE	2023	MHDT	Aggregated	Aggregated	GAS	92.24441592	3949.107918	0.825094211	4.786250908	18901.42136
LAKE	2023	MHDT	Aggregated	Aggregated	DSL	461.602688	25518.35282	2.806375952	9.092991549	232038.1665
LAKE	2023	HHDT	Aggregated	Aggregated	GAS	0.456203231	21.29816026	0.005049729	4.217683684	89.82890302
LAKE	2023	HHDT	Aggregated	Aggregated	DSL	400.4298278	36169.37193	5.671643169	6.377229817	230660.3971
								Weighted Average Fuel Economy		**11.45962845**
LAKE	2023	MCY	Aggregated	Aggregated	GAS	2527.298736	13549.37632	0.379536435	35.69980399	483710.0788
								Weighted Average Fuel Economy		**35.69980399**
LAKE	2023	MH	Aggregated	Aggregated	GAS	389.1935176	2817.296681	0.607518578	4.637383589	13064.88539
LAKE	2023	MH	Aggregated	Aggregated	DSL	133.3249002	1055.543572	0.110148688	9.582897377	10115.16573
LAKE	2023	SBUS	Aggregated	Aggregated	GAS	8.928605676	427.9190705	0.045491837	9.406502297	4025.221719
LAKE	2023	SBUS	Aggregated	Aggregated	DSL	72.77412822	2299.399273	0.28304994	8.123652218	18679.52
LAKE	2023	OBUS	Aggregated	Aggregated	GAS	22.38922425	794.1923988	0.168148231	4.723168331	3751.104387
LAKE	2023	OBUS	Aggregated	Aggregated	DSL	5.811663712	682.3648603	0.101897682	6.696569009	4569.503377
								Weighted Average Fuel Economy		**6.711317022**

Operational Fuel Calculation—Project Full Buildout Operational Trips (Page 2 of 2)
Total Operational VMT

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	896.00	896.00	896.00	3,331,972	3,331,972
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	514.00	514.00	514.00	1,911,422	1,911,422
Total	1,410.00	1,410.00	1,410.00	5,243,394	5,243,394

	Annual VMT (miles)
Total Operational VMT	**5,243,394**

By Vehicle Type

	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Project Buildout	0.456449	0.066493	0.191214	0.159357	0.054432	0.010008	0.008352	0.006045	0.000425	0	0.038112	0.001232	0.00788

Residential Land Uses

	Fraction of 1	Percent of Vehicle Trips	Annual VMT	Average Fuel Economy (miles/gallon)	Average Daily Fuel Consumption (gallons)	Total Annual Fuel Consumption (gallons)	Daily VMT
Passenger Cars (LDA)	0.4564	45.6	2,393,342	30.96	211.8	77,310	6557
Light Trucks and Medium Vehicles (LDT1, LDT2, and MDV)	0.4171	41.7	2,186,831	22.42	267.3	97,553	5991
Light-Heavy to Heavy-Heavy Diesel Trucks	0.0788	7.9	413,373	11.46	98.8	36,072	1133
Motorcycles	0.0381	3.8	199,836	35.70	15.3	5,598	547
Other	0.0095	1.0	50,006	6.71	20.4	7,451	137
Total	**—**	**100.0**	**5,243,394**	**—**	**613.7**	**223,983**	**14,365**

Project Operations Natural Gas Use

Source: CalEEMod Output

kBTU/yr = kilo-British Thermal Units/year

	Natural Gas Use (kBTU/yr)
Apartments Low Rise	1,327,000
Other Asphalt Surfaces	0
Single Family Housing	534,137
Project Total	**1,861,137 kBTU/yr**

Project Operations Electricity Use

Source: CalEEMod Output

kWh/yr = kilowatt hours per year

	Electricity Use (kWh/yr)
Apartments Low Rise	530,994
Other Asphalt Surfaces	0
Single Family Housing	381,908
Project Total	**912,902 kWh/yr**

Note: The estimates above represent total estimated electricity consumption on an annual basis from operations of the proposed project.

ATTACHMENT D
Additional Supporting Information

Lake County Shopping Center Project Construction Assumptions

Construction Phase

Phase Name	Start Date	End Date	Days/Week	Construction Days	
Site Preparation	6/1/2022	6/14/2022	5	10	
Grading	6/15/2022	7/26/2022	5	30	
Paving	7/27/2022	8/23/2022	5	20	
Building Construction	8/24/2022	11/5/2023	5	313	Adjusted to match 18-month schedule
Architectural Coating	11/6/2023	12/1/2023	5	20	

OffRoad Equipment

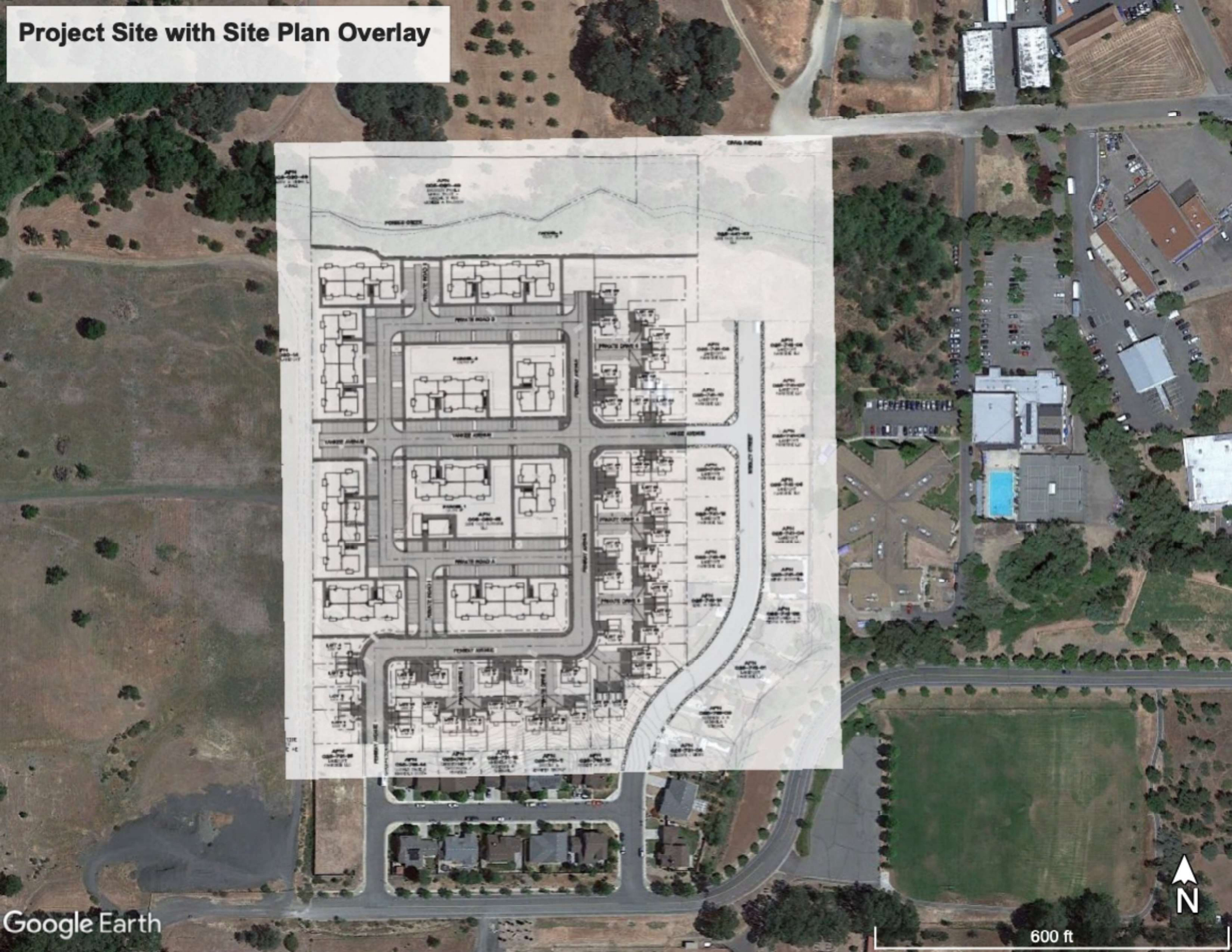
Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37
Grading	Excavators	2	8	158	0.38
Grading	Graders	1	8	187	0.41
Grading	Rubber Tired Dozers	1	8	247	0.40
Grading	Scrapers	2	8	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8	97	0.37
Paving	Pavers	2	8	130	0.42
Paving	Paving Equipment	2	8	132	0.36
Paving	Rollers	2	8	80	0.38
Building Construction	Cranes	1	7	231	0.29
Building Construction	Forklifts	3	8	89	0.20
Building Construction	Generator Sets	1	8	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37
Building Construction	Welders	1	8	46	0.45
Architectural Coating	Air Compressors	1	6	78	0.48

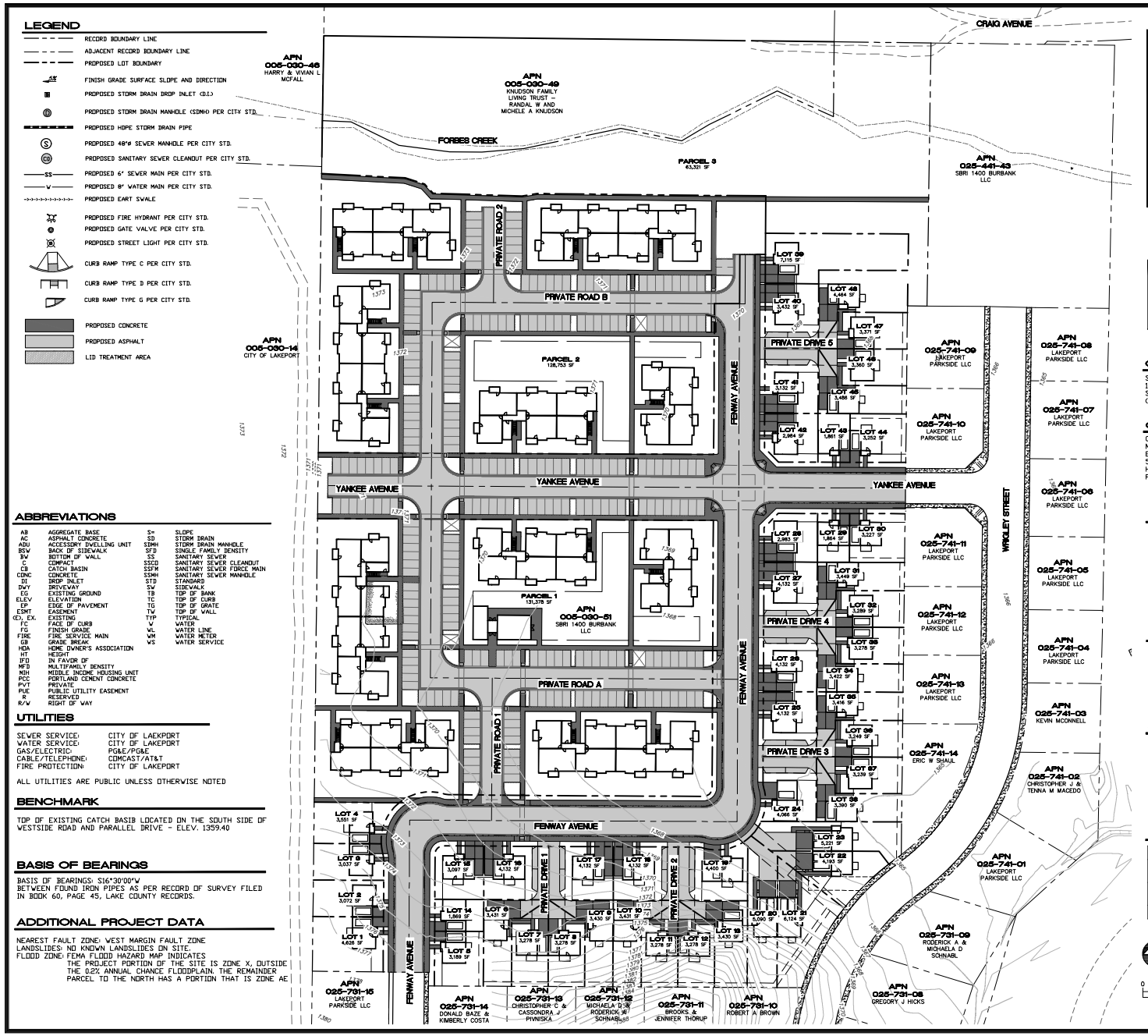
Construction Trips and VMT

Phase Name	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length
Site Preparation	18	0	14	16.8	6.6	20
Grading	20	0	516	16.8	6.6	20
Paving	15	4	12	16.8	6.6	20
Building Construction	152	36	18	16.8	6.6	20
Architectural Coating	30	0	2	16.8	6.6	20

Project Site with Site Boundary
Legend
Site Boundary
Google Earth
600 ft
N

Project Site with Site Plan Overlay





LEGEND

- RECORD BOUNDARY LINE
- ADJACENT RECORD BOUNDARY LINE
- PROPOSED LOT BOUNDARY
- FINISH GRADE SURFACE SLOPE AND DIRECTION
- PROPOSED STORM DRAIN DROP INLET (DI.)
- PROPOSED STORM DRAIN MANHOLE (SDMH) PER CITY STD.
- PROPOSED HDPE STORM DRAIN PIPE
- PROPOSED 48"ø SEWER MANHOLE PER CITY STD.
- PROPOSED SANITARY SEWER CLEANOUT PER CITY STD.
- PROPOSED 6" SEWER MAIN PER CITY STD.
- PROPOSED 8" WATER MAIN PER CITY STD.
- PROPOSED EART SWALE
- PROPOSED FIRE HYDRANT PER CITY STD.
- PROPOSED GATE VALVE PER CITY STD.
- PROPOSED STREET LIGHT PER CITY STD.
- CURB RAMP TYPE C PER CITY STD.
- CURB RAMP TYPE D PER CITY STD.
- CURB RAMP TYPE G PER CITY STD.
- PROPOSED CONCRETE
- PROPOSED ASPHALT
- LID TREATMENT AREA

ABBREVIATIONS

AB	AGGREGATE BASE	S=	SLOPE
AC	ASPHALT CONCRETE	SD	STORM DRAIN
ADU	ACCESSORY DWELLING UNIT	SDMH	STORM DRAIN MANHOLE
BSW	BACK OF SIDEWALK	SFD	SINGLE FAMILY DENSITY
BW	BOTTOM OF WALL	SS	SANITARY SEWER
C	COMPACT	SSCO	SANITARY SEWER CLEANOUT
CB	CATCH BASIN	SSFM	SANITARY SEWER FORCE MAIN
CONC	CONCRETE	SSMH	SANITARY SEWER MANHOLE
DI	DROP INLET	STD	STANDARD
DWY	DRIVEWAY	SW	SIDEWALK
EG	EXISTING GROUND	TB	TOP OF BANK
ELEV	ELEVATION	TC	TOP OF CURB
EP	EDGE OF PAVEMENT	TG	TOP OF GRATE
ESMT	EASEMENT	TW	TOP OF WALL
(E), EX.	EXISTING	TYP	TYPICAL
FC	FACE OF CURB	W	WATER
FG	FINISH GRADE	WL	WATER LINE
FIRE	FIRE SERVICE MAIN	WM	WATER METER
GB	GRADE BREAK	WS	WATER SERVICE
HOA	HOME OWNER'S ASSOCIATION		
HT	HEIGHT		
IFO	IN FAVOR OF		
MFD	MULTIFAMILY DENSITY		
MIH	MIDDLE INCOME HOUSING UNIT		
PCC	PORTLAND CEMENT CONCRETE		
PVT	PRIVATE		
PUE	PUBLIC UTILITY EASEMENT		
R	RESERVED		
R/W	RIGHT OF WAY		

UTILITIES

SEWER SERVICE:	CITY OF LAKEPORT
WATER SERVICE:	CITY OF LAKEPORT
GAS/ELECTRIC:	PG&E/PG&E
CABLE/TELEPHONE:	COMCAST/AT&T
FIRE PROTECTION:	CITY OF LAKEPORT

ALL UTILITIES ARE PUBLIC UNLESS OTHERWISE NOTED

BENCHMARK

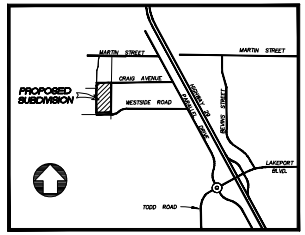
TOP OF EXISTING CATCH BASIB LOCATED ON THE SOUTH SIDE OF WESTSIDE ROAD AND PARALLEL DRIVE - ELEV. 1359.40

BASIS OF BEARINGS

BASIS OF BEARINGS: S16°30'00"W
BETWEEN FOUND IRON PIPES AS PER RECORD OF SURVEY FILED IN BOOK 60, PAGE 45, LAKE COUNTY RECORDS.

ADDITIONAL PROJECT DATA

NEAREST FAULT ZONE: WEST MARGIN FAULT ZONE
LANDSLIDES: NO KNOWN LANDSLIDES ON SITE.
FLOOD ZONE: FEMA FLOOD HAZARD MAP INDICATES THE PROJECT PORTION OF THE SITE IS ZONE X, OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. THE REMAINDER PARCEL TO THE NORTH HAS A PORTION THAT IS ZONE AE



LOCATION MAP
NO SCALE

SHEET INDEX

1	SITE LAYOUT, LEGEND, PROJECT DATA AND NOTES
2	NORTH PORTION PLAN
3	SOUTH PORTION PLAN
4	PHASING PLAN
5	TYPICAL LOT GRADING DETAILS

OWNER
SCHELLINGER BROTHERS
1270 AIRPORT BOULEVARD
SANTA ROSA, CA 95403
(707) 975-1162

DEVELOPER
SCHELLINGER BROTHERS
1270 AIRPORT BOULEVARD
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CIVIL ENGINEER
CORT MUNSELLE
MUNSELLE CIVIL ENGINEERING
513 CENTER STREET
HEALDSBURG, CA 95448
PHONE: (707) 395-0968

ARCHITECT
JON WORDEN
JON WORDEN ARCHITECTS, INC.
33 HEALDSBURG AVE #D
HEALDSBURG, CA 95448

NOTES

1. ALL NAME STREETS ARE PUBLIC AND ALL OTHERS ARE PRIVATE.
2. PAD ELEVATIONS SHOWN ARE ABOVE THE 100-YEAR FLOOD ELEVATION.
3. ANY SEPTIC SYSTEMS OR WELLS WITHIN THE PROJECT LIMITS WILL BE REMOVED IN ACCORDANCE WITH LAKE COUNTY ENVIRONMENTAL HEALTH DEPARTMENT REGULATIONS. ENGINEER IS NOT AWARE OF ADVERSE SOIL CONDITIONS OR HAZARDOUS MATERIALS ON SITE THAT WOULD PREVENT THIS TYPE OF DEVELOPMENT.
4. STORM DRAIN PIPE SIZES SHOWN ARE APPROXIMATE. ACTUAL SIZES WILL BE DETERMINED DURING THE IMPROVEMENT PLAN PHASE.
5. ALL UTILITIES SHOWN ARE PUBLIC UNLESS OTHERWISE NOTED AS PRIVATE (PVT.)
6. THE CLUSTER HOUSES ALONG THE PUBLIC RIGHT OF WAY SHOWN SHALL BE SERVED BY WATER METERS AND SEWER LATERALS WITH CLEANOUTS IN THE PUBLIC RIGHT OF WAY. CLUSTER HOUSES OFF OF PRIVATE DRIVEWAYS SHALL BE SERVED BY WATER METERS AND SEWER LATERALS WITH CLEANOUTS ROUTED THROUGH A PRIVATE ACCESS AND UTILITY EASEMENT. APARTMENT BUILDINGS WILL BE SERVED BY WATER METERS AND SEWER LATERALS WITH CLEANOUTS OFF OF EITHER PUBLIC ROADS OR PRIVATE ROADS DEPENDING ON THE LOCATION OF THE APARTMENT BUILDING.

PROJECT DATA

ADDRESS:	1310 CRAIG AVENUE LAKEPORT, CA 95453
APN:	005-030-51-00
PROPOSED OCCUPANCY TYPE:	SINGLE FAMILY AND MULTIFAMILY RESIDENTIAL
PROPOSED DENSITY: TOTAL NUMBER OF UNITS:	11.5 UNITS/ACRE 174

SITE INFORMATION

EXISTING (GROSS) PARCEL AREA:	15.16 AC
PUBLIC RIGHT-OF-WAY:	2.34 AC
TOTAL NUMBER OF LOTS: AVERAGE LOT SIZE (GROSS): SMALLEST LOT SIZE (GROSS): LARGEST LOT SIZE (GROSS):	51 LOTS (48 LOTS, 45 SFD; PARCEL 3, 1 MFD) 3,745 SF (0.086 AC) 1,861 SF (0.043 AC) 7,115 SF (0.163 AC)

** PROJECT IS NOT LOCATED IN A HIGH FIRE SEVERITY ZONE
** PROJECT WILL REQUIRE A MINOR USE PERMIT FOR A SMALL LOT SUBDIVISION
** PROJECT WILL REQUIRE A MINOR USE PERMIT FOR MULTIFAMILY RESIDENTIAL DEVELOPMENTS

PROJECT ZONING

PARCEL APN	005-030-51
GENERAL PLAN DESIGNATION	LOW DENSITY RES.
CURRENT LAND USE	UNDEVELOPED
PROPOSED USE	RESIDENTIAL

MUNSELLE CIVIL ENGINEERING
• CIVIL ENGINEERING • SURVEYING •
• PLANNING • CONST. MANAGEMENT •
513 CENTER STREET
HEALDSBURG, CA 95448
(707) 395-0968

REGISTERED PROFESSIONAL ENGINEER * CORT C. MUNSELLE * No. 69241 * CIVIL * STATE OF CALIFORNIA

REVISION	DESCRIPTION	BY	DATE

CORT C. MUNSELLE DATE
RCE# 69241

PARKSIDE MASTER PLAN
SITE PLAN, LEGEND, PROJECT DATA, NOTES

APN 005-030-51
1310 CRAIG AVENUE
LAKEPORT, CA 95453

SEPT. 10, 2021

JOB NO.
130-21

SHEET NO.
1
OF 5 SHEETS

P:\MCE JOBS\2021\130-21 LAKEPORT-WATERSTONE\DWGS\130-21 PRELIM M.DWG 9/16/2021 4:13 PM SA

Appendix C – Biological Resources Assessment

BIOLOGICAL RESOURCE EVALUATION

March 2022

LAKEPORT RESIDENTIAL DEVELOPMENT PROJECT
LAKE COUNTY, CALIFORNIA

PREPARED FOR:
Crawford & Bowen Planning, Inc.
113 N. Church Street, Suite 302
Visalia, CA 93291

PREPARED BY:
Colibri Ecological Consulting, LLC
9493 N Fort Washington Road, Suite 108
Fresno, CA 93730
www.colibri-ecology.com

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Executive Summary

The project applicant proposes to construct 163 residential units in Lakeport, Lake County, California. The proposed residential development project (Project) will involve construction on an approximately 13-acre parcel that currently supports fallowed agricultural land.

To evaluate whether the Project may affect biological resources under California Environmental Quality Act (CEQA) purview, we (1) obtained lists of special-status species from the United States Fish and Wildlife Service, the California Department of Fish and Wildlife, and the California Native Plant Society; (2) reviewed other relevant background information such as aerial images and topographic maps; and (3) conducted a field reconnaissance survey at the Project site.

This biological resource evaluation summarizes (1) existing biological conditions on the Project site, (2) the potential for special-status species and regulated habitats to occur on or near the Project site, (3) the potential impacts of the proposed Project on biological resources and regulated habitats, and (4) measures to reduce those potential impacts to less-than-significant levels under CEQA.

We concluded that one special-status wildlife species could occur within the survey area: the state listed as threatened Clear Lake hitch (*Lavinia exilicauda chi*). However, no impacts to this species or its habitat are anticipated. Nesting migratory birds could be impacted by the project, but any impacts can be reduced to less-than-significant levels with mitigation.

Abbreviations

Abbreviation	Definition
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
FCE	Federal Candidate Endangered
FE	Federally listed as Endangered
FESA	Federal Endangered Species Act
FT	Federally listed as Threatened
MBTA	Migratory Bird Treaty Act
NRCS	Natural Resources Conservation Science
SE	State listed as Endangered
SSSC	State Species of Special Concern
ST	State listed as Threatened
SWRCB	State Water Resources Control Board
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 Introduction

1.1 Background

The project applicant proposes to construct a residential development project (the Project) on an approximately 13-acre parcel in Lakeport, Lake County, California. The property currently supports fallowed agricultural land.

The purpose of this biological resource evaluation is to assess whether the Project will affect protected biological resources pursuant to California Environmental Quality Act (CEQA) guidelines. Such resources include species of plants or animals listed or proposed for listing under the Federal Endangered Species Act (FESA) or the California Endangered Species Act (CESA) as well as those covered under the Migratory Bird Treaty Act (MBTA), the California Native Plant Protection Act, and various other sections of California Fish and Game Code (CFGC). This biological resource evaluation also addresses Project-related impacts to regulated habitats, which are those under the jurisdiction of the United States Army Corps of Engineers (USACE), State Water Resources Control Board (SWRCB), or California Department of Fish and Wildlife (CDFW).

1.2 Project Description

The Project will involve constructing 163 residential units.

1.3 Project Location

The approximately 13-acre Project site is within the City of Lakeport, Lake County, California (Figure 1). The Project site is north of Westside Park Road and west of Wrigley Street (Figure 2).

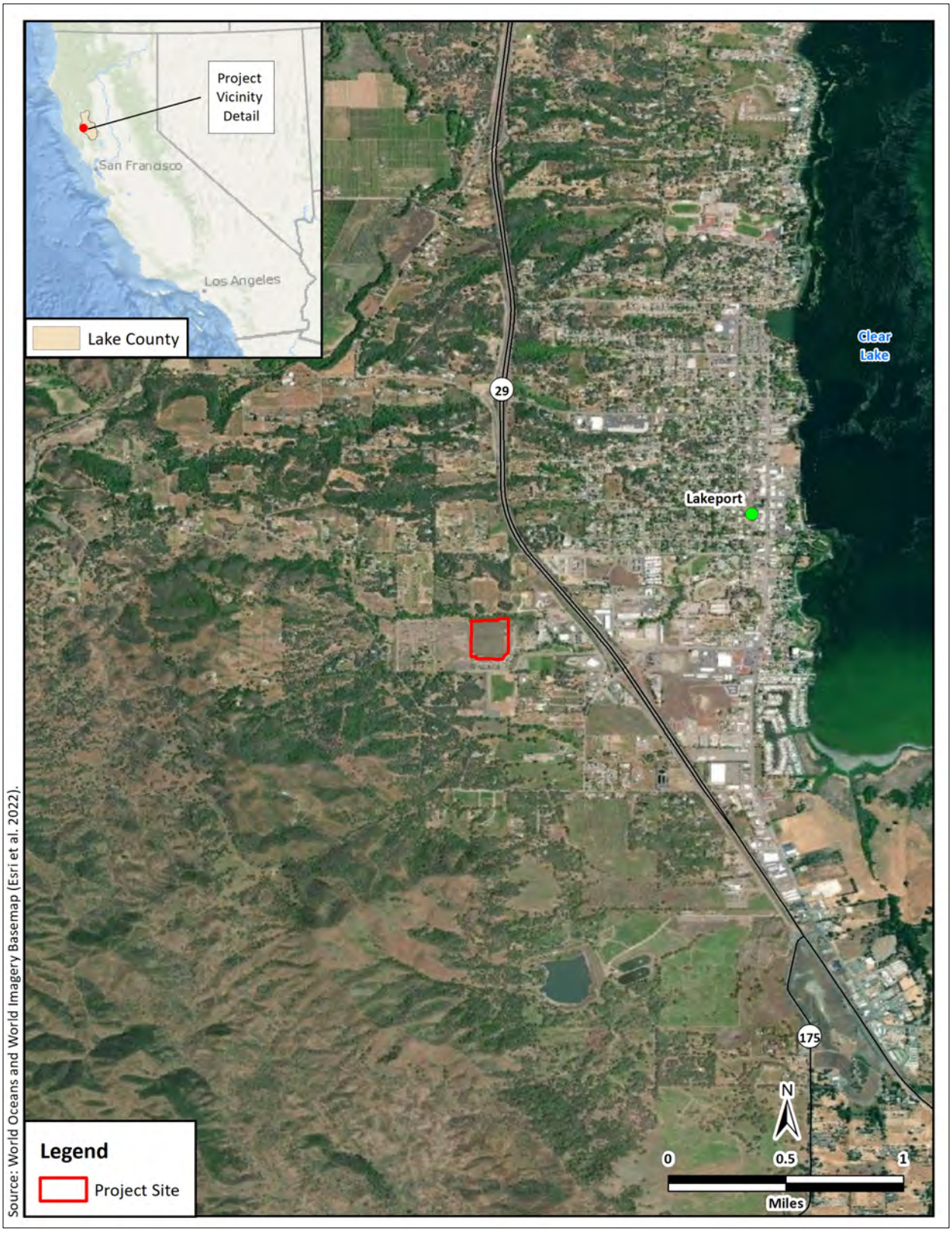

Figure 1. Project site vicinity map.

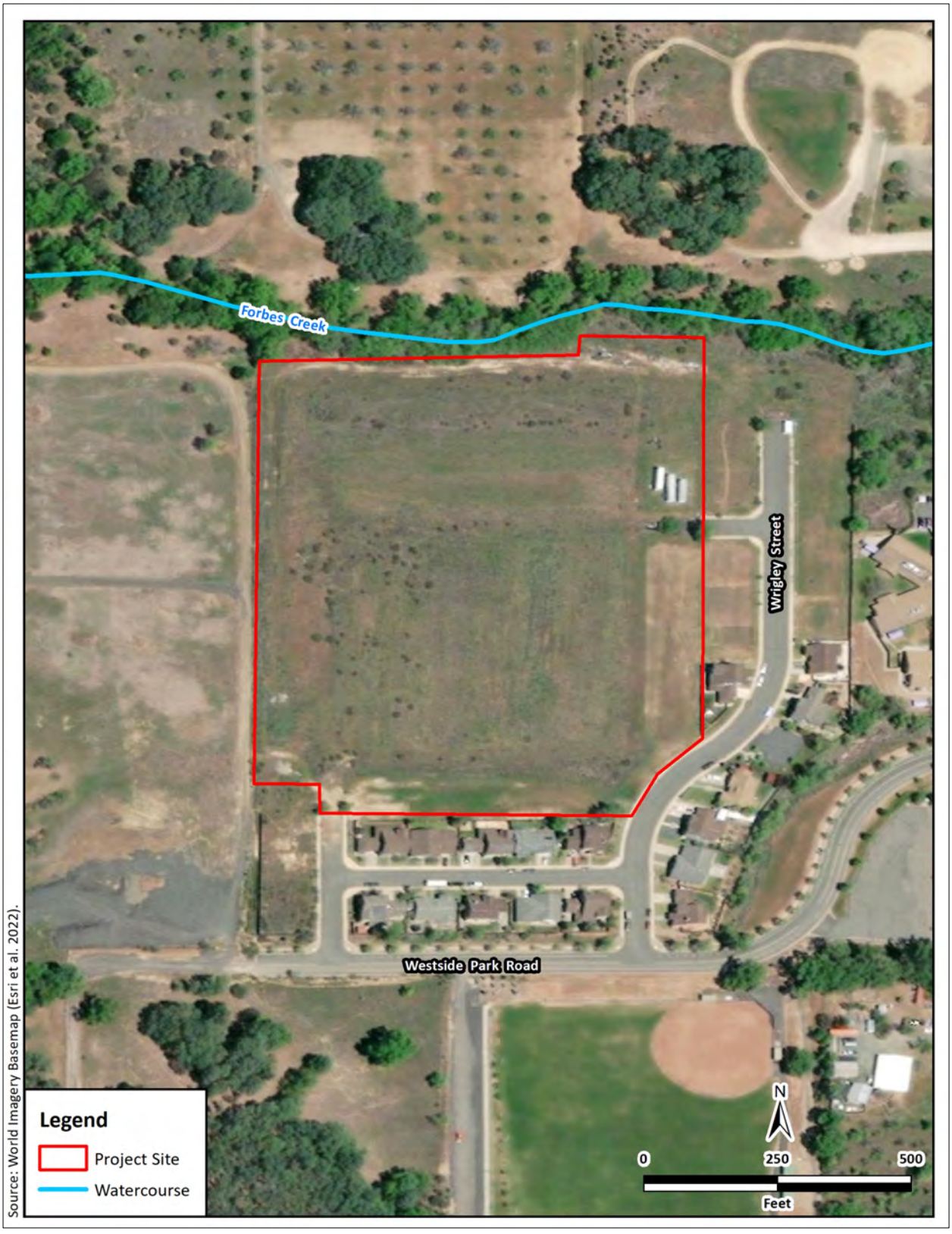

Figure 2. Project site map.

1.4 Purpose and Need of Proposed Project

The purpose of the Project is to develop residential units. The Project is needed to meet growing needs for housing in Lakeport and Lake County.

1.5 Regulatory Framework

The relevant state and federal regulatory requirements and policies that guide the impact analysis of the Project are summarized below.

1.5.1 State Requirements

California Department of Fish and Wildlife Jurisdiction. The CDFW has regulatory jurisdiction over lakes and streams in California. Activities that divert or obstruct the natural flow of a stream; substantially change its bed, channel, or bank; or use any materials (including vegetation) from the streambed, may require that the project applicant enter into a Lake and Streambed Alteration Agreement with the CDFW in accordance with California Fish and Game Code (CFGC) Section 1602.

California Endangered Species Act. The California Endangered Species Act (CESA) of 1970 (Fish and Game Code § 2050 et seq., and California Code of Regulations (CCR) Title 14, Subsection 670.2, 670.51) prohibits the take of species listed under CESA (14 CCR Subsection 670.2, 670.5). Take is defined as hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture, or kill. Under CESA, state agencies are required to consult with the CDFW when preparing CEQA documents. Consultation ensures that proposed projects or actions do not have a negative effect on state listed species. During consultation, CDFW determines whether take would occur and identifies "reasonable and prudent alternatives" for the project and conservation of special-status species. CDFW can authorize take of state listed species under Sections 2080.1 and 2081(b) of the CFGC in those cases where it is demonstrated that the impacts are minimized and mitigated. Take authorized under section 2081(b) must be minimized and fully mitigated. A CESA permit must be obtained if a project will result in take of listed species, either during construction or over the life of the project. Under CESA, CDFW is responsible for maintaining a list of threatened and endangered species designated under state law (Fish and Game Code § 2070). CDFW also maintains lists of species of special concern, which serve as "watch lists." Pursuant to the requirements of CESA, a state or local agency reviewing a proposed project within its jurisdiction must determine whether the proposed project will have a potentially significant impact upon such species. Project-related impacts to species on the CESA list would be considered significant and would require mitigation. Impacts to species of concern or fully protected species would be considered significant under certain circumstances.

California Environmental Quality Act. The California Environmental Quality Act (CEQA) of 1970 (Subsections 21000–21178) requires that CDFW be consulted during the CEQA review process regarding impacts of proposed projects on special-status species. Special-status species are

defined under CEQA Guidelines subsection 15380(b) and (d) as those listed under FESA and CESA and species that are not currently protected by statute or regulation but would be considered rare, threatened, or endangered under these criteria or by the scientific community. Therefore, species considered rare or endangered are addressed in this biological resource evaluation regardless of whether they are afforded protection through any other statute or regulation. The California Native Plant Society (CNPS) inventories the native flora of California and ranks species according to rarity (CNPS 2022). Plants with Rare Plant Ranks 1A, 1B, 2A, or 2B are considered special-status species under CEQA.

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if it can be shown to meet certain specified criteria. These criteria have been modeled after the definition in the FESA and the section of the CFGC dealing with rare and endangered plants and animals. Section 15380(d) allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the United States Fish and Wildlife Service (USFW) or CDFW (i.e., candidate species) would occur. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agency has an opportunity to designate the species as protected, if warranted.

California Native Plant Protection Act. The California Native Plant Protection Act of 1977 (CFGC §§ 1900–1913) requires all state agencies to use their authority to carry out programs to conserve endangered and otherwise rare species of native plants. Provisions of the act prohibit the taking of listed plants from the wild and require the project proponent to notify CDFW at least 10 days in advance of any change in land use, which allows CDFW to salvage listed plants that would otherwise be destroyed.

Nesting birds. CFGC Sections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of birds, their nests, and eggs. CFGC Section 3511 lists birds that are "Fully Protected" as those that may not be taken or possessed except under specific permit.

***Porter-Cologne Water Quality Control Act*.** The Porter-Cologne Water Quality Control Act (California Water Code § 13000 et. sec.) was established in 1969 and entrusts the SWRCB and nine Regional Water Quality Control Boards (collectively Water Boards) with the responsibility to preserve and enhance all beneficial uses of California's diverse waters. The Act grants the Water Boards authority to establish water quality objectives and regulate point- and nonpoint-source pollution discharge to the state's surface and ground waters. Under the auspices of the United States Environmental Protection Agency, the Water Boards are responsible for certifying, under Section 401 of the federal Clean Water Act, that activities affecting waters of the United States comply California water quality standards. The Porter-Cologne Water Quality Control Act addresses all "waters of the State," which are more broadly defined than waters of the Unites States. Waters of the State include any surface water or groundwater, including saline waters, within the boundaries of the state. They include artificial as well as natural water bodies and federally jurisdictional and federally non-jurisdictional waters. The Water Boards may issue a

Waste Discharge Requirement permit for projects that will affect only federally non-jurisdictional waters of the State.

1.5.2 Federal Requirements

Federal Endangered Species Act. The USFWS and the National Oceanographic and Atmospheric Association and National Marine Fisheries Service enforce the provisions stipulated in the FESA of 1973 (FESA, 16 United States Code [USC] § 1531 et seq.). Threatened and endangered species on the federal list (50 Code of Federal Regulations [CFR] 17.11 and 17.12) are protected from take unless a Section 10 permit is granted to an entity other than a federal agency or a Biological Opinion with incidental take provisions is rendered to a federal lead agency via a Section 7 consultation. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct. Pursuant to the requirements of the FESA, an agency reviewing a proposed action within its jurisdiction must determine whether any federally listed species may be present in the proposed action area and determine whether the proposed action may affect such species. Under the FESA, habitat loss is considered an effect to a species. In addition, the agency is required to determine whether the proposed action is likely to jeopardize the continued existence of any species that is listed or proposed for listing under the FESA (16 USC § 1536[3], [4]). Therefore, proposed action-related effects to these species or their habitats would be considered significant and would require mitigation.

Migratory Bird Treaty Act. The federal MBTA (16 USC § 703, Supp. I, 1989) prohibits killing, possessing, trading, or other forms of take of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. "Take" is defined as the pursuing, hunting, shooting, capturing, collecting, or killing of birds, their nests, eggs, or young (16 USC § 703 and § 715n). This act encompasses whole birds, parts of birds, and bird nests and eggs. The MBTA specifically protects migratory bird nests from possession, sale, purchase, barter transport, import, and export, and take. For nests, the definition of take per 50 CFR 10.12 is to collect. The MBTA does not include a definition of an "active nest." However, the "Migratory Bird Permit Memorandum" issued by the USFWS in 2003 and updated in 2018 clarifies the MBTA in that regard and states that the removal of nests, without eggs or birds, is legal under the MBTA, provided no possession (which is interpreted as holding the nest with the intent of retaining it) occurs during the destruction (USFWS 2018).

United States Army Corps of Engineers Jurisdiction. Areas meeting the regulatory definition of "waters of the United States" (jurisdictional waters) are subject to the jurisdiction of the USACE under provisions of Section 404 of the Clean Water Act (1972) and Section 10 of the Rivers and Harbors Act (1899). These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as waters of the United States, tributaries of waters otherwise defined as waters of the United States, the territorial seas, and wetlands adjacent to waters of the United States (33 CFR part 328.3). Ditches and drainage canals where

water flows intermittently or ephemerally are not regulated as waters of the United States. Wetlands on non-agricultural lands are identified using the *Corps of Engineers Wetlands Delineation Manual* and related Regional Supplement (USACE 1987 and 2008). Construction activities, including direct removal, filling, hydrologic disruption, or other means in jurisdictional waters are regulated by the USACE. The placement of dredged or fill material into such waters must comply with permit requirements of the USACE. No USACE permit will be effective in the absence of state water quality certification pursuant to Section 401 of the Clean Water Act. The SWRCB is the state agency (together with the Regional Water Quality Control Boards) charged with implementing water quality certification in California.

2.0 Methods

2.1 Desktop Review

As a framework for the evaluation and reconnaissance survey, we obtained an official USFWS species list for the Project (USFWS 2022a, Appendix A). In addition, we searched the California Natural Diversity Database (CNDDB, CDFW 2022, Appendix B) and the CNPS Inventory of Rare and Endangered Plants (CNPS 2022, Appendix C) for records of special-status plant and animal species from the vicinity of the Project site. Regional lists of special-status species were compiled using USFWS, CNDDB, and CNPS database searches confined to the Lakeport 7.5-minute United States Geological Survey (USGS) topographic quadrangle, which encompasses the Project site, and the eight surrounding quadrangles (Cow Mountain, Upper Lake, Bartlett Mountain, Purdys Gardens, Lucerne, Hopland, Highland Springs, and Kelseyville). A local list of special-status species was compiled using CNDDB records from within 5 miles of the Project site. Species that lack a CEQA-recognized special-status designation by state or federal regulatory agencies or public interest groups were omitted from the final list. Species for which the Project site does not provide habitat were eliminated from further consideration. We also reviewed aerial imagery from Google Earth (Google 2022) and other sources, USGS topographic maps, the Web Soil Survey (NRCS 2022), the National Wetlands Inventory (USFWS 2022b), and relevant literature.

2.2 Reconnaissance Survey

Colibri Senior Scientist Joshua Reece conducted a field reconnaissance survey of the Project site on 23 February 2022. The Project site and a 50-foot buffer surrounding the Project site (Figure 3) were walked and thoroughly inspected to evaluate and document the potential for the area to support state- or federally protected resources. All plants except those under cultivation or planted in residential areas and all vertebrate wildlife species observed within the survey area were identified and documented. The survey area was evaluated for the presence of regulated habitats, including lakes, streams, and other waters using methods described in the *Wetlands Delineation Manual* and regional supplement (USACE 1987, 2008) and as defined by the CDFW (https://www.wildlife.ca.gov/conservation/lsa) or under the Porter-Cologne Water Quality Control Act.

2.3 Significance Criteria

CEQA defines "significant effect on the environment" as "a substantial, or potentially substantial, adverse change in the environment" (California Public Resource Code § 21068). Under CEQA Guidelines Section 15065, a Project's effects on biological resources are deemed significant where the Project would do the following:

a) Substantially reduce the habitat of a fish or wildlife species,
b) Cause a fish or wildlife population to drop below self-sustaining levels,
c) Threaten to eliminate a plant or animal community, or
d) Substantially reduce the number or restrict the range of a rare or endangered plant or animal.

In addition to the Section 15065 criteria, Appendix G within the CEQA Guidelines includes six additional impacts to consider when analyzing the effects of a project. Under Appendix G, a project's effects on biological resources are deemed significant where the project would do any of the following:

e) 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 CDFW or USFWS;

f) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS;

g) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

h) 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;

i) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

j) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

These criteria were used to determine whether the potential effects of the Project on biological resources qualify as significant.

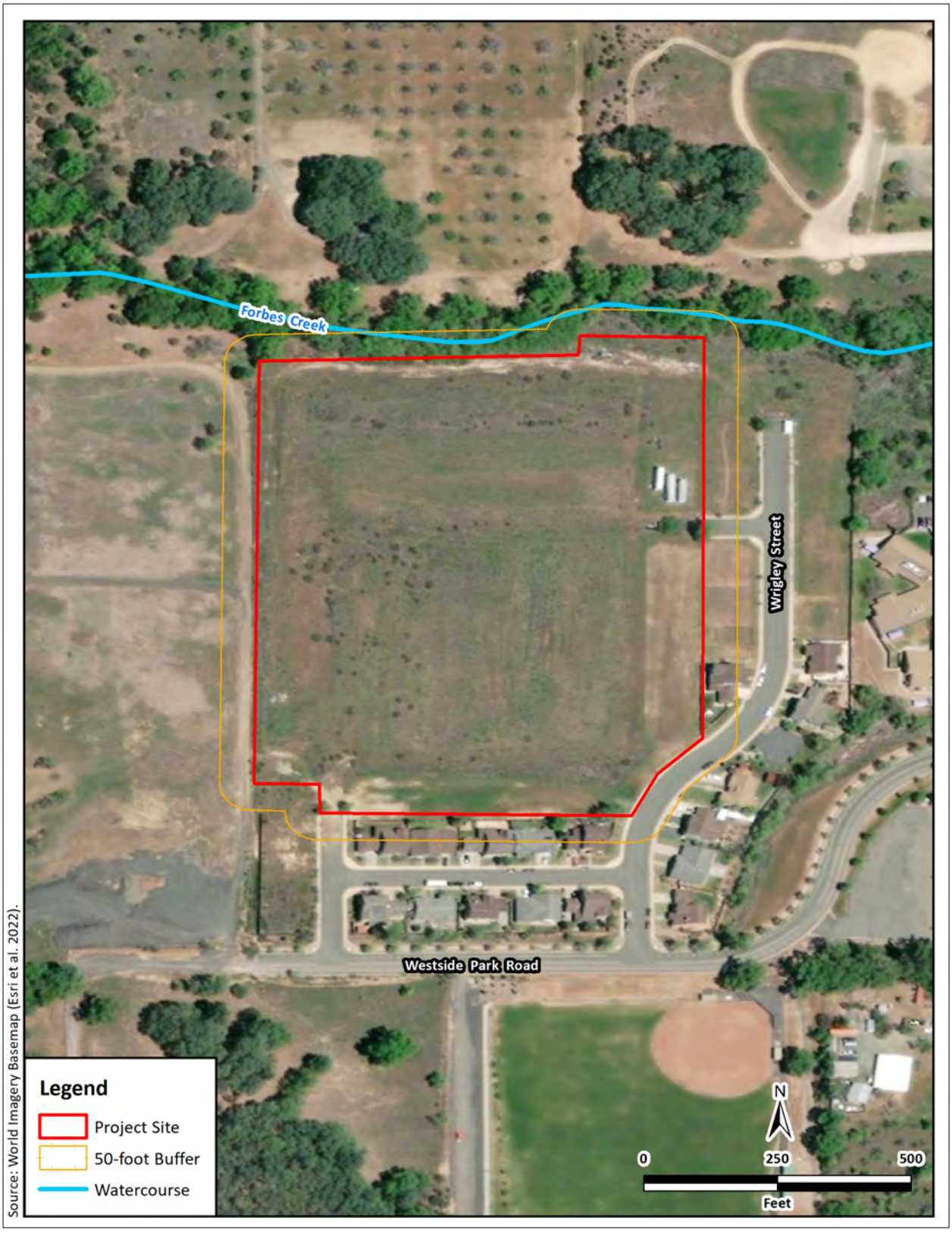

Figure 3. Reconnaissance survey area map.

3.0 Results

3.1 Desktop Review

The USFWS species list for the Project included five species listed as threatened, endangered, or candidate under the FESA (USFWS 2022a, Table 1, Appendix A). Of those five species, none are expected to occur on or near the Project site due to either (1) the lack of habitat, (2) the Project site being outside the current range of the species, or (3) the presence of development that would otherwise preclude occurrence (Table 1). As identified in the species list, the Project site does not occur in USFWS-designated or proposed critical habitat for any species (USFWS 2022a, Appendix A).

Searching the CNDDB for records of special-status species from the Lakeport 7.5-minute USGS topographic and the eight surrounding quads produced 263 records of 71 species (Table 1, Appendix B). Of those 71 species, 24 are not given further consideration because they are not CEQA-recognized as special-status species or are considered extirpated in California (Appendix B). Of the remaining 47 species, 17 are known from within 5 miles of the Project site (Table 1, Figure 4). Of those species, only the Clear Lake hitch (*Lavinia exilicauda chi* – SE) could occur on or near the Project site (Table 1).

Searching the CNPS inventory of rare and endangered plants of California yielded 33 species (CNPS 2022, Appendix C), five of which have a rank of 2B, and 28 of which have a rank of 1B (Table 1). None of those species are expected to occur on or near the Project site due to lack of habitat (Table 1).

The Project site is underlain by Cole variant clay loam and Wappo loam with 2 to 8% slopes (NCRS 2022). The Project site is at an elevation of 1367–1377 feet above mean sea level (Google 2022).

Table 1. Special-status species, their listing status, habitats, and potential to occur on or near the Project site.

Species	Status[1]	Habitat	Potential to Occur[2]
Federally and State-Listed Endangered or Threatened Species			
Bogg's Lake hedge-hyssop (*Gratiola heterosepala*)	SE, 1B.2	Shallow water, margins of vernal pools at or below 5250-ft elevation.	**None.** Habitat lacking; the Project site lacked vernal pools.
Burke's goldfields (*Lasthenia burkei*)	FE, SE, 1B.1	Vernal pools and undisturbed wet meadows below 1640 feet elevation.	**None.** Habitat lacking; the Project site lacked vernal pools or undisturbed meadows.
Few-flowered navarretia (*Navarretia leucocephala* ssp. *pauciflora*)	FE, ST, 1B.1	Vernal pools at 1300–2950 feet elevation.	**None.** Habitat lacking; the Project site lacked vernal pools.
Many-flowered navarretia (*Navarretia leucocephala* ssp. *plieantha*)	FE, SE, 1B.1	Vernal pools at 2600-3600 feet elevation.	**None.** Habitat lacking; the Project site lacked vernal pools and is below the elevational range of this species.
Slender Orcutt grass (*Orcuttia tenuis*)	FT, SE, 1B.1	Vernal pools at 650–3600 feet elevation.	**None.** Habitat lacking; the Project site lacked vernal pools.
Monarch California overwintering population (*Danaus plexippus*)	FCE	Groves of trees within 1.5 miles of the ocean that produce suitable micro-climates for overwintering such as high humidity, dappled sunlight, access to water and nectar, and protection from wind.	**None.** Habitat lacking; the Project site is not within 1.5 miles of the ocean.
Clear Lake hitch[3] (*Lavinia exilicauda chi*)	ST	Slow-moving streams that are tributaries of Clear Lake, California.	**Low.** Forbes Creek within the survey area could support this species.

Delta smelt (*Hypomesus transpacificus*)	FT, SE	Shallow, fresh or slightly brackish backwater sloughs and edgewaters.	**None.** Habitat lacking; Project site lacked connectivity to the aquatic habitat this species requires.
California red-legged frog (*Rana draytonii*)	FT, SSSC	Creeks, ponds, and marshes for breeding; burrows for upland refuge.	**None.** Habitat lacking; the Project site is outside the current known range of this species.
Foothill yellow-legged frog[3] (*Rana boylii*)	SE, SSSC	Perennial streams and rivers with rocky substrates, and with open, sunny banks may be in forests, chaparral, or woodlands.	**None.** Habitat lacking; Forbes Creek within the survey area lacked rocky substrates or open, sunny banks.
Northern spotted owl (*Strix occidentalis caurina*)	FT, ST	Old growth forests with high canopy layers.	**None.** Habitat lacking; the Project site lacked old growth trees.
Tricolored blackbird[3] (*Agelaius tricolor*)	ST	Large freshwater marshes with dense stands of cattails or bulrushes.	**None.** Habitat lacking; the Project site lacked dense stands of cattails or bulrushes.
Humboldt marten (*Martes caurina humboldtensis*)	FT, SE	Old growth coastal forests of extreme northern California.	**None.** Habitat lacking; the Project site lacked old growth trees and is outside the current known range of this species.
State Species of Special Concern			
Clear Lake Tule perch[3] (*Hysterocarpus traskii lagunae*)	SSSC	Endemic to Clear Lake, Upper and Lower Blue lakes in Lake County, California.	**None.** Habitat lacking; the Project site is outside the current known local range of this species.
Sacramento perch[3] (*Archoplites interruptus*)	SSSC	Currently known only from Clear Lake, Alameda Creek, and ponds within the Calaveras Reservoir.	**None.** Habitat lacking; the Project site is outside the current known local range of this species.

Northwestern pond turtle[3] (*Actinemys marmorata*)	SSSC	Ponds, rivers, marshes, streams, and irrigation ditches, usually with aquatic vegetation and woody debris for basking and adjacent natural upland areas for egg laying.	**None.** Habitat lacking; Forbes Creek within the survey area lacked aquatic vegetation and woody debris and adjacent natural upland habitat.
Purple martin (*Progne subis*)	SSSC	Montane forests or lowlands containing dead snags or tree cavities for nesting.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.
Grasshopper sparrow (*Ammodramus savannarum*)	SSSC	Open grassland with patches of bare ground.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.
American badger[3] (*Taxidea taxus*)	SSSC	Open areas including meadows, grasslands, and chaparral with less than 50% plant cover.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.
Pacific fisher – Northern California/Southern Oregon DPS[3] (*Pekania pennanti*)	SSSC	Tree cavities, hollow logs, and snags, and rock crevices used for den sites.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover and lacked denning or foraging habitat.
Pallid bat (*Antrozous pallidus*)	SSSC	Arid or semi-arid locations in rocky areas and sparsely vegetated grassland near water. Rock crevices, caves, mine shafts, bridges, building, and tree hollows for roosting.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover and lacked roosting habitat.
Red-bellied newt[3] (*Taricha rivularis*)	SSSC	Streams and rivers in coastal woodlands and redwood forests.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.

Townsend's big-eared bat (*Corynorhinus townsendii*)	SSSC	Open buildings, caves, or mines for roosting in a variety of habitats including cismontane woodland and low elevation conifer forest.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover and lacked roosting habitat.
California Rare Plants			
Anthony Peak lupine (*Lupinus antoninus*)	1B.2	Openings in yellow pine, red fir, or lodgepole forests below 6695 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.
Beaked tracyina[3] (*Tracyina rostrata*)	1B.2	Undisturbed grassy slopes at 328–1310 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover and is above the known elevational range of this species.
Bent-flowered fiddleneck[3] (*Amsinckia lunaris*)	1B.2	Gravelly slopes, grassland, openings in woodland, often serpentine at 150-2400 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.
Bolander's catchfly (*Silene bolanderi*)	1B.2	Serpentine and non-serpentine soils in oak and conifer woodland below 3280 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.
Bolander's horkelia (*Horkelia bolanderi*)	1B.2	Edges of vernally wet places in pine forest at 1475–3610 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover and is below the elevational range of this species.
Brandegee's eriastrum (*Eriastrum brandegeeae*)	1B.1	Open flats of volcanic soils and shales at 1310–3280 feet elevation.	**None.** Habitat lacking; the Project site lacked volcanic soils and shales.

Bristly sedge (*Carex comosa*)	2B.1	Wet places below 1200 feet elevation.	**None.** Habitat lacking; the Project site is above the known elevational range of this species.
Colusa layia[3] (*Layia septentrionalis*)	1B.2	Serpentine or sandy soils at 328–2950 feet elevation.	**None.** Habitat lacking; the Project site lacked serpentine or sandy soils.
Eel-grass pondweed (*Potamogeton zosteriformis*)	2B.2	Ponds, lakes, streams, and freshwater marshes with open canopies at or below 4270 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover and lacked suitable aquatic resources for this species.
Glandular western flax[3] (*Hesperolinon adenophyllum*)	1B.2	Serpentine soils in chaparral at 490–3280 feet elevation.	**None.** Habitat lacking; the Project site lacked serpentine soils.
Hall's harmonia (*Harmonia hallii*)	1B.2	Open sites and disturbed areas in serpentine chaparral at 1640–3280 feet elevation.	**None.** Habitat lacking; the Project site is below the known elevational range of this species.
Hoffman's bristly jewelflower (*Streptanthus glandulosus* ssp. *hoffmanii*)	1B.3	Serpentine outcrops around 410 feet elevation.	**None.** Habitat lacking; the Project site is above the known elevational range of this species.
Koch's cord moss (*Entosthodon kochii*)	1B.3	Soil in cismontane woodland 590–3280 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.
Konocti manzanita[3] (*Arctostaphylos manzanita* ssp. *elegans*)	1B.3	Volcanic soils in woodland, chaparral, or conifer forest at 720–6070 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover and lacked volcanic soils.

Serpentine cryptantha[3] (*Cryptantha dissita*)	1B.2	Rocky outcrops, gravelly slopes, and serpentine soils in chaparral and foothill woodland at 490–2950 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.
Legenere (*Legenere limosa*)	1B.1	Wet areas, vernal pools, ponds below 2850 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover and lacked suitable wetland resources for this species.
Marsh checkerbloom (*Sidalcea oregana* ssp. *hydrophila*)	1B.2	Wet soil of streambanks and meadows in pine forests at 1440–7550 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.
Napa bluecurls (*Trichostema ruygtii*)	1B.2	Open areas with thin seasonally saturated clay soils at 100–1970 feet elevation.	**None.** Habitat lacking; the Project site is outside the current known local range of this species.
Napa lomatium (*Lomatium repostum*)	1B.2	Serpentine soils in pine/oak woodland and chaparral at 300–2400 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover and lacked serpentine soils.
Oval-leaved viburnum (*Viburnum ellipticum*)	2B.3	Chaparral, woodland, and conifer forests; 700–4600 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.
Raiche's manzanita (*Arctostaphylos stanfordiana* ssp. *raichei*)	1B.1	Chaparral at 1300–3100 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.
Rincon Ridge ceanothus (*Ceanothus confusus*)	1B.1	Chaparral or woodland with volcanic slopes.	**None.** Habitat lacking; the Project site consisted of fallowed

			agricultural land cover.
Sonomoa beardtongue (*Penstemon newberryi* var. *sonomensis*)	1B.3	Outcrops and talus in Lake, Napa, and Sonoma counties at 1640–7870 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.
Small ground-cone (*Kopsiopsis hookeri*)	2B.3	Open woodland, mixed conifer forest, generally on *Gaultheria shallon*, occasionally on *Arbutus menziesii* or *Arctostaphylos uva-ursi* below 2300 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.
Small-flowered calycadenia[3] (*Calycadenia micrantha*)	1B.2	Dry, open, rocky ridges, hillsides and talus slopes or openings in scrub or woodland at 1640–4920 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.
Toren's grimmia (*Grimmia torenii*)	1B.3	Chaparral, cismontane woodland, lower montane coniferous forest; openings in rocky boulders and rock walls at 1065–3805 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover.
Two-carpellate western flax (*Hesperolinon bicarpellatum*)	1B.2	Serpentine soils in chaparral at 200–3280 feet elevation.	**None.** Habitat lacking; the Project site consisted of fallowed agricultural land cover and lacked serpentine soils.
Watershield[3] (*Brasenia schreberi*)	2B.3	Ponds and slow-moving streams with an open canopy below 6600 feet elevation.	**None.** Habitat lacking; Forbes Creek within the survey area supported a dense, closed canopy.

CDFW (2022), CNPS (2022), USFWS (2022).

Status[1]	**Potential to Occur**[2]	
FE = Federally listed Endangered	None:	Species or sign not observed; conditions unsuitable for occurrence.
FT = Federally listed Threatened	Low:	Neither species nor sign observed; conditions marginal for occurrence.
FCE = Federal Candidate Endangered	Moderate:	Neither species nor sign observed; conditions suitable for occurrence.
SE = State listed Endangered	High:	Neither species nor sign observed; conditions highly suitable for occurrence.
ST = State listed Threatened	Present:	Species or sign observed; conditions suitable for occurrence.
SSSC = State Species of Special Concern		

CNPS California Rare Plant Rank[1]**:**	**Threat Ranks**[1]**:**
1B – plants rare, threatened, or endangered in California and elsewhere.	0.1 – seriously threatened in California (> 80% of occurrences).
2B – plants rare, threatened, or endangered in California but more common elsewhere.	0.2 – moderately threatened in California (20-80% of occurrences).
3 – plants about which more information is needed.	0.3 – not very threatened in California (<20% of occurrences).
4 – plants have limited distribution in California.	

[3]Record from within 5 miles of the Project site.

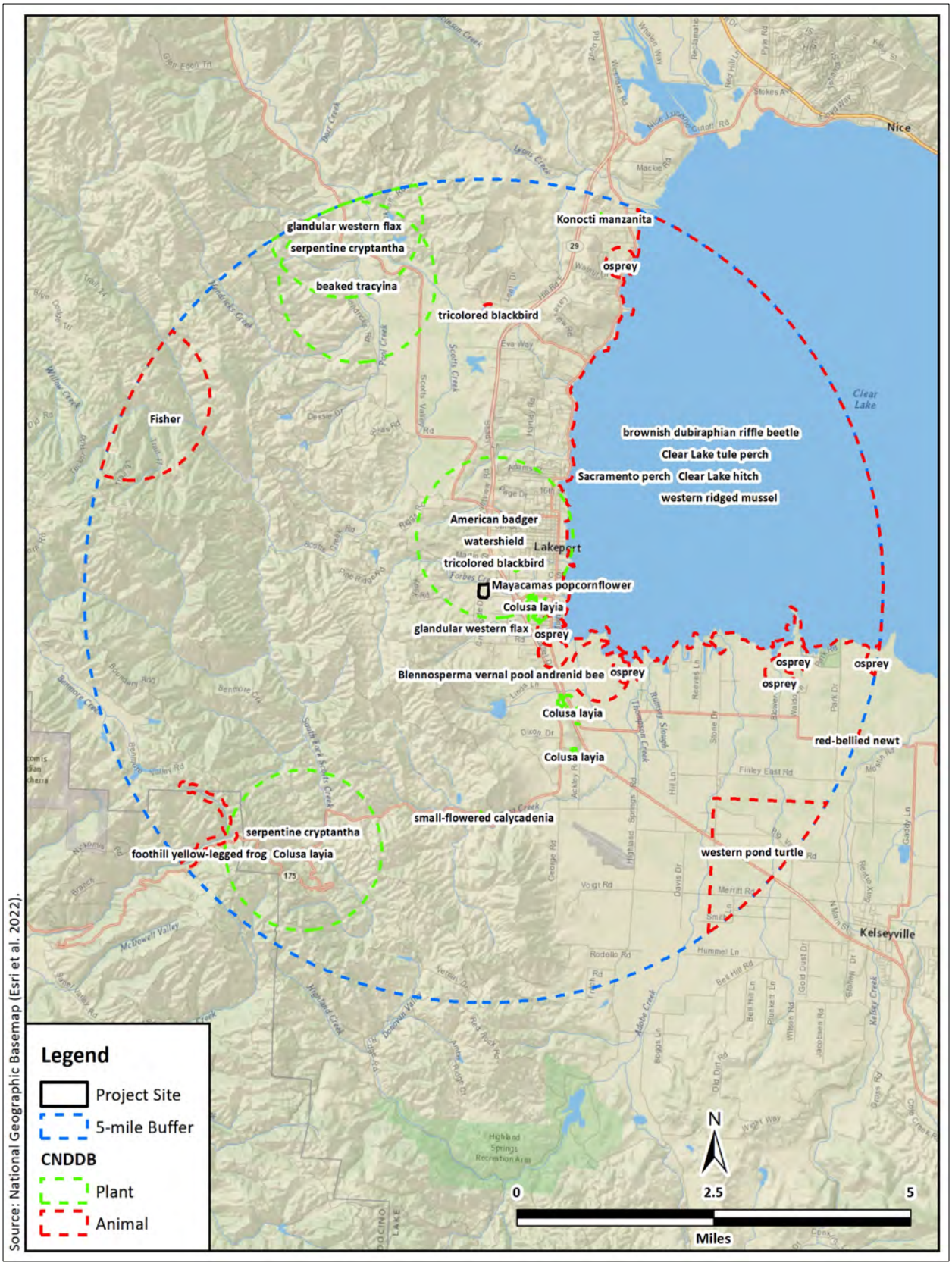

Figure 4. CNDDB occurrence map.

3.2 Reconnaissance Survey

3.2.1 Land Use and Habitats

The Project site consisted of fallowed agricultural land. It supported an orchard from at least 1993 until 2006 and a regularly disturbed fallowed field from 2006 to the 2022 (Google 2022). The project site was bordered by single-family residences to the east (Figure 5) and an unnamed drainage ditch and fallowed agricultural fields to the west (Figure 6). This ditch drains into Forbes Creek at the northern edge of the Project site (Figures 7–8). Additional single-family residences bordered the Project site to the south (Figure 9). The unnamed drainage ditch was dry, and Forbes Creek held water at the time of the survey.

Figure 5. Photograph of the Project site, looking east, showing the fallowed agricultural fields consisting of annual grasses and forbs bordered by dense residential development.

Figure 6. Photograph of the Project site, looking north, showing an unnamed drainage ditch that borders the western edge of the Project site and fallowed agricultural fields to the west.

Figure 7. Photograph of the northwestern corner of the Project site, looking north, showing the intersection of the unnamed drainage ditch and Forbes Creek.

Figure 8. Photograph of the Project site, looking east-northeast, showing dense riparian vegetation around Forbes Creek.

Figure 9. Photograph of the Project site, looking south, showing the Project site and single-family residences to the south.

3.2.2 Plant and Animal Species Observed

A total of 12 plant species (five native and seven nonnative), 12 bird species, and one mammal species were observed during the survey (Table 2).

Table 2. Plant and animal species observed during the reconnaissance survey.

Common Name	Scientific Name	Status
Plants		
Family Asteraceae		
Coyote brush	*Baccharis pilularis*	Native
Yellow star-thistle	*Centaurea solstitialis*	Nonnative
Family Brassicaceae		
Black mustard	*Brassica nigra*	Nonnative
Family Fabaceae		
Spring vetch	*Vicia sativa* ssp. *sativa*	Nonnative
Family Fagaceae		
Interior live oak	*Quercus wislizeni*	Native
Family Poaceae		
Meadow foxtail	*Alopecurus pratensis*	Nonnative
Medusa head	*Elymus caput-medusae*	Nonnative
Family Polygonaceae		
Curly dock	*Rumex crispus*	Nonnative
Family Rosaceae		
Himalayan blackberry	*Rubus armeniacus*	Nonnative
Toyon	*Heteromeles arbutifolia*	Native
Family Salicaceae		
Fremont cottonwood	*Populus fremontii* ssp. *fremontii*	Native
Scouler's willow	*Salix scouleriana*	Native
Birds		
Family Accipitridae		
Red-tailed hawk	*Buteo jamaicensis*	MBTA, CFGC
Family Cathartidae		
Turkey vulture	*Cathartes aura*	MBTA, CFGC
Family Columbidae		
Mourning dove	*Zenaida macroura*	MBTA, CFGC

Family Corvidae		
American crow	*Corvus brachyrhynchos*	MBTA, CFGC
California scrub-jay	*Aphelocoma californica*	MBTA, CFGC
Family Icteridae		
Brewer's blackbird	*Euphagus cyanocephalus*	MBTA, CFGC
Red-winged blackbird	*Agelaius phoeniceus*	MBTA, CFGC
Family Odontophoridae		
California quail	*Callipepla californica*	MBTA, CFGC
Family Passerellidae		
Golden-crowned sparrow	*Zonotrichia atricapilla*	MBTA, CFGC
Family Sturnidae		
European starling	*Sturnus vulgaris*	--
Family Trochilidae		
Anna's hummingbird	*Calypte anna*	MBTA, CFGC
Family Tyrannidae		
Black phoebe	*Sayornis nigricans*	MBTA, CFGC
Mammals		
Family Leporidae		
Black-tailed jackrabbit	*Lepus californicus*	Native

MBTA = Protected under the Migratory Bird Treaty Act (16 USC § 703 et seq.); CFGC = Protected under the California Fish and Game Code (FGC §§ 3503 and 3513).

3.2.3 Nesting Birds

Migratory birds could nest on or near the Project site. Bird species that may nest on or near the property include, but are not limited to, the California quail (*Callipepla californica*) and California scrub-jay (*Aphelocoma californica*).

3.2.4 Regulated Habitats

Forbes Creek is within 50 feet of the northern edge of the Project site. As a stream in California, it is under the regulatory jurisdiction of the CDFW; as a potential surface water in California, it may be under the regulatory jurisdiction of the SWRCB; and as a potential tributary of Clear Lake, it may be under the regulatory jurisdiction of the USACE. In addition, an unnamed drainage ditch, which is a tributary of Forbes Creek, is within 50 feet of the Project site. No impacts to these features are anticipated. If impacts to these two features are unavoidable, further delineation of their boundaries and consultation with the CDFW, SWRCB, and/or the USACE may be required.

3.3 Special-Status Species

3.3.1 Clear Lake hitch (*Lavinia exilicauda chi*, ST)

Clear lake hitch is a state listed as threatened fish in the family Cyprinidae. It is a potamodromous species endemic to Clear Lake, Lake County, California. Once locally abundant and commercially harvested, this species is now rare due to habitat loss, overfishing, and invasive species (Thompson et al. 2013). It reaches a maximum size of approximately 14 inches and feeds primarily on macroinvertebrates (Geary and Moyle 1980). Clear Lake hitch reach reproductive maturity within 2–3 years and live to be approximately 6 years old (Geary and Moyle 1980). Spawning occurs in tributary streams and rivers of Clear Lake between February and July (Geary and Moyle 1980). As many as 3000 to 63,000 eggs can be produced by a single female. Fertilized eggs settle into gravel substrate and hatch within 3–7 days (Geary and Moyle 1980). Young hitch may remain in tributary streams or migrate to Clear Lake and inhabit shallow vegetated waters along the shoreline (Feyrer et al. 2019, Young et al. 2021). Adults occupy deeper waters and return to tributary streams for spawning (Geary and Moyle 1980, Young et al. 2021).

There is one 1962 CNDDB record of Clear Lake hitch from within 5 miles of the Project site (CDFW 2022). Forbes Creek along the northern border of the Project site could provide spawning and juvenile foraging habitat for this species. However, Forbes Creek has been heavily modified in and around its connection to Clear Lake and drains into the lake through a heavily urbanized area. The petition to list this species under the CESA cited no evidence of this species in Forbes Creek for several years prior to 2013 (Bonham 2013). Therefore, the potential for this species to occur is low. As no development activities are anticipated to impact Forbes Creek, no impacts to this species are expected, and no mitigation measures are warranted.

4.0 Environmental Impacts

4.1 Significance Determinations

This Project, which will result in temporary and permanent impacts to agricultural land cover, will not: (1) substantially reduce the habitat of a fish or wildlife species (criterion a) as no such habitat is present on the Project site; (2) cause a fish or wildlife population to drop below self-sustaining levels (criterion b) as no such potentially vulnerable population is known from the area; (3) threaten to eliminate a plant or animal community (criterion c) as no such potentially vulnerable communities are known from the area; (4) substantially reduce the number or restrict the range of a rare or endangered plant or animal (criterion d) as no such potentially vulnerable species are known from the area; (5) 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 CDFW or USFWS (significance criterion e); (6) have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS (criterion f) as no riparian habitat or other sensitive natural community was present in the survey area; (7) have a substantial adverse effect on state or federally protected wetlands (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means (criterion g) as no impacts to wetlands will occur; (8) conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (criterion i) as no trees or biologically sensitive areas will be impacted; or (9) conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan (criterion j) as no such plan has been adopted. Thus, these significance criteria are not analyzed further.

The remaining statutorily defined criterion provided the framework for Criterion BIO1 below. This criterion is used to assess the impacts to biological resources stemming from the Project and provide the basis for determinations of significance:

- Criterion BIO1: 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 (significance criterion h).

4.1.1 Direct and Indirect Impacts

4.1.1.1 Potential Impact: Interfere Substantially with Native Wildlife Movements, Corridors, or Nursery Sites (Criterion BIO1)

The Project could impede the use of nursery sites for native birds protected under the MBTA and CFGC. Migratory birds are expected to nest on and near the Project site. Construction disturbance during the breeding season could result in the incidental loss of

fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment or loss of reproductive effort can be considered take under the MBTA and CFGC. Loss of fertile eggs or nesting birds, or any activities resulting in nest abandonment, could constitute a significant effect if the species is particularly rare in the region. Construction activities such as excavating, trenching, and grading that disturb a nesting bird on the Project site or immediately adjacent to the construction zone could constitute a significant impact. We recommend that Mitigation Measure BIO1 (below) be included in the conditions of approval to reduce the potential effect to a less-than-significant level.

Mitigation Measure BIO1. Protect nesting birds.

1. To the extent practicable, construction shall be scheduled to avoid the nesting season, which extends from February through August.
2. If it is not possible to schedule construction between September and January, pre-construction surveys for nesting birds shall be conducted by a qualified biologist to ensure that no active nests will be disturbed during the implementation of the Project. A pre-construction survey shall be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the qualified biologist shall inspect all potential nest substrates in and immediately adjacent to the impact areas. If an active nest is found close enough to the construction area to be disturbed by these activities, the qualified biologist shall determine the extent of a construction-free buffer to be established around the nest. If work cannot proceed without disturbing the nesting birds, work may need to be halted or redirected to other areas until nesting and fledging are completed or the nest has otherwise failed for non-construction related reasons.

4.1.2 Cumulative Effects

The Project will involve developing a 13-acre parcel that currently supports a fallowed agricultural field into a 163-unit residential development. Nesting habitat for migratory birds is present on the Project site. However, implementing Mitigation Measure BIO1 would reduce any contribution to cumulative impacts on biological resources to a less-than-significant level.

4.1.3 Unavoidable Significant Adverse Effects

No unavoidable significant adverse effects on biological resources would occur from implementing the Project.

5.0 Literature Cited

Bonham, C. H. 2013. Report to the Fish and Game Commission: Evaluation of the petition from the Center for Biological Diversity to list the Clear Lake hitch (*Lavinia exilicauda chi*) as Threatened under the California Endangered Species Act (CESA). California Department of Fish and Wildlife, State of California Natural Resources Agency, 20 pages.

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_____. 2022a. IPaC: Information for Planning and Conservation. https://ecos.fws.gov/ipac/. Accessed 4 March 2022.

_____. 2022b. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. http://www.fws.gov/wetlands/. Accessed 4 March 2022.

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Appendix A. USFWS list of threatened and endangered species.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: March 04, 2022
Project Code: 2022-0015769
Project Name: Lakeport Residential Development Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Project Code: 2022-0015769
Event Code: None
Project Name: Lakeport Residential Development Project
Project Type: New Constr - Above Ground
Project Description: The application proposes a residential development project in Lakeport, Lake County, California. The proposed project will involve developing approximately 13 acres of fallow agricultural land and installing 163 residential units comprising a combination of cluster houses and apartment buildings. The project site is northwest of the intersection of Wrigley Street and Westside Park Road.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@39.03522795,-122.93228185318941,14z

Counties: Lake County, California

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. 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.

Birds

NAME	STATUS
Northern Spotted Owl *Strix occidentalis caurina*	Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/1123

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii*	Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/2891

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus*	Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/321

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

Flowering Plants

NAME	STATUS
Burke's Goldfields *Lasthenia burkei*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4338

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

Agency: Colibri Ecological
Name: Josh Reece
Address: 9493 N Ft Washington Rd Ste 108
City: Fresno
State: CA
Zip: 93730
Email jreece@colibri-ecology.com
Phone: 5595004458

Appendix B. CNDDB occurrence records.

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Bartlett Mtn. (3912227) OR Cow Mountain (3912321) OR Upper Lake (3912228) OR Kelseyville (3812287) OR Hopland (3812381) OR Highland Springs (3812288) OR Purdys Gardens (3912311) OR Lakeport (3912218) OR Lucerne (3912217))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Agelaius tricolor tricolored blackbird	G1G2 S1S2	None Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	495 1,430	955 S:8	1	1	0	0	1	5	3	5	7	1	0
Ammodramus savannarum grasshopper sparrow	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	840 1,000	27 S:2	2	0	0	0	0	0	2	0	2	0	0
Amsinckia lunaris bent-flowered fiddleneck	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_UCBG-UC Botanical Garden at Berkeley SB_UCSC-UC Santa Cruz	1,300 2,200	93 S:6	0	2	0	0	0	4	3	3	6	0	0
Andrena blennospermatis Blennosperma vernal pool andrenid bee	G2 S2	None None		1,330 1,400	15 S:3	0	0	0	0	0	3	3	0	3	0	0
Antirrhinum subcordatum dimorphic snapdragon	G3 S3	None None	Rare Plant Rank - 4.3 USFS_S-Sensitive	1,560 1,560	49 S:1	0	0	0	0	0	1	1	0	1	0	0
Antrozous pallidus pallid bat	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	500 950	420 S:2	0	0	0	0	0	2	2	0	2	0	0
Archoplites interruptus Sacramento perch	G2G3 S1	None None	AFS_TH-Threatened CDFW_SSC-Species of Special Concern	1,326 1,326	5 S:1	0	0	0	0	1	0	1	0	0	1	0
Arctostaphylos manzanita ssp. elegans Konocti manzanita	G5T3 S3	None None	Rare Plant Rank - 1B.3	1,404 4,400	69 S:21	0	3	1	0	0	17	17	4	21	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Arctostaphylos stanfordiana ssp. raichei Raiche's manzanita	G3T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	1,200 3,410	13 S:7	1	0	0	0	0	6	6	1	7	0	0
Ardea herodias great blue heron	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	1,350 1,350	156 S:1	0	0	0	0	0	1	1	0	1	0	0
Artemisiospiza belli belli Bell's sage sparrow	G5T2T3 S3	None None	CDFW_WL-Watch List USFWS_BCC-Birds of Conservation Concern	1,525 2,700	61 S:2	2	0	0	0	0	0	2	0	2	0	0
Bombus caliginosus obscure bumble bee	G4? S1S2	None None	IUCN_VU-Vulnerable	900 3,500	181 S:4	0	0	0	0	0	4	4	0	4	0	0
Bombus occidentalis western bumble bee	G2G3 S1	None None	USFS_S-Sensitive	1,400 1,400	306 S:1	0	0	0	0	0	1	1	0	1	0	0
Brasenia schreberi watershield	G5 S3	None None	Rare Plant Rank - 2B.3 IUCN_LC-Least Concern	2,800 2,800	43 S:3	0	0	0	0	0	3	3	0	3	0	0
Calasellus californicus An isopod	G2 S2	None None		1,380 1,380	3 S:1	0	0	0	0	0	1	1	0	1	0	0
Calycadenia micrantha small-flowered calycadenia	G2 S2	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	1,430 4,429	22 S:5	0	0	0	0	0	5	3	2	5	0	0
Carex comosa bristly sedge	G5 S2	None None	Rare Plant Rank - 2B.1 IUCN_LC-Least Concern	982 1,360	31 S:2	0	1	0	0	0	1	1	1	2	0	0
Ceanothus confusus Rincon Ridge ceanothus	G1 S1	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden	3,300 4,000	33 S:2	0	0	0	0	0	2	2	0	2	0	0
Clear Lake Drainage Cyprinid/Catostomid Stream Clear Lake Drainage Cyprinid/Catostomid Stream	GNR SNR	None None		1,400 1,480	2 S:2	0	0	2	0	0	0	2	0	2	0	0
Clear Lake Drainage Resident Trout Stream Clear Lake Drainage Resident Trout Stream	GNR SNR	None None		2,000 2,300	3 S:3	0	2	0	0	0	1	3	0	3	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Clear Lake Drainage Seasonal Lakefish Spawning Stream Clear Lake Drainage Seasonal Lakefish Spawning Stream	GNR SNR	None None		1,340 1,340	1 S:1	0	0	0	1	0	0	1	0	1	0	0
Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh	G3 S2.1	None None		1,328 1,330	60 S:2	0	0	0	0	0	2	2	0	2	0	0
Corynorhinus townsendii Townsend's big-eared bat	G4 S2	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	820 4,618	635 S:6	0	0	0	0	0	6	5	1	6	0	0
Cryptantha dissita serpentine cryptantha	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	1,375 1,400	23 S:5	0	2	0	0	0	3	3	2	5	0	0
Dubiraphia brunnescens brownish dubiraphian riffle beetle	G1 S1	None None		1,330 1,330	1 S:1	0	0	0	0	0	1	1	0	1	0	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	505 2,800	1404 S:11	1	8	1	0	0	1	4	7	11	0	0
Entosthodon kochii Koch's cord moss	G1 S1	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive	900 900	4 S:1	0	0	0	0	0	1	0	1	1	0	0
Erethizon dorsatum North American porcupine	G5 S3	None None	IUCN_LC-Least Concern	470 1,920	523 S:6	0	0	0	0	0	6	0	6	6	0	0
Eriastrum brandegeeae Brandegee's eriastrum	G1Q S1	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	1,680 1,680	6 S:2	0	0	1	0	0	1	2	0	2	0	0
Gonidea angulata western ridged mussel	G3 S1S2	None None		1,326 1,360	157 S:2	0	0	0	0	0	2	2	0	2	0	0
Gratiola heterosepala Boggs Lake hedge-hyssop	G2 S2	None Endangered	Rare Plant Rank - 1B.2 BLM_S-Sensitive	2,790 3,300	99 S:4	0	0	0	0	0	4	1	3	4	0	0
Grimmia torenii Toren's grimmia	G2 S2	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive	1,900 1,900	13 S:1	0	0	0	0	0	1	1	0	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Harmonia hallii Hall's harmonia	G2? S2?	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden		23 S:1	0	0	0	0	0	1	1	0	1	0	0
Hesperolinon adenophyllum glandular western flax	G2G3 S2S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	1,400 3,900	48 S:24	1	8	1	0	0	14	22	2	24	0	0
Hesperolinon bicarpellatum two-carpellate western flax	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	1,900 1,900	25 S:1	0	0	0	0	0	1	1	0	1	0	0
Horkelia bolanderi Bolander's horkelia	G1 S1	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	1,500 2,800	13 S:3	1	1	0	0	0	1	1	2	3	0	0
Hydrochara ricksecker Ricksecker's water scavenger beetle	G2? S2?	None None		2,780 2,780	13 S:1	0	0	0	0	0	1	1	0	1	0	0
Hysterocarpus traskii lagunae Clear Lake tule perch	G5T2T3 S3	None None	CDFW_SSC-Species of Special Concern	1,326 1,360	3 S:3	0	0	0	0	1	2	1	2	2	1	0
Kopsiopsis hookeri small groundcone	G4? S1S2	None None	Rare Plant Rank - 2B.3	1,000 1,000	21 S:1	0	0	0	0	0	1	1	0	1	0	0
Lasionycteris noctivagans silver-haired bat	G3G4 S3S4	None None	IUCN_LC-Least Concern WBWG_M-Medium Priority		139 S:1	0	0	0	0	0	1	1	0	1	0	0
Lasthenia burkei Burke's goldfields	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	1,380 1,380	36 S:1	0	0	0	1	0	0	0	1	1	0	0
Lavinia exilicauda chi Clear Lake hitch	G4T1 S1	None Threatened	AFS_VU-Vulnerable USFS_S-Sensitive	1,326 1,413	4 S:3	0	0	0	0	0	3	3	0	3	0	0
Layia septentrionalis Colusa layia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_UCBG-UC Botanical Garden at Berkeley	485 2,700	69 S:18	3	3	0	0	1	11	12	6	17	1	0

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California Department of Fish and Wildlife

California Natural Diversity Database

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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Legenere limosa legenere	G2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_UCBG-UC Botanical Garden at Berkeley	2,790 2,790	83 S:1	0	1	0	0	0	0	0	1	1	0	0
Limnanthes floccosa ssp. floccosa woolly meadowfoam	G4T4 S3	None None	Rare Plant Rank - 4.2 SB_UCBG-UC Botanical Garden at Berkeley	1,400 1,400	54 S:1	0	0	0	0	0	1	1	0	1	0	0
Linderiella occidentalis California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	2,786 2,786	508 S:1	0	1	0	0	0	0	1	0	1	0	0
Lupinus antoninus Anthony Peak lupine	G2 S2	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	4,000 4,000	6 S:1	0	0	0	0	0	1	1	0	1	0	0
Martes caurina humboldtensis Humboldt marten	G4G5T1 S1	Threatened Endangered	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	4,800 4,800	44 S:1	0	0	0	0	0	1	1	0	1	0	0
Nannopterum auritum double-crested cormorant	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	1,350 1,350	39 S:1	0	0	0	0	0	1	1	0	1	0	0
Navarretia leucocephala ssp. pauciflora few-flowered navarretia	G4T1 S1	Endangered Threatened	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,600 1,600	10 S:1	0	0	0	0	0	1	1	0	1	0	0
Navarretia leucocephala ssp. plieantha many-flowered navarretia	G4T1 S1	Endangered Endangered	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,800 2,800	8 S:1	0	1	0	0	0	0	0	1	1	0	0
Northern Interior Cypress Forest Northern Interior Cypress Forest	G2 S2.2	None None		3,240 3,240	22 S:1	0	0	0	0	0	1	1	0	1	0	0
Northern Volcanic Ash Vernal Pool Northern Volcanic Ash Vernal Pool	G1 S1.1	None None		2,760 2,760	2 S:1	0	1	0	0	0	0	1	0	1	0	0
Orcuttia tenuis slender Orcutt grass	G2 S2	Threatened Endangered	Rare Plant Rank - 1B.1 SB_UCBG-UC Botanical Garden at Berkeley	280 280	100 S:1	0	1	0	0	0	0	0	1	1	0	0

Summary Table Report

California Department of Fish and Wildlife

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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Pandion haliaetus osprey	G5 S4	None None	CDF_S-Sensitive CDFW_WL-Watch List IUCN_LC-Least Concern	570 1,482	504 S:20	0	0	18	0	0	2	19	1	20	0	0
Pekania pennanti Fisher	G5 S2S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern USFS_S-Sensitive	2,200 4,600	555 S:2	0	0	0	0	0	2	2	0	2	0	0
Penstemon newberryi var. sonomensis Sonoma beardtongue	G4T3 S3	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive	4,200 4,200	15 S:1	0	0	0	0	0	1	0	1	1	0	0
Plagiobothrys lithocaryus Mayacamas popcornflower	GX SX	None None	Rare Plant Rank - 1A	1,350 1,350	2 S:1	0	0	0	0	0	1	1	0	1	0	0
Potamogeton zosteriformis eel-grass pondweed	G5 S3	None None	Rare Plant Rank - 2B.2		20 S:1	0	0	0	0	0	1	1	0	1	0	0
Progne subis purple martin	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	2,791 2,791	71 S:1	0	1	0	0	0	0	1	0	1	0	0
Rana boylii foothill yellow-legged frog	G3 S3	None Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	140 2,800	2476 S:24	1	7	4	0	0	12	18	6	24	0	0
Rana draytonii California red-legged frog	G2G3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	1,330 2,331	1671 S:2	0	0	0	0	0	2	2	0	2	0	0
Serpentine Bunchgrass Serpentine Bunchgrass	G2 S2.2	None None			22 S:1	0	0	0	0	0	1	1	0	1	0	0
Sidalcea oregana ssp. hydrophila marsh checkerbloom	G5T2 S2	None None	Rare Plant Rank - 1B.2	1,500 1,500	35 S:1	0	0	0	0	0	1	1	0	1	0	0
Silene bolanderi Bolander's catchfly	G2 S2	None None	Rare Plant Rank - 1B.2	3,050 3,328	30 S:2	0	0	0	0	0	2	0	2	2	0	0
Streptanthus glandulosus ssp. hoffmanii Hoffman's bristly jewelflower	G4T2 S2	None None	Rare Plant Rank - 1B.3 SB_UCSC-UC Santa Cruz	1,300 1,300	16 S:2	0	0	0	0	0	2	2	0	2	0	0

Summary Table Report

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Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Taricha rivularis red-bellied newt	G2 S2	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	900 1,900	136 S:8	0	0	0	0	0	8	8	0	8	0	0
Taxidea taxus American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,350 1,600	594 S:2	0	0	0	0	0	2	2	0	2	0	0
Tracyina rostrata beaked tracyina	G2 S2	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	850 2,600	15 S:6	0	4	0	1	0	1	2	4	6	0	0
Trichostema ruygtii Napa bluecurls	G1G2 S1S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,500 1,500	19 S:1	0	0	0	0	1	0	1	0	0	1	0
Viburnum ellipticum oval-leaved viburnum	G4G5 S3?	None None	Rare Plant Rank - 2B.3		39 S:1	0	0	0	0	0	1	1	0	1	0	0

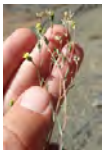
Appendix C. CNPS plant list.

CNPS Rare Plant Inventory

Search Results

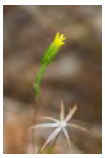
33 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [1B:2B] , 9-Quad include [3912227:3912321:3912228:3812287:3812381:3812288:3912311:3912218:3912217]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	Mar-Jun	None	None	G3	S3	1B.2	© 2011 Neal Kramer
Arctostaphylos manzanita ssp. *elegans*	Konocti manzanita	Ericaceae	perennial evergreen shrub	(Jan)Mar-May(Jul)	None	None	G5T3	S3	1B.3	©2018 Dean Wm. Taylor
Arctostaphylos stanfordiana ssp. *raichei*	Raiche's manzanita	Ericaceae	perennial evergreen shrub	Feb-Apr	None	None	G3T2	S2	1B.1	No Photo Available
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	Jun-Sep	None	None	G5	S3	2B.3	©2014 Kirsten Bovee
Calycadenia micrantha	small-flowered calycadenia	Asteraceae	annual herb	Jun-Sep	None	None	G2	S2	1B.2	 ©2021 Aaron Arthur

Carex comosa	bristly sedge	Cyperaceae	perennial rhizomatous herb	May-Sep	None	None	G5	S2	2B.1	Dean Wm. Taylor 1997
Ceanothus confusus	Rincon Ridge ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Jun	None	None	G1	S1	1B.1	No Photo Available
Cryptantha dissita	serpentine cryptantha	Boraginaceae	annual herb	Apr-Jun	None	None	G3	S3	1B.2	©2019 Terry Gosliner
Entosthodon kochii	Koch's cord moss	Funariaceae	moss		None	None	G1	S1	1B.3	No Photo Available
Eriastrum brandegeeae	Brandegee's eriastrum	Polemoniaceae	annual herb	Apr-Aug	None	None	G1Q	S1	1B.1	No Photo Available
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	None	CE	G2	S2	1B.2	©2004 Carol W. Witham
Grimmia torenii	Toren's grimmia	Grimmiaceae	moss		None	None	G2	S2	1B.3	©2021 Scot Loring
Harmonia hallii	Hall's harmonia	Asteraceae	annual herb	(Mar)Apr-Jun	None	None	G2?	S2?	1B.2	© 2015 John Doyen
Hesperolinon adenophyllum	glandular western flax	Linaceae	annual herb	May-Aug	None	None	G2G3	S2S3	1B.2	© 2002 John Game
Hesperolinon bicarpellatum	two-carpellate western flax	Linaceae	annual herb	(Apr)May-Jul	None	None	G2	S2	1B.2	

										© 2016 John Doyen
Horkelia bolanderi	Bolander's horkelia	Rosaceae	perennial herb	(May)Jun-Aug	None	None	G1	S1	1B.2	© 2012 Barry Rice
Kopsiopsis hookeri	small groundcone	Orobanchaceae	perennial rhizomatous herb (parasitic)	Apr-Aug	None	None	G4?	S1S2	2B.3	©2016 Vernon Smith
Lasthenia burkei	Burke's goldfields	Asteraceae	annual herb	Apr-Jun	FE	CE	G1	S1	1B.1	© 2015 Neal Kramer
Layia septentrionalis	Colusa layia	Asteraceae	annual herb	Apr-May	None	None	G2	S2	1B.2	© 2013 Jake Ruygt
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	©2000 John Game
Lomatium repostum	Napa lomatium	Apiaceae	perennial herb	Mar-Jun	None	None	G2G3	S2S3	1B.2	No Photo Available
Lupinus antoninus	Anthony Peak lupine	Fabaceae	perennial herb	May-Jul	None	None	G2	S2	1B.2	©2018 John Doyen
Navarretia leucocephala ssp. *pauciflora*	few-flowered navarretia	Polemoniaceae	annual herb	May-Jun	FE	CT	G4T1	S1	1B.1	No Photo Available
Navarretia	many-flowered	Polemoniaceae	annual herb	May-Jun	FE	CE	G4T1	S1	1B.2	

leucocephala ssp. *plieantha*	navarretia								No Photo Available
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	May-Sep(Oct)	FT	CE	G2	S2	1B.1	© 2013 Justy Leppert
Penstemon newberryi var. *sonomensis*	Sonoma beardtongue	Plantaginaceae	perennial herb	Apr-Aug	None	None	G4T3	S3	1B.3	Jason Matthias Mills 2020
Potamogeton zosteriformis	eel-grass pondweed	Potamogetonaceae	annual herb (aquatic)	Jun-Jul	None	None	G5	S3	2B.2	No Photo Available
Sidalcea oregana ssp. *hydrophila*	marsh checkerbloom	Malvaceae	perennial herb	(Jun)Jul-Aug	None	None	G5T2	S2	1B.2	No Photo Available
Silene bolanderi	Bolander's catchfly	Caryophyllaceae	perennial herb	May-Jun	None	None	G2	S2	1B.2	No Photo Available
Streptanthus glandulosus ssp. *hoffmanii*	Hoffman's bristly jewelflower	Brassicaceae	annual herb	Mar-Jul	None	None	G4T2	S2	1B.3	No Photo Available
Tracyina rostrata	beaked tracyina	Asteraceae	annual herb	May-Jun	None	None	G2	S2	1B.2	 ©2018 John Game
Trichostema ruygtii	Napa bluecurls	Lamiaceae	annual herb	Jun-Oct	None	None	G1G2	S1S2	1B.2	No Photo Available
Viburnum ellipticum	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	May-Jun	None	None	G4G5	S3?	2B.3	© 2006 Tom Engstrom

Showing 1 to 33 of 33 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website https://www.rareplants.cnps.org [accessed 4 March 2022].

CONTACT US

Send questions and comments to rareplants@cnps.org.

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CONTRIBUTORS

The Calflora Database
The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

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Appendix D – CHRIS Results Letter

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

ALAMEDA	HUMBOLDT	SAN FRANCISCO
COLUSA	LAKE	SAN MATEO
CONTRA COSTA	MARIN	SANTA CLATA
DEL NORTE	MENDOCINO	SANTA CRUZ
	MONTEREY	SOLANO
	NAPA	SONOMA
	SAN BENITO	YOLO

Northwest Information Center
Sonoma State University
1400 Valley House Drive, Suite 210
Rohnert Park, California 94928-3609
Tel: 707.588.8455
nwic@sonoma.edu
https://nwic.sonoma.edu

ACCESS AGREEMENT SHORT FORM

File Number: 21-1389

I, the the undersigned, have been granted access to historical resources information on file at the Northwest Information Center of the Califronia Historical Resources Information System.

I understand that any CHRIS Confidential Information I receive shall not be disclosed to individuals who do not qualify for access to such information, as specified in Section III(A-E) of the CHRIS Information Center Rules of Operation Manual, or in publicly distributed documents without written consent of the Information Center Coordinator.

I agree to submit historical Resource Records and Reports based in part on the CHRIS information released under this Access Agreement to the Information Center within sixy (60) calendar days of completion.

I agree to pay for CHRIS services provided under this Access Agreement within sixty (60) calendar days of receipt of billing.

I understand that failure to comply with this Access Agreement shall be grounds for denial of access to CHRIS Information.

Print Name: Emily Bowen Date:

Signature:

Affiliation: Crawford Bowen Planning, Inc.

Address: City/State/ZIP:

Billing Address (if different from above):

Special Billing Information

Telephone: (559) 840-4414 Email: emily@candbplanning.com

Purpose of Access: Project planning

Reference (project name or number, title of study, and street address if applicable):

City of Lakeport Waterstone Residential Project

County: LAK USGS 7.5' Quad: Lakeport

Sonoma State University Customer ID: credit card

Sonoma State University Invoice No.:

This is not an invoice. Sonoma State University will send separate Invoice

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

ALAMEDA
COLUSA
CONTRA COSTA
DEL NORTE
HUMBOLDT
LAKE
MARIN
MENDOCINO
MONTEREY
NAPA
SAN BENITO
SAN FRANCISCO
SAN MATEO
SANTA CLATA
SANTA CRUZ
SOLANO
SONOMA
YOLO

Northwest Information Center
Sonoma State University
1400 Valley House Drive, Suite 210
Rohnert Park, California 94928-3609
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http://nwic.sonoma.edu

April 20, 2022 NWIC File No.: 21-1389

Emily Bowen
Crawford & Bowen Planning, Inc.
113 N. Church St. Suite #302
Visalia, CA 93291

Re: Record search results for the proposed City of Lakeport Waterstone Residential Project

Dear Emily Bowen:

Per your request received by our office on February 24th, 2022, a records search was conducted for the above referenced project by reviewing pertinent Northwest Information Center (NWIC) base maps that reference cultural resources records and reports, historic-period maps, and literature for Lake County. Please note that use of the term cultural resources includes both archaeological resources and historical buildings and/or structures.

The proposed project includes development of a residential subdivision with a total of 51 lots, with 48 lots for 45 Single Family Dwellings and three lots for one Multi-Family Dwelling. The proposed project construction will also include street lighting and landscaping. The proposed project will require a Minor Use Permit for a Small Lot Subdivision and a Minor Use Permit for Multifamily Residential Developments. The proposed project is located entirely within the limits of the City of Lakeport.

Review of the information at our office indicates that there has been one cultural resource study, S-31281, that covers approximately 100% of the proposed project area (Flaherty 2005). This Project area contains no recorded archaeological resources. The State Office of Historic Preservation Built Environment Resources Directory (OHP BERD), which includes listings of the California Register of Historical Resources, California State Historical Landmarks, California State Points of Historical Interest, and the National Register of Historic Places, lists no recorded buildings or structures within or adjacent to the proposed project area. In addition to these inventories, the NWIC base maps show no recorded buildings or structures within the proposed project area.

At the time of Euroamerican contact, the Native Americans that lived in the area were speakers of the Eastern Pomo language, part of the Pomoan language family (McLendon and Lowy 1978: 306). While the proposed project area is described as within the tribal territory of the Kulanapo, there were no specific references to Native American resources in or adjacent to the proposed Project area found in the ethnographic literature (Barrett 1908:18, Stewart 1935).

Based on an evaluation of the environmental setting and features associated with known sites, Native American resources in this part of Lake County have been found in areas marginal

to Clear Lake and other intermittent and perennial watercourses, and near ecotones with a variety of plant and animal resources. The proposed project area is located approximately one mile from the western shore of Clear Lake, in a gently sloping area. Forbes Creek flows along the northern edge of the proposed project area. Given the similarity of these environmental factors and the ethnographic sensitivity of the area, there is a moderate potential for unrecorded Native American resources to be within the proposed project area.

Review of historical literature and maps gave no indication of historic-period activity within the proposed project area. The 1938 and 1951 Lakeport USGS 15-minute topographic quadrangle fail to depict any buildings or structures. With this information in mind, there is a low potential for unrecorded historic-period archaeological or built environment resources to be within the proposed project area.

RECOMMENDATIONS:

1) There is a moderate potential for Native American archaeological resources and a low potential for historic-period archaeological resources to be within the project area. However, based on the results of the Flaherty (2005) report, S-31281, the proposed project area has a low possibility of containing unrecorded archaeological site(s). Therefore, no further study for archaeological resources is recommended at this time by this office.

2) We recommend the lead agency contact the local Native American tribe(s) regarding traditional, cultural, and religious heritage values. For a complete listing of tribes in the vicinity of the project, please contact the Native American Heritage Commission at 916/373-3710.

3) If the proposed project area contains buildings or structures that meet the minimum age requirement, prior to commencement of project activities, it is recommended that unrecorded building or structure be assessed by a professional familiar with the architecture and history of Lake County. Please refer to the list of consultants who meet the Secretary of Interior's Standards at http://www.chrisinfo.org.

4) Review for possible historic-period buildings or structures has included only those sources listed in the attached bibliography and should not be considered comprehensive.

5) If archaeological resources are encountered **during construction,** work should be temporarily halted in the vicinity of the discovered materials and workers should avoid altering the materials and their context until a qualified professional archaeologist has evaluated the situation and provided appropriate recommendations. Project personnel should not collect cultural resources. Native American resources include chert or obsidian flakes, projectile points, mortars, and pestles; and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic-period resources include stone or adobe foundations or walls; structures and remains with square nails; and refuse deposits or bottle dumps, often located in old wells or privies.

6) It is recommended that any identified cultural resources be recorded on DPR 523 historic resource recordation forms, available online from the Office of Historic Preservation's website: https://ohp.parks.ca.gov/?page_id=28351

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the California Historical Resources Information System (CHRIS) Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

The California Office of Historic Preservation (OHP) contracts with the California Historical Resources Information System's (CHRIS) regional Information Centers (ICs) to maintain information in the CHRIS inventory and make it available to local, state, and federal agencies, cultural resource professionals, Native American tribes, researchers, and the public. Recommendations made by IC coordinators or their staff regarding the interpretation and application of this information are advisory only. Such recommendations do not necessarily represent the evaluation or opinion of the State Historic Preservation Officer in carrying out the OHP's regulatory authority under federal and state law.

Thank you for using our services. Please contact this office if you have any questions, (707) 588-8455.

Sincerely,

Bryan Much
Coordinator

LITERATURE REVIEWED

In addition to archaeological maps and site records on file at the Northwest Information Center of the Historic Resources Information System, the following literature was reviewed:

Barrett, S.A.
1908 *The Ethno-Geography of the Pomo and Neighboring Indians*. University of California Publications in American Archaeology and Ethnology 6(1):1-322. University of California Press, Berkeley. (Reprint by Kraus Reprint Corp., New York, 1964.)

Flaherty, Jay M. (Archaeological Services, Inc.)
2005 *Cultural Resource Reconnaissance of 22+/- Acres, City of Lakeport, Lake County, California (APN's 025-441-07, 005-030-50, and a portion of 005-030-49).* **NWIC Report S-31281**

General Land Office
1863, 1876, 1892 Survey Plat for Township 14 North/Range 10 West.

Gifford, Edward Winslow
1923 *Pomo Lands on Clear Lake*. University of California Publications in American Archaeology and Ethnology 20:77-92. University of California Press, Berkeley.

Kniffen, Fred B.
1939 *Pomo Geography*. University of California Publications in American Archaeology and Ethnology 36(6):353-400. University of California Press, Berkeley.

McLendon, Sally and Michael L. Lowy
1978 Eastern Pomo and Southeastern Pomo. In *California*, edited by Robert F. Heizer, pp. 306-323. Handbook of North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

McClendon, Sally and Robert L. Oswalt
1978 Pomo: Introduction. In *California*, edited by Robert F. Heizer, pp. 274-288. Handbook of North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

State of California Department of Parks and Recreation
1976 *California Inventory of Historic Resources*. State of California Department of Parks and Recreation, Sacramento.

State of California Office of Historic Preservation ******
2021 *Built Environment Resources Directory*. Listing by City (through September 15, 2021). State of California Office of Historic Preservation, Sacramento.

******Note that the Office of Historic Preservation's *Historic Properties Directory* includes National Register, State Registered Landmarks, California Points of Historical Interest, and the California Register of Historical Resources as well as Certified Local Government surveys that have undergone Section 106 review.

Appendix E – Traffic Impact Study

Project No: 524-20

TRAFFIC STUDY

PARKSIDE RESIDENTIAL DEVELOPMENT

CITY OF LAKEPORT

Prepared for:

Crawford & Bowen Planning, Inc.

April 2022

Prepared by:

RUETTGERS & SCHULER
CIVIL ENGINEERS

1800 30th Street, Suite 260
Bakersfield, California 93301

Ian J. Parks, RCE 58155

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INTRODUCTION

The purpose of this study is to evaluate the potential traffic impacts of a proposed residential development located north of Westside Park Road and west of Wrigley Street in the City of Lakeport, California. A vicinity map is presented in Figure 1 and a location map is presented in Figure 2.

The study methodology and vehicle miles traveled analysis is consistent with the California Department of Transportation (Caltrans) *Guide for the Preparation of Traffic Impact Studies*, dated December 2002, *SB 743: Vehicle Miles Traveled Regional Baseline Study*, dated November 2020, and Section 15064.3(b) of the California Environmental Quality Act (CEQA), which became effective July 1, 2020. The scope of the study includes eight intersections (seven stop-controlled, one roundabout) and was developed in coordination with staff from the City of Lakeport and Caltrans.

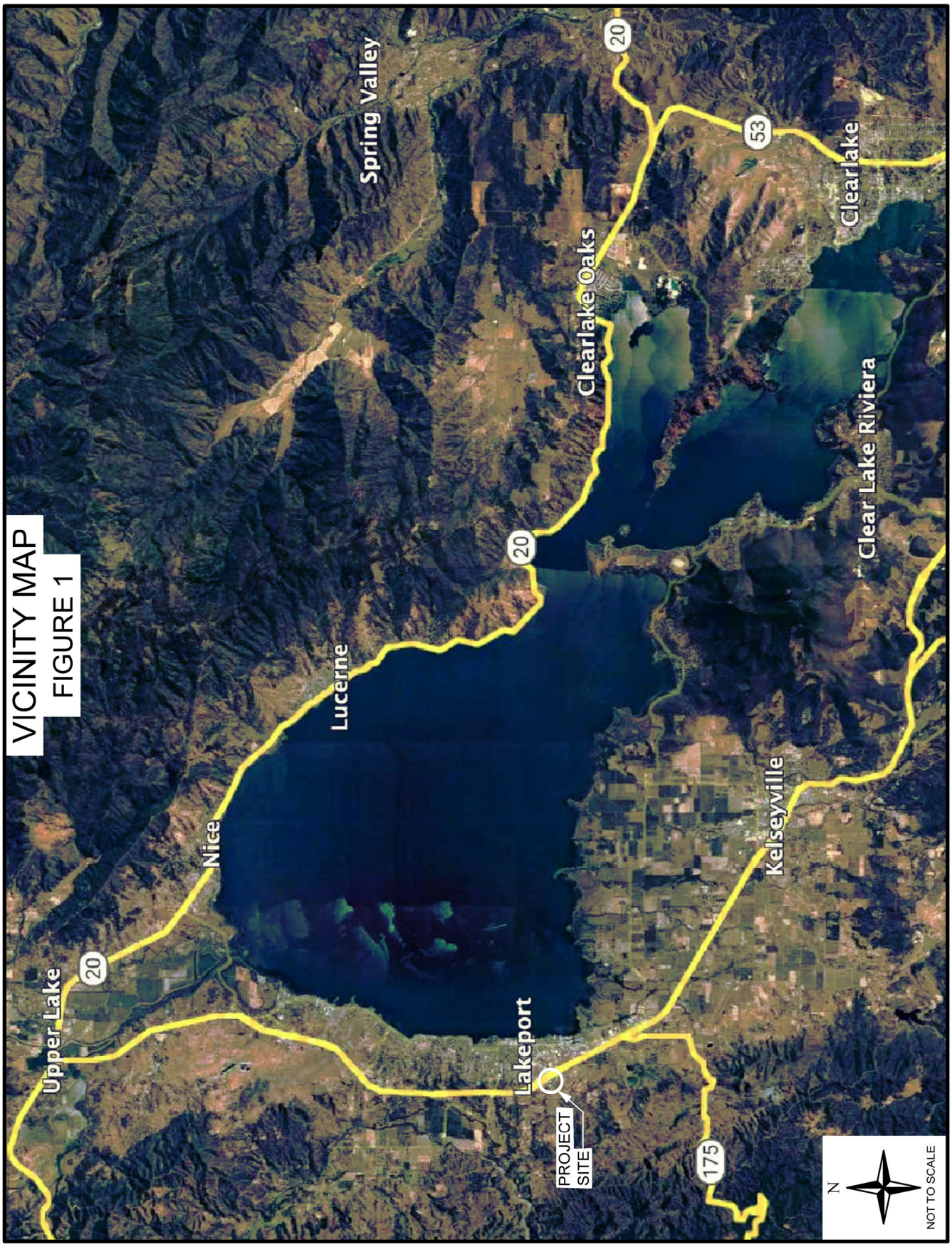
A. Project Land Use and Site Access

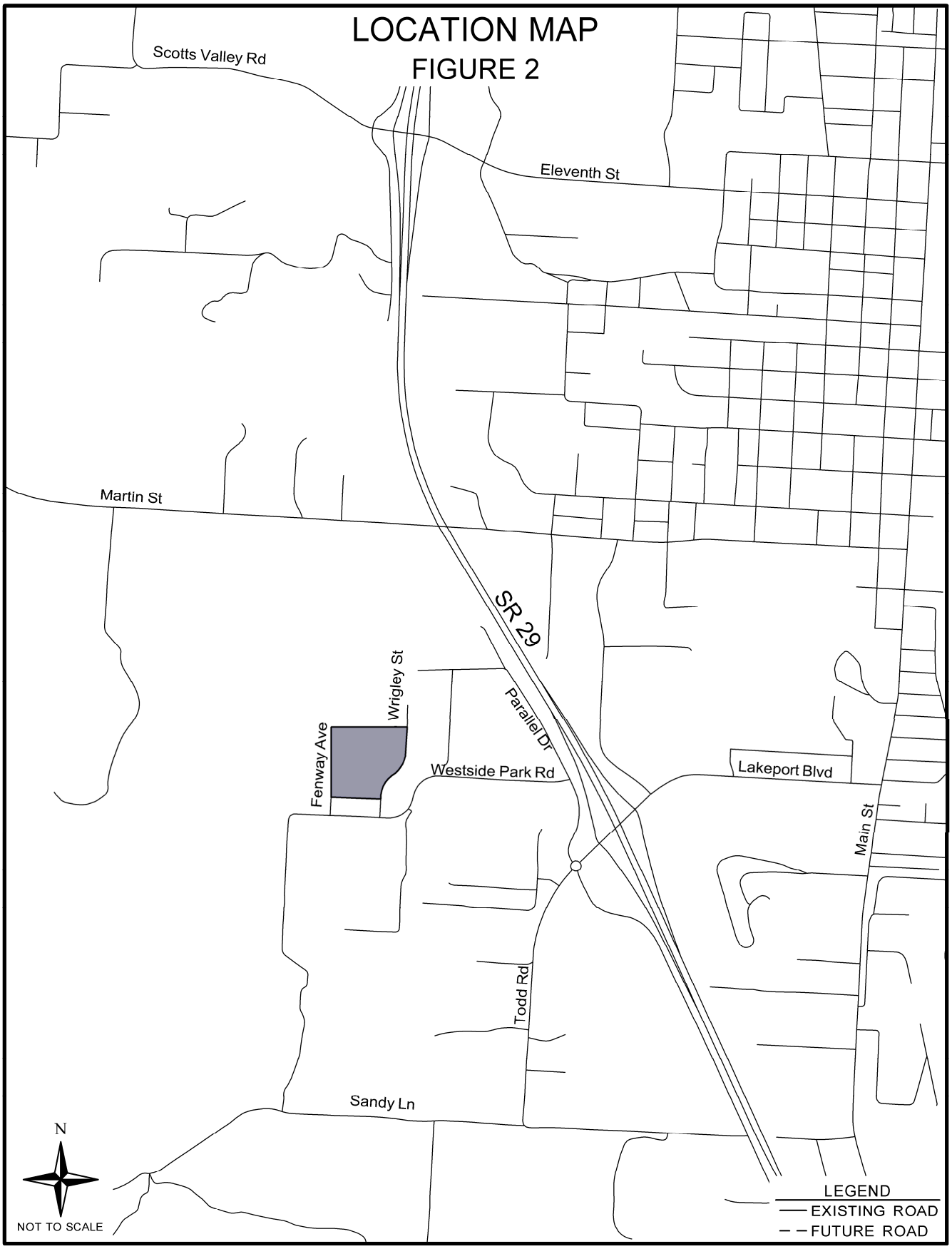
The project site is situated on approximately 15.16 gross acres of undeveloped vacant land. The property has a General Plan Land Use designation of Low Density Residential. The site is currently undeveloped. The proposed development would include 48 single-family dwelling units and 128 multi-family dwelling units. A site plan is provided in Figure 3, which shows street and lot configurations.

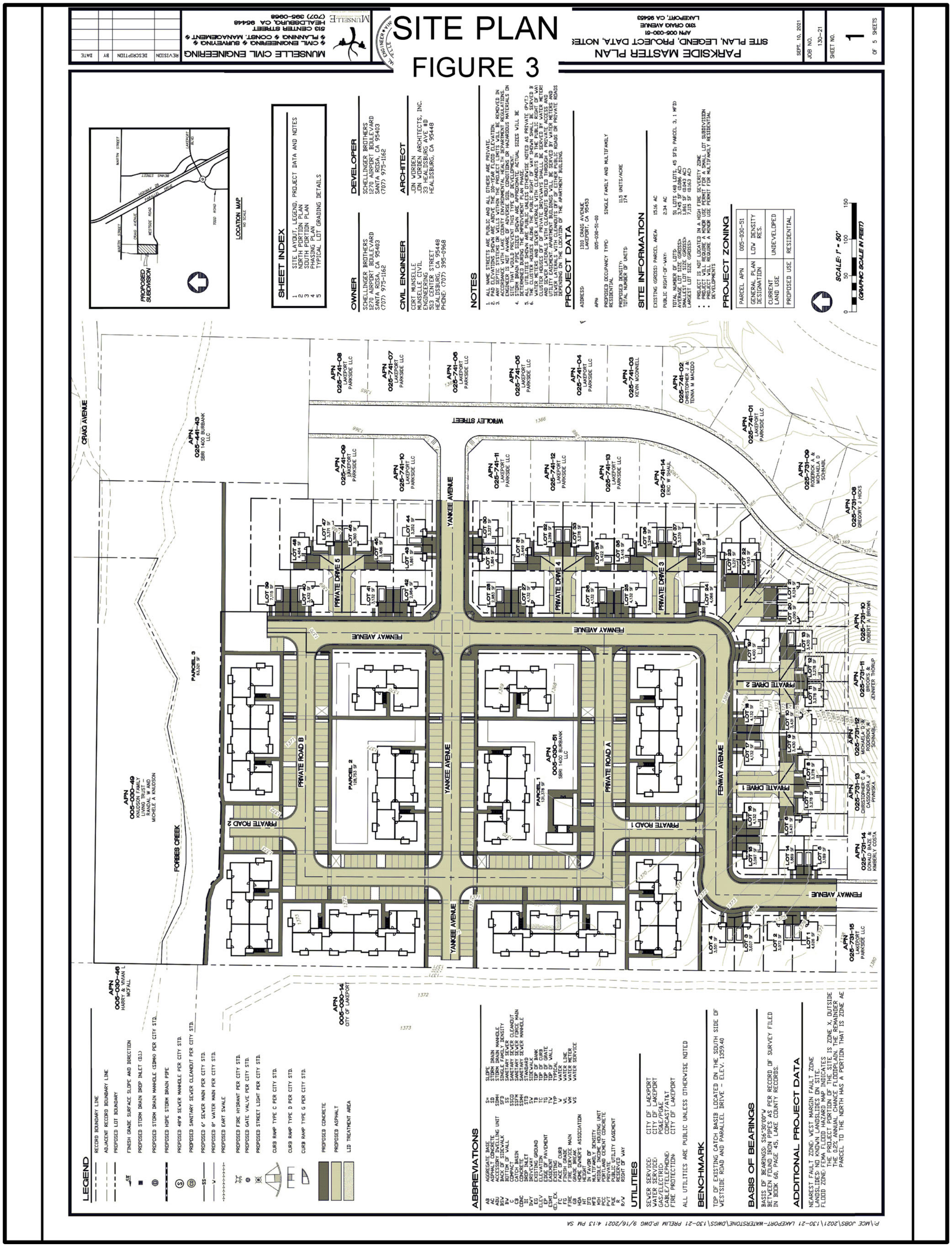
The site is bounded by Wrigley Street to the east, Westside Park Road to the south, and undeveloped land to the north and west.

B. Existing Land Uses in Project Vicinity

Residential land uses bound the project site to the south. Office and commercial land uses bound the site to the east. Vacant land bounds the site to the north and the west.


VICINITY MAP
FIGURE 1
Spring Valley
Clearlake
Clearlake Oaks
Clear Lake Riviera
Lucerne
Nice
Upper Lake
Lakeport
Kelseyville
PROJECT SITE
20
53
175
N
NOT TO SCALE


LOCATION MAP
FIGURE 2
Scotts Valley Rd
Eleventh St
Martin St
SR 29
Wrigley St
Parallel Dr
Fenway Ave
Westside Park Rd
Lakeport Blvd
Main St
Todd Rd
Sandy Ln
N
NOT TO SCALE
LEGEND
EXISTING ROAD
FUTURE ROAD


SITE PLAN
FIGURE 3

C. Roadway Descriptions

Bevins Street is a north-south collector that extends from Martin Street to Lakeport Boulevard. In the vicinity of the project it exists as a two-lane roadway and provides access to industrial and commercial land uses.

Lakeport Boulevard is a primarily east-west arterial that extends from Parallel Drive to Main Street. In the vicinity of the project it exists as a two-lane roadway and provides access to commercial and medical land uses. Lakeport Boulevard continues as Todd Road west of Parallel Drive.

Main Street is a north-south arterial that provides access to residential, commercial, and industrial land uses. In the vicinity of the project it exists as a two-lane roadway with curb and gutter.

Parallel Drive is a primarily north-south arterial that provides access to commercial and medical land uses. In the vicinity of the project it exists as a two-lane roadway with curb and gutter.

State Route 29 is a primarily north-south freeway that extends south of State Route 20 and provides access to several cities in northern California. In the vicinity of the project it exists as a four-lane freeway and provides access to commercial and residential land uses.

Westside Park Road is an east-west collector that provides access to the proposed project as well as existing residential land uses. In the vicinity of the project it exists as a two-lane roadway with curb and gutter.

Wrigley Street is a north-south local roadway that provides access to current and proposed residential land uses north of Westside Park Road. It exists as two-lane roadway with curb and gutter.

PROJECT TRIP GENERATION

The project trip generation volumes shown in Table 1 were estimated using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition. Trip rates, equations and directional splits for ITE Land Use Codes 210 (Single Family Detached Housing) and 220 (Multifamily Housing-Low Rise) were used to estimate project trips for weekday peak hour of adjacent street traffic based on information provided by the Parkside Master Plan as shown in Figure 3.

Table 1
Project Trip Generation

General Information			Daily Trips		AM Peak Hour Trips			PM Peak Hour Trips		
ITE Code	Development Type	Variable	ADT RATE	ADT	Rate	In % Split/ Trips	Out % Split/ Trips	Rate	In % Split/ Trips	Out % Split/ Trips
210	Single-Family detached Housing	48 Dwelling Units	eq	514	eq	26% 10	74% 28	eq	63% 31	37% 18
220	Multifamily Housing (Low Rise)	128 Dwelling Units	eq	896	eq	24% 15	76% 48	eq	63% 48	37% 28
Total				1,410		25	76		79	46

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of project peak hour trips is shown in Table 2 and represents the movement of traffic accessing the project site by direction. The project trip distribution was developed based on site location and travel patterns anticipated for the proposed land uses.

Table 2
Project Trip Distribution

Direction	Percent
North	70
East	25
South	5
West	0

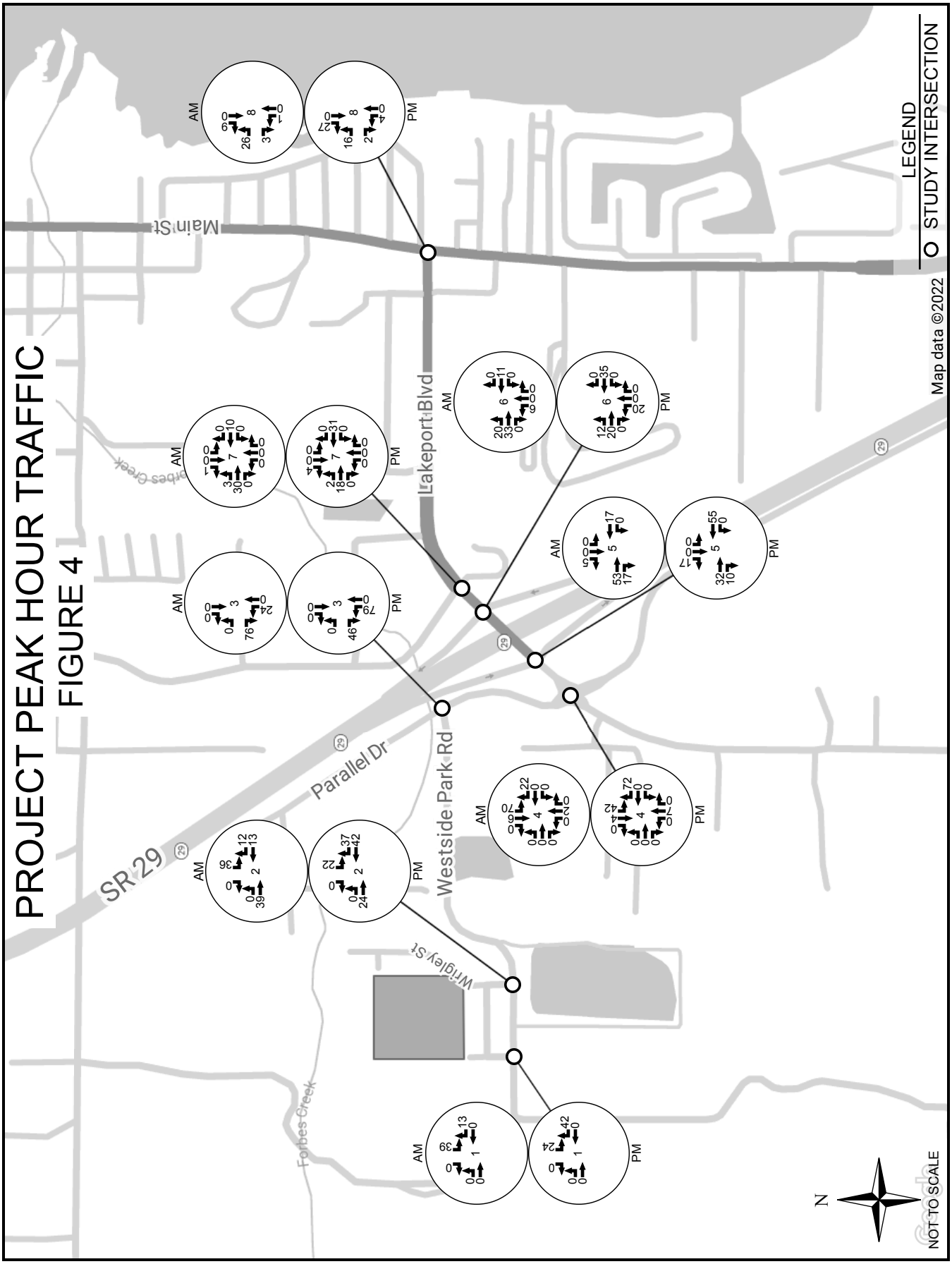
Project peak hour trips were assigned to the study intersections as shown in Figure 4. Project trip assignment was developed based on trip generation, trip distribution and likely travel routes for traffic accessing the project site.

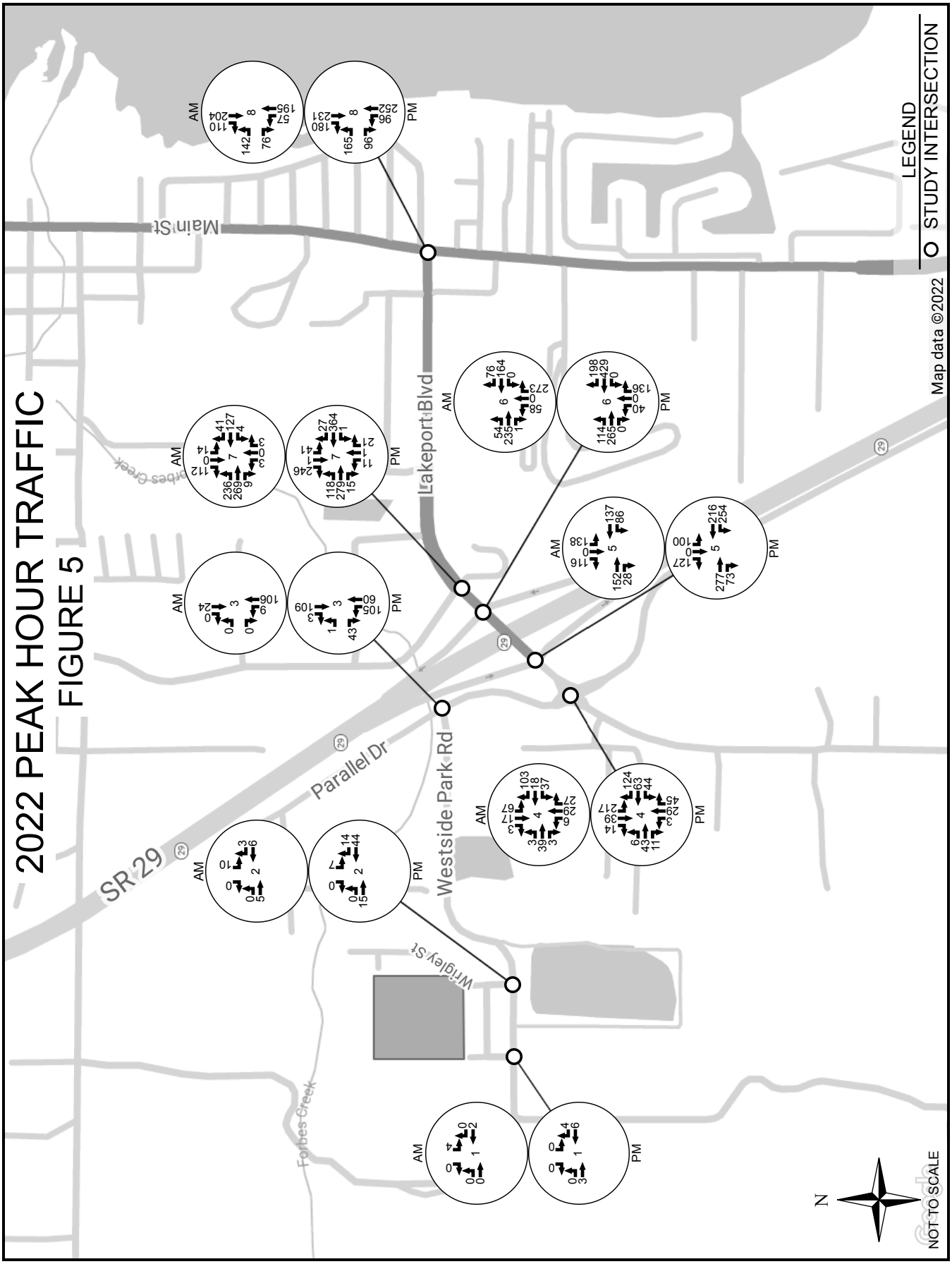
EXISTING AND FUTURE TRAFFIC

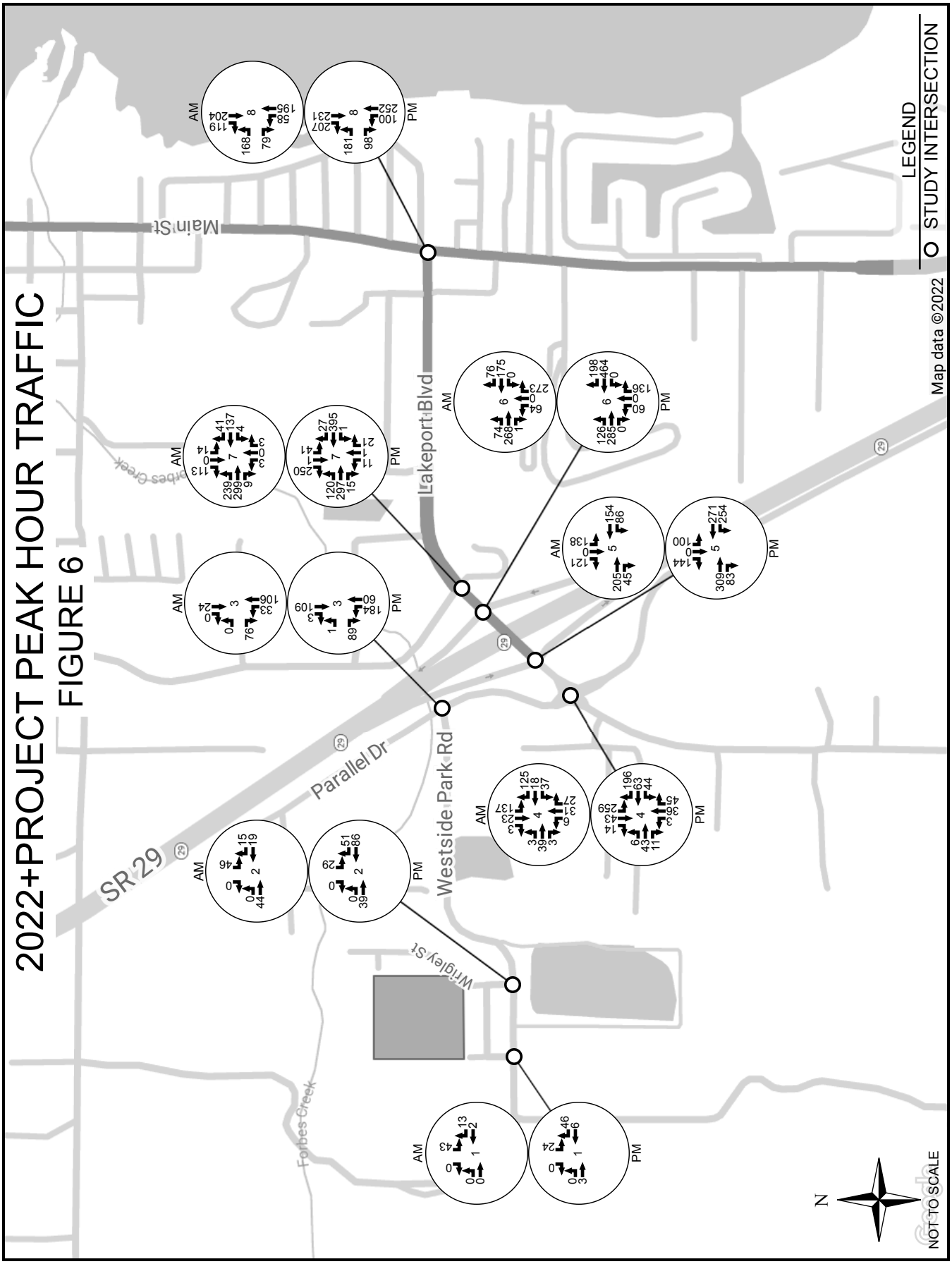
Existing peak hour turning movement counts were obtained in April 2022 and compared to pre-COVID turning movement volumes. It was determined that no adjustment factor was necessary due to traffic being generally similar to historical count data with applicable growth rates.

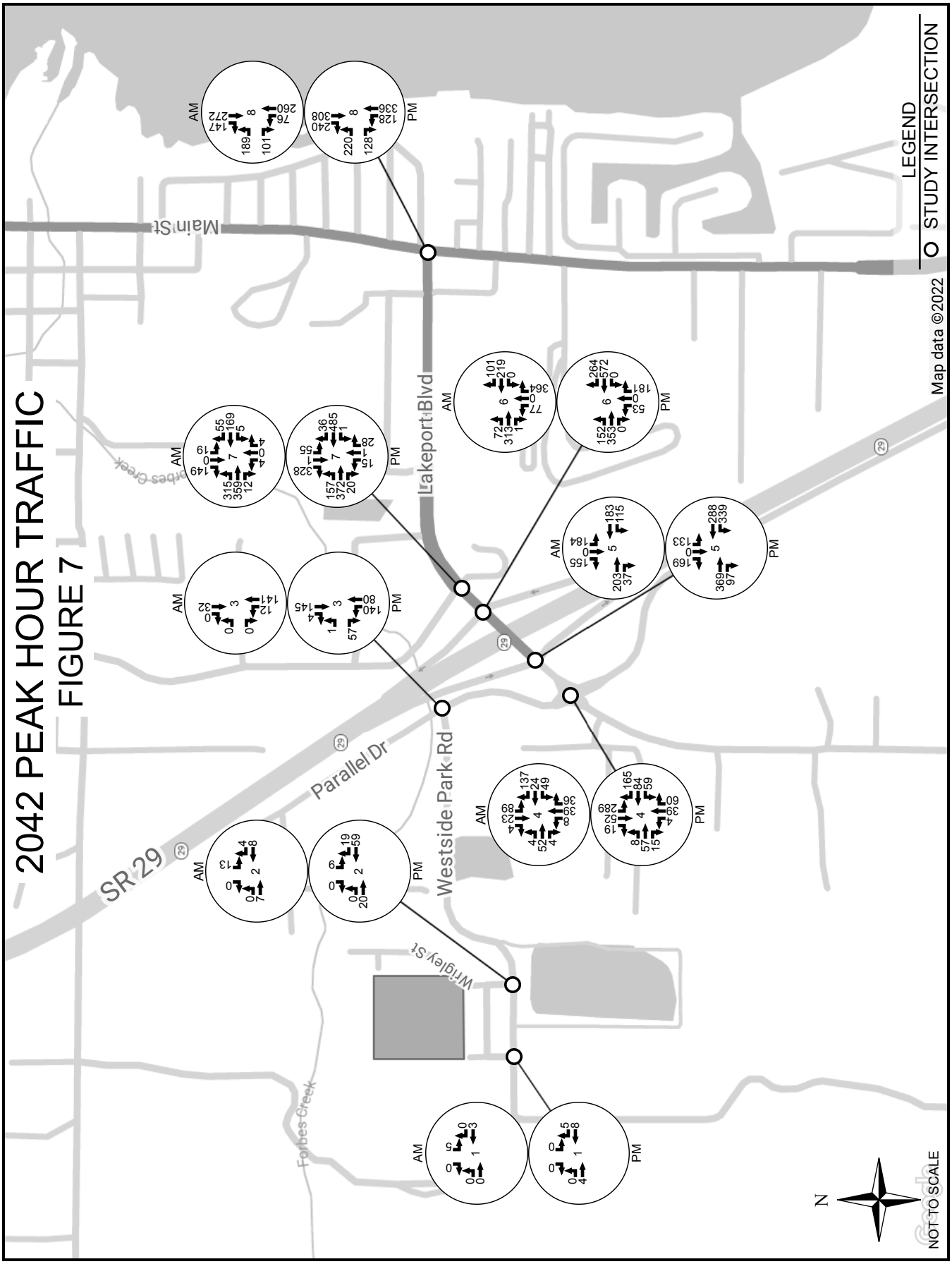
Average annual growth rates of 1.45 percent was applied to the 2022 peak hour volumes to estimate peak hour volumes for the year 2042. These growth rates were developed based on coordination with Caltrans and Lake APC. Cumulative volumes were estimated based on information provided by the City of Lakeport regarding build year, land use, size and location for each pending development.

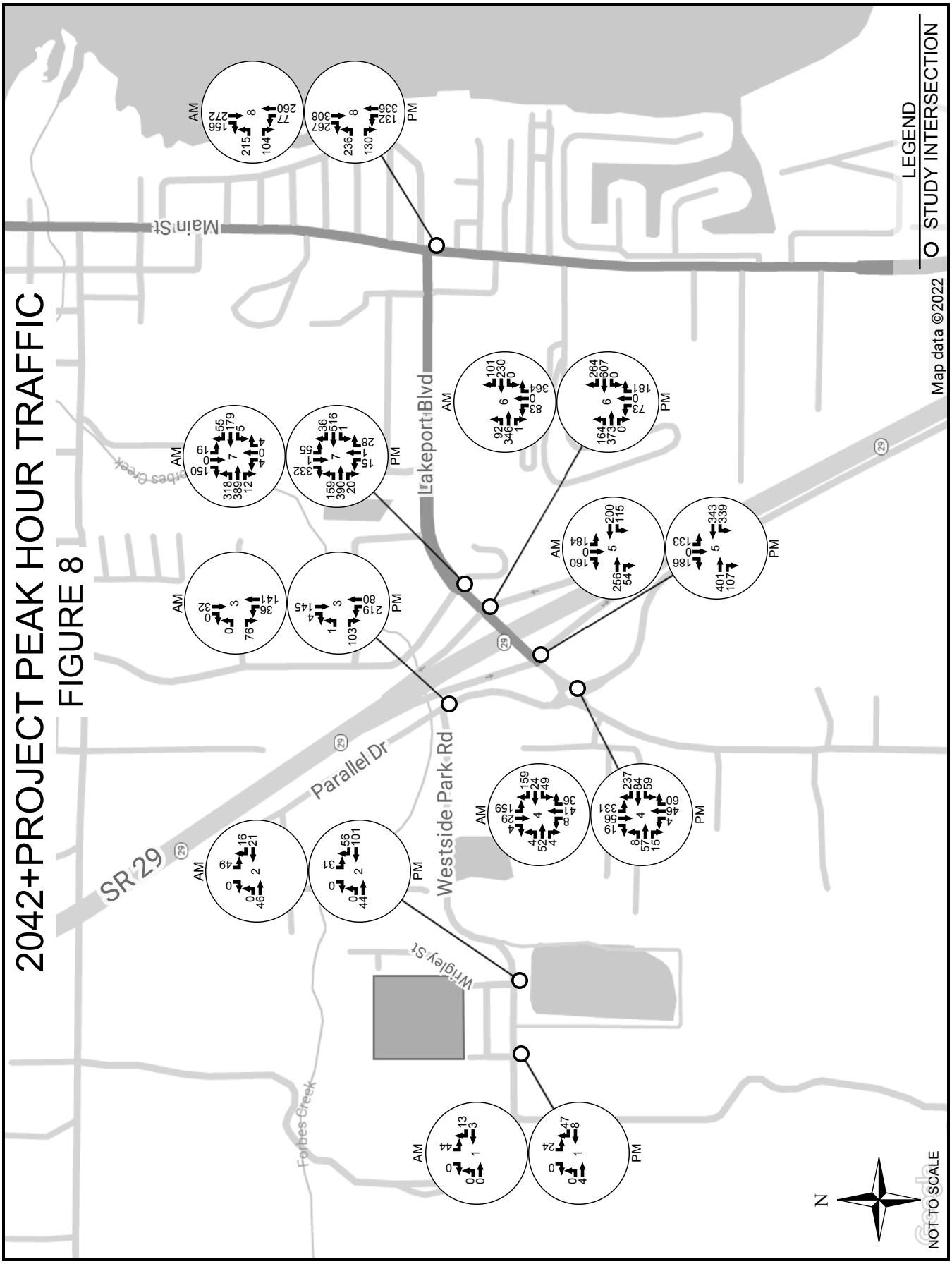
Existing peak hour volumes are shown in Figure 5, and existing plus project peak hour volumes are shown in Figure 6. Future volumes for the year 2042, both without and with project traffic, are shown in Figures 7 and 8, respectively.


PROJECT PEAK HOUR TRAFFIC
FIGURE 4
LEGEND
STUDY INTERSECTION
Map data ©2022
NOT TO SCALE
N
SR 29
Parallel Dr
Westside Park Rd
Lakeport Blvd
Main St
Wrigley St
Forbes Creek
AM
PM


2022 PEAK HOUR TRAFFIC
FIGURE 5
LEGEND
STUDY INTERSECTION
Map data ©2022
NOT TO SCALE
N
SR 29
Parallel Dr
Westside Park Rd
Lakeport Blvd
Main St
Wrigley St
Forbes Creek
AM
PM


2022+PROJECT PEAK HOUR TRAFFIC
FIGURE 6
LEGEND
STUDY INTERSECTION
Map data ©2022
NOT TO SCALE
N
SR 29
Parallel Dr
Westside Park Rd
Lakeport Blvd
Main St
Wrigley St
Forbes Creek
AM
PM


2042 PEAK HOUR TRAFFIC
FIGURE 7
LEGEND
STUDY INTERSECTION
Map data ©2022
NOT TO SCALE
N
Main St
Lakeport Blvd
Westside Park Rd
Parallel Dr
SR 29
Wrigley St
Forbes Creek
Forbes Creek
AM
PM


2042+PROJECT PEAK HOUR TRAFFIC
FIGURE 8
LEGEND
STUDY INTERSECTION
Map data ©2022
NOT TO SCALE
N
Main St
Lakeport Blvd
SR 29
Parallel Dr
Westside Park Rd
Wrigley St
Forbes Creek
AM
PM

INTERSECTION ANALYSIS

A capacity analysis of the study intersections was conducted using Synchro software from Trafficware. This software utilizes the capacity analysis methodology in the Transportation Research Board's Highway Capacity Manual 2010 (HCM 2010). The analysis was performed for each of the following traffic scenarios.

- Existing (2022)
- Existing (2022) + Project
- Future (2042)
- Future (2042) + Project

Level of service (LOS) criteria for unsignalized and signalized intersections, as defined in HCM 2010, are presented in the tables below. The City of Lakeport and Lake County Regional Transportation Plan designate LOS D as the minimum acceptable intersection peak hour level of service.

LEVEL OF SERVICE CRITERIA
UNSIGNALIZED INTERSECTION

Level of Service	Average Control Delay (sec/veh)	Expected Delay to Minor Street Traffic
A	≤ 10	Little or no delay
B	> 10 and ≤ 15	Short delays
C	> 15 and ≤ 25	Average delays
D	> 25 and ≤ 35	Long delays
E	> 35 and ≤ 50	Very long delays
F	> 50	Extreme delays

LEVEL OF SERVICE CRITERIA
SIGNALIZED INTERSECTIONS

Level of Service	Average Control Delay (sec/veh)	Volume-to-Capacity Ratio
A	≤ 10	< 0.60
B	> 10 and ≤ 20	0.61 - 0.70
C	> 20 and ≤ 35	0.71 - 0.80
D	> 35 and ≤ 55	0.81 - 0.90
E	> 55 and ≤ 80	0.91 - 1.00
F	> 80	> 1.00

Peak hour level of service for the study intersections is presented in Tables 3a and 3b. Intersection delay in seconds per vehicle is shown within parentheses for intersections operating below LOS D.

Table 3a
Intersection Level of Service
Weekday PM Peak Hour

#	Intersection	Control Type	2022	2022+ Project	2042	2042+ Project	2042+ Project w/Mitigation[1]
1	Fenway Ave & Westside Park Rd	SB	A	A	A	A	-
2	Wrigley St & Westside Park Rd	SB	A	B	A	B	-
3	Parallel Dr & Westside Park Rd	EB	A	B	B	B	-
4	Parallel Dr & Lakeport Blvd	Roundabout	A	A	A	A	-
5	SR 29 SB Offramp/SR 29 SB Onramp & Lakeport Blvd	SB	F (95.7)	F (133.1)	F (>300)	F (>300)	C
6	SR 29 NB Onramp/SR 29 NB Offramp & Lakeport Blvd	NB	C	D (29.0)	F (54.6)	F (142.5)	C
7	Bevins St & Lakeport Blvd	NB SB	E (35.7) F (59.3)	E (44.3) F (79.9)	F (>300) F (>300)	F (>300) F (>300)	C
8	S Main St & Lakeport Blvd	AWSC	B	B	C	C	-

[1]See Table 6 for mitigation measures

Table 3b
Intersection Level of Service
Weekday AM Peak Hour

#	Intersection	Control Type	2022	2022+ Project	2042	2042+ Project	2042+ Project w/Mitigation[1]
1	Fenway Ave & Westside Park Rd	SB	A	A	A	A	-
2	Wrigley St & Westside Park Rd	SB	A	A	A	A	-
3	Parallel Dr & Westside Park Rd	EB	A	A	A	A	-
4	Parallel Dr & Lakeport Blvd	Roundabout	A	A	A	A	-
5	SR 29 SB Offramp/SR 29 SB Onramp & Lakeport Blvd	SB	C	B	D (33.8)	F (51.5)	C
6	SR 29 NB Onramp/SR 29 NB Offramp &	NB	B	B	C	C	C[2]
7	Bevins St & Lakeport Blvd	NB SB	C C	D (25.8) C	E (49.9) D (33.9)	F (55.5) E (38.5)	C
8	S Main St & Lakeport Blvd	AWSC	B	B	C	C	-

[1]See Table 6 for mitigation measures
[2]Mitigation necessary due to PM Peak Hour traffic

ROADWAY ANALYSIS

A capacity analysis of the study roadways was conducted using Table 4 in the State of Florida Department of Transportation *Quality/Level of Service Handbook* dated June 2020 (see Appendix). The City of Lakeport Circulation Element states that the peak hour level of service for roadways shall be no lower than LOS "D" for urban areas. The analysis was performed for the following AM and PM traffic scenarios:

- Existing (2022)
- Existing (2022) + Project
- Future (2042)
- Future (2042) + Project

Table 4a
PM Roadway Level of Service

Street	2022 Two-Way LOS		2022+Project Two-Way LOS		2042 Two-Way LOS		2042+Project Two-Way LOS	
	VOL	LOS	VOL	LOS	VOL	LOS	VOL	LOS
Westside Park Rd: Fenway Ave - Wrigley St	59	C	125	C	79	C	145	C
Westside Park Rd: Wrigley St - Parallel Dr	152	C	277	C	202	C	327	C
Parallel Dr: Westside Park Rd - Lakeport Blvd	317	C	554	C	572	C	697	C
Lakeport Blvd: Parallel Dr - SR 29 SB Ramps	536	C	807	C	923	C	1037	C
Lakeport Blvd: SR 29 SB Ramps - SR 29 NB Ramps	848	C	935	C	1130	C	1217	C
Lakeport Blvd: SR 29 NB Ramps - Bevins St	1033	C	1088	C	1377	C	1432	C
Lakeport Blvd: Bevins St - Main St	733	C	782	C	977	C	1026	C

Table 4b
AM Roadway Level of Service

Street	2022 Two-Way LOS		2022+Project Two-Way LOS		2042 Two-Way LOS		2042+Project Two-Way LOS	
	VOL	LOS	VOL	LOS	VOL	LOS	VOL	LOS
Westside Park Rd: Fenway Ave - Wrigley St	11	C	63	C	15	C	67	C
Westside Park Rd: Wrigley St - Parallel Dr	24	C	124	C	32	C	132	C
Parallel Dr: Westside Park Rd - Lakeport Blvd	222	C	322	C	296	C	396	C
Lakeport Blvd: Parallel Dr - SR 29 SB Ramps	433	C	525	C	578	C	670	C
Lakeport Blvd: SR 29 SB Ramps - SR 29 NB Ramps	513	C	583	C	685	C	755	C
Lakeport Blvd: SR 29 NB Ramps - Bevins St	756	C	800	C	1008	C	1052	C
Lakeport Blvd: Bevins St - Main St	458	C	498	C	611	C	651	C

IMPROVEMENTS

Intersection improvements needed by the year 2042 to maintain or improve the operational level of service of the street system in the vicinity of the project are presented in Table 5. Shown also is the project's percent share of the cost for these improvements.

Table 5
Future Intersection Improvements and Local Mitigation

#	Intersection	Mitigation Required by 2042	Percent Share
5	SR 29 SB Ramps & Lakeport Ave	Install Signal	
6	SR 29 NB Ramps & Lakeport Ave	Install Signal	
7	Bevins St & Lakeport Ave	Install Signal	

Project percent share is calculated using the following formula:

$$\% \text{ Share} = \frac{\text{Project Traffic}}{(\text{Future+Project Traffic}) - \text{Existing Traffic}} \times 100\%$$

VMT ANALYSIS

An evaluation of vehicle miles traveled (VMT) for project traffic was conducted in accordance with California Environmental Quality Act (CEQA) requirements and the *Senate Bill 743: Vehicle Miles Traveled Regional Baseline Study*, dated November 30, 2020 which contains recommendations regarding VMT assessment, significance thresholds and mitigation measures.

Analysis

The analysis utilized map-based screening with a VMT metric of home-based VMT per resident. Per Figure 1: Daily Home-Based VMT per Resident (see Appendix), the project is located in a low VMT area (more than 14.3% below Countywide average). Utilizing the Lake County VMT screening tool, 15% reduction threshold screening was performed for years 2022 and 2030. The screening information and results are shown in Table 6 below.

Table 6
VMT Analysis

Year	TAZ VMT	Countywide Average VMT	Project Threshold	Percent Difference	Minimum Reduction
2022	10.7	30.1	25.6	-64.5%	-14.3%
2030	12.2	33.7	28.7	-63.8%	-14.3%

The TAZ VMT for the project is 10.7 and 12.2 for 2022 and 2030, respectively. This average is 64.5% and 63.8% lower than the countywide average VMT for 2022 and 2030, respectively. Therefore, the project will not result in a significant transportation impact under CEQA.

SUMMARY

The purpose of this study is to evaluate the potential traffic impacts of a proposed residential development located north of Westside Park Road and west of State Route 29 in the City of Lakeport, California.

Level of Service Analysis

All study intersections currently operate at or above LOS D during peak hours with the exception of SR 29 Southbound Ramps & Lakeport Boulevard and Bevins Street & Lakeport Boulevard. All remaining intersections are anticipated to continue to operate at an acceptable level of service with the addition of project traffic.

In the future 2042 scenario, State Route 29 Northbound Ramps & Lakeport Boulevard is anticipated to operate below an acceptable level of service. The remaining five intersections are anticipated to operate at an acceptable level of service prior to and with the addition of project traffic. With the addition of the mitigation measures identified in Table 5, all intersections will operate at acceptable levels.

Roadway Analysis

All roadway segments within the scope of the study currently operate above LOS D during peak hours prior to, and with the addition of project traffic through the year 2042.

VMT Analysis

VMT analysis indicated that the project will not create a significant traffic impact.

REFERENCES

1. California Manual on Uniform Traffic Control Devices for Streets and Highways, 2014 Edition, California Department of Transportation (Caltrans)
2. City of Lakeport General Plan 2025, August 2009
3. Highway Capacity Manual 2010, Transportation Research Board
4. Lake County VMT Screening Tool, April 25,2022
5. SB 743: Vehicle Miles Traveled Regional Baseline Study, Lake Area Planning Council, November 30, 2020
6. Trip Generation Manual, 11th Edition, Institute of Transportation Engineers (ITE)

APPENDIX

Intersection 1
Fenway Ave & Westside Park Rd

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	3	6	4	0	0
Future Vol, veh/h	0	3	6	4	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	38	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	6	12	11	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	23	0	-	0	23	17
Stage 1	-	-	-	-	17	-
Stage 2	-	-	-	-	6	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1592	-	-	-	993	1062
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	1017	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1592	-	-	-	993	1062
Mov Cap-2 Maneuver	-	-	-	-	993	-
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	1017	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1592	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	3	6	46	24	0
Future Vol, veh/h	0	3	6	46	24	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	38	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	6	12	121	96	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	133	0	-	0	79	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	6	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1452	-	-	-	924	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	1017	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1452	-	-	-	924	989
Mov Cap-2 Maneuver	-	-	-	-	924	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	1017	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1452	-	-	-	924
HCM Lane V/C Ratio	-	-	-	-	0.104
HCM Control Delay (s)	0	-	-	-	9.3
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	4	8	5	0	0
Future Vol, veh/h	0	4	8	5	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	38	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	16	13	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	29	0	-	0	31	23
Stage 1	-	-	-	-	23	-
Stage 2	-	-	-	-	8	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1584	-	-	-	983	1054
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	1015	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1584	-	-	-	983	1054
Mov Cap-2 Maneuver	-	-	-	-	983	-
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	1015	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1584	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	4	8	47	24	0
Future Vol, veh/h	0	4	8	47	24	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	38	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	16	124	96	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	140	0	-	0	86	78
Stage 1	-	-	-	-	78	-
Stage 2	-	-	-	-	8	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1443	-	-	-	915	983
Stage 1	-	-	-	-	945	-
Stage 2	-	-	-	-	1015	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1443	-	-	-	915	983
Mov Cap-2 Maneuver	-	-	-	-	915	-
Stage 1	-	-	-	-	945	-
Stage 2	-	-	-	-	1015	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1443	-	-	-	915
HCM Lane V/C Ratio	-	-	-	-	0.105
HCM Control Delay (s)	0	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	4	8	47	24	0
Future Vol, veh/h	0	4	8	47	24	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	38	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	16	124	96	0

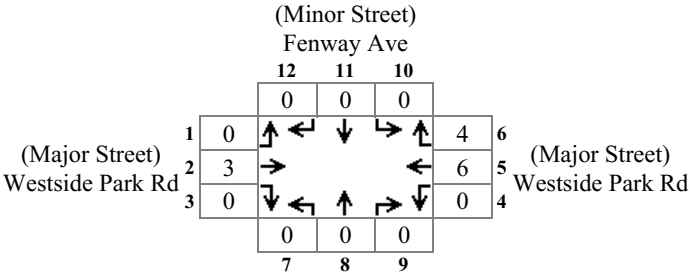
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	140	0	-	0	86	78
Stage 1	-	-	-	-	78	-
Stage 2	-	-	-	-	8	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1443	-	-	-	915	983
Stage 1	-	-	-	-	945	-
Stage 2	-	-	-	-	1015	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1443	-	-	-	915	983
Mov Cap-2 Maneuver	-	-	-	-	915	-
Stage 1	-	-	-	-	945	-
Stage 2	-	-	-	-	1015	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

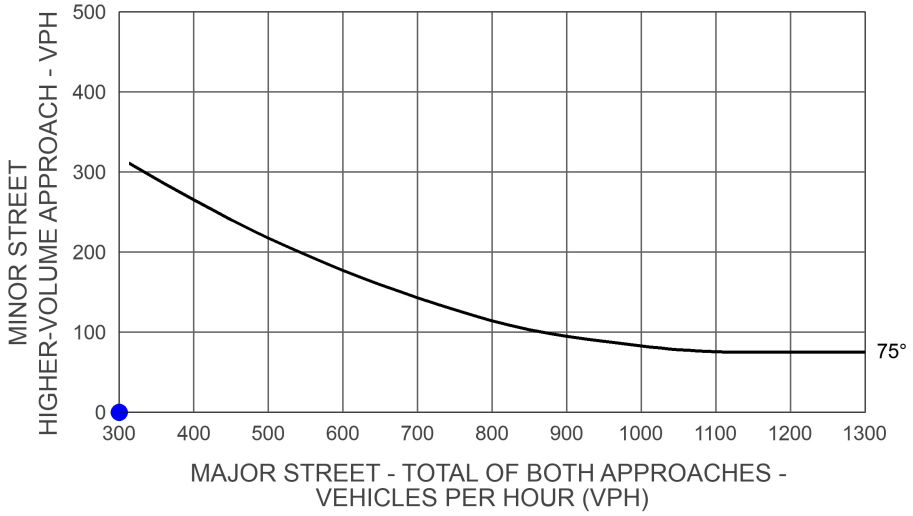
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1443	-	-	-	915
HCM Lane V/C Ratio	-	-	-	-	0.105
HCM Control Delay (s)	0	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 1

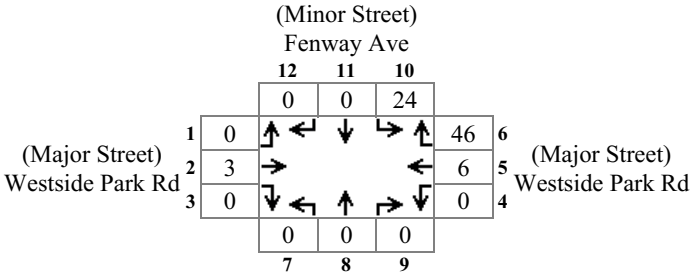


Major Total: 13
Minor High Volume: 0

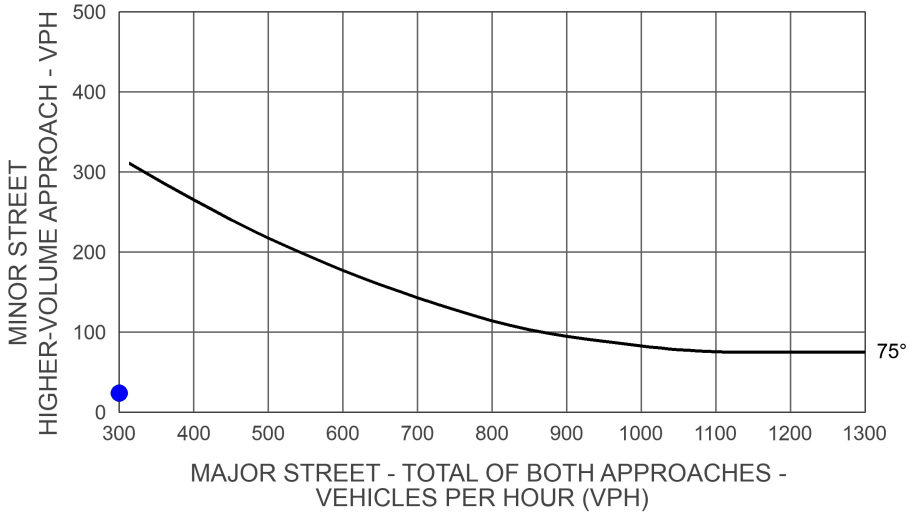


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 1

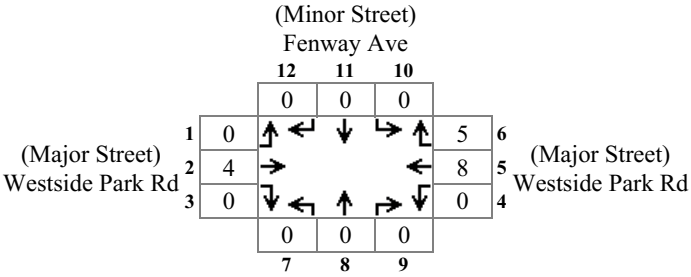


Major Total: 55
Minor High Volume: 24

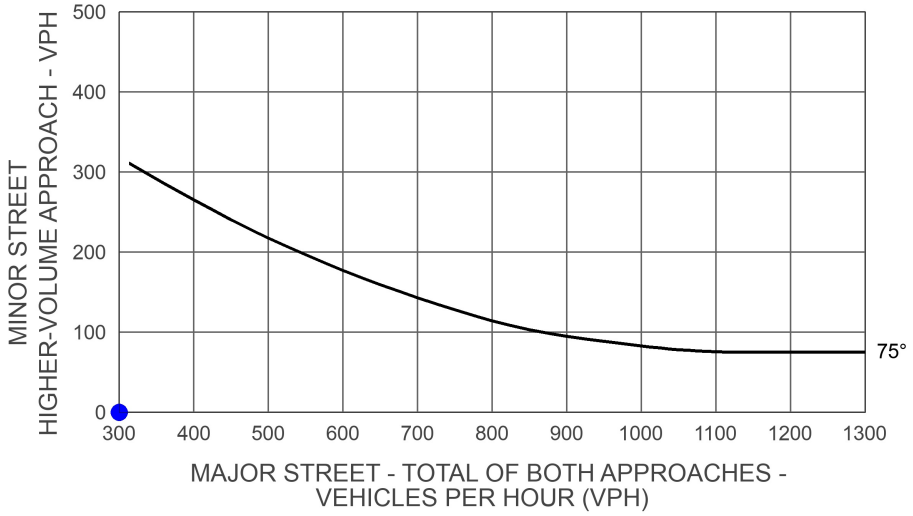


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 1

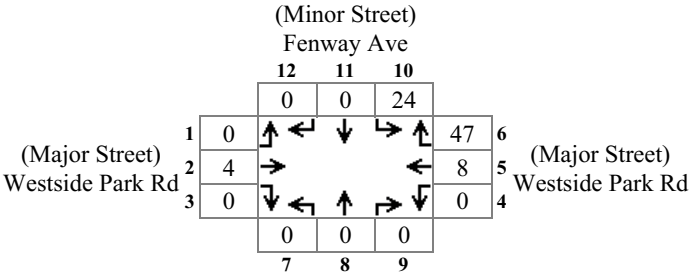


Major Total: 17
Minor High Volume: 0

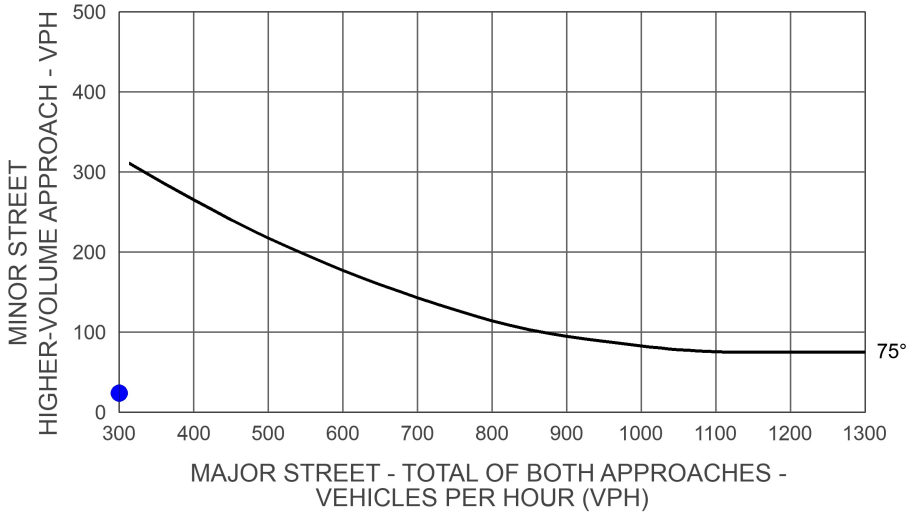


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 1



Major Total: 59
Minor High Volume: 24



Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	0	2	0	4	0
Future Vol, veh/h	0	0	2	0	4	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	38	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	4	0	16	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	4	0	-	0	4	4
Stage 1	-	-	-	-	4	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1618	-	-	-	1018	1080
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1618	-	-	-	1018	1080
Mov Cap-2 Maneuver	-	-	-	-	1018	-
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1618	-	-	-	1018
HCM Lane V/C Ratio	-	-	-	-	0.016
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	0	2	13	43	0
Future Vol, veh/h	0	0	2	13	43	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	38	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	4	34	172	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	38	0	-	0	21	21
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1572	-	-	-	996	1056
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1572	-	-	-	996	1056
Mov Cap-2 Maneuver	-	-	-	-	996	-
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1572	-	-	-	996
HCM Lane V/C Ratio	-	-	-	-	0.173
HCM Control Delay (s)	0	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.6

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	0	3	0	5	0
Future Vol, veh/h	0	0	3	0	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	38	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	6	0	20	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	6	0	-	0	6	6
Stage 1	-	-	-	-	6	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1615	-	-	-	1015	1077
Stage 1	-	-	-	-	1017	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1615	-	-	-	1015	1077
Mov Cap-2 Maneuver	-	-	-	-	1015	-
Stage 1	-	-	-	-	1017	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1615	-	-	-	1015
HCM Lane V/C Ratio	-	-	-	-	0.02
HCM Control Delay (s)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	0	3	13	44	0
Future Vol, veh/h	0	0	3	13	44	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	38	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	6	34	176	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	40	0	-	0	23	23
Stage 1	-	-	-	-	23	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1570	-	-	-	993	1054
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1570	-	-	-	993	1054
Mov Cap-2 Maneuver	-	-	-	-	993	-
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1570	-	-	-	993
HCM Lane V/C Ratio	-	-	-	-	0.177
HCM Control Delay (s)	0	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.6

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	0	3	13	44	0
Future Vol, veh/h	0	0	3	13	44	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	50	50	50	38	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	6	34	176	0

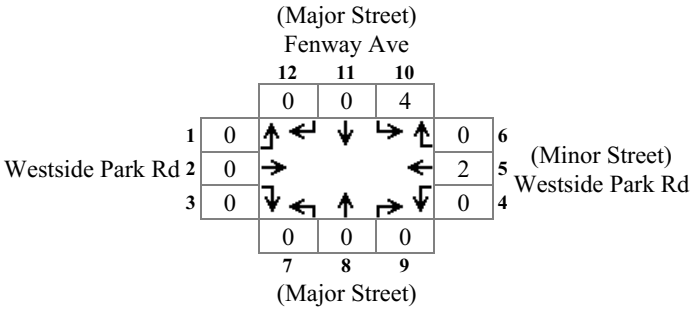
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	40	0	-	0	23	23
Stage 1	-	-	-	-	23	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1570	-	-	-	993	1054
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1570	-	-	-	993	1054
Mov Cap-2 Maneuver	-	-	-	-	993	-
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

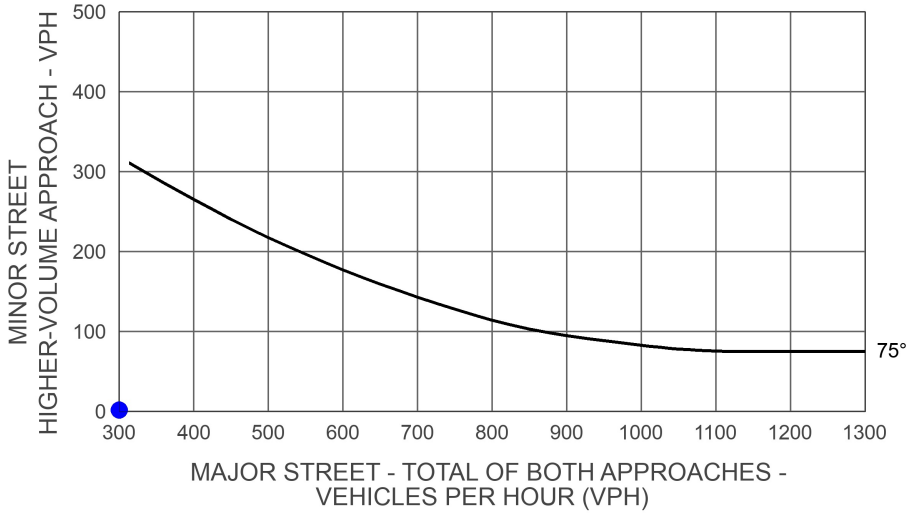
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1570	-	-	-	993
HCM Lane V/C Ratio	-	-	-	-	0.177
HCM Control Delay (s)	0	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.6

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 1

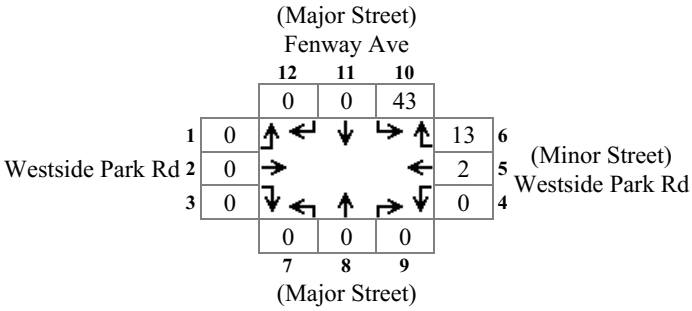


Major Total: 4
Minor High Volume: 2

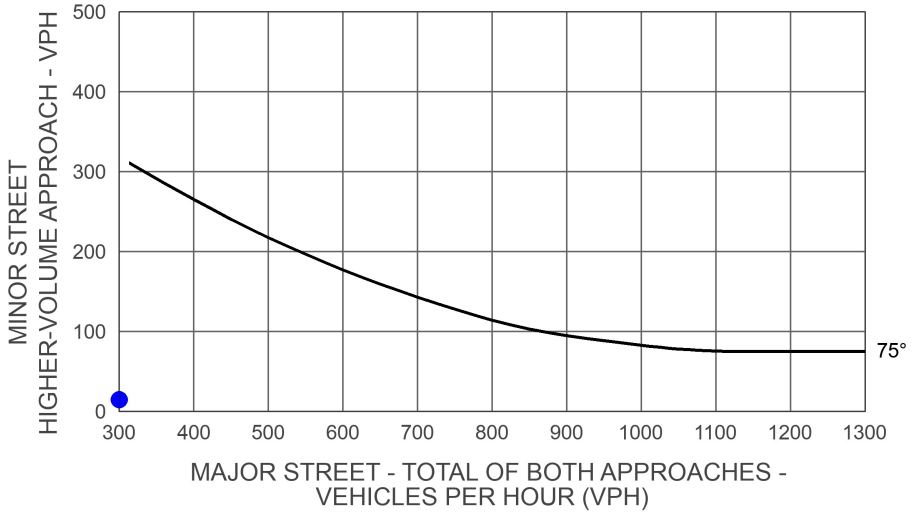


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 1

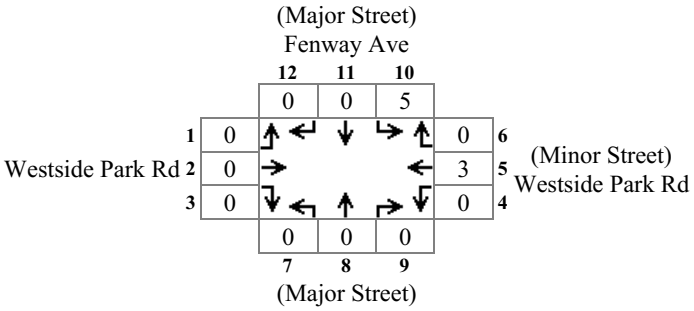


Major Total: 43
Minor High Volume: 15

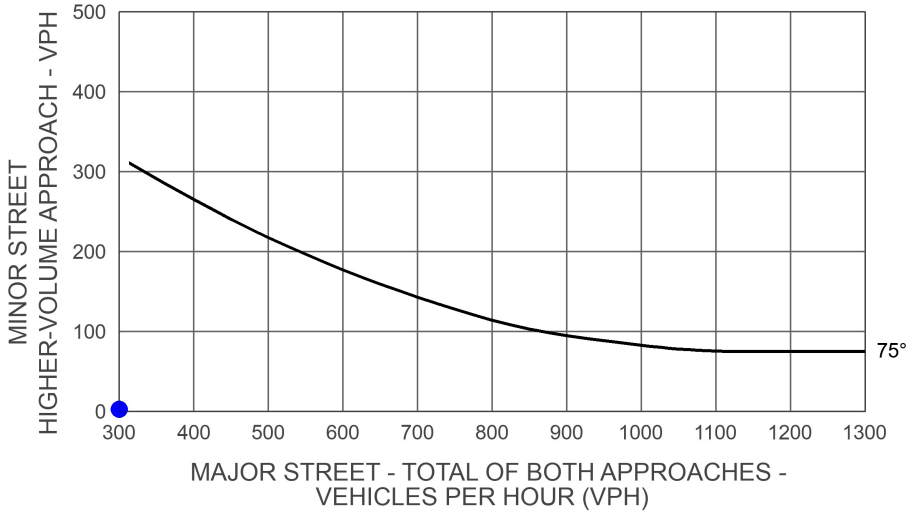


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 1

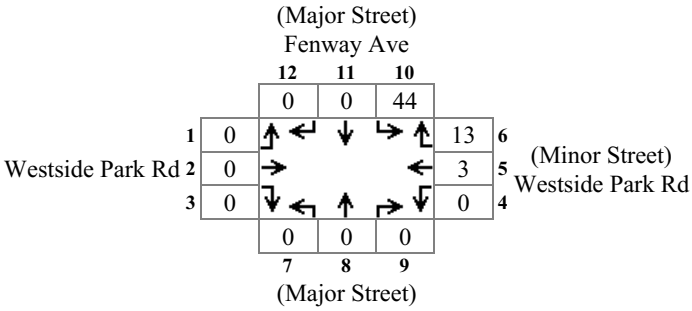


Major Total: 5
Minor High Volume: 3

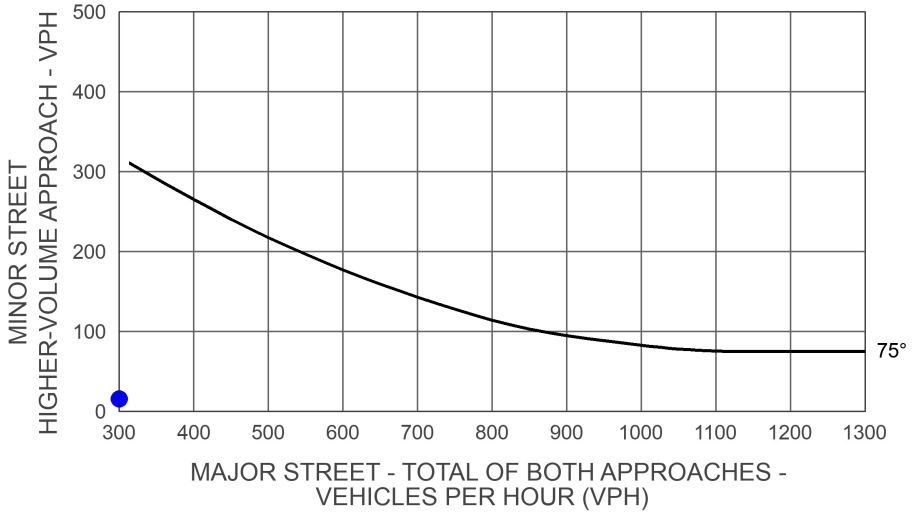


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Project
Intersection #: 1



Major Total: 44
Minor High Volume: 16



Intersection 2
Wrigley St & Westside Park Rd

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	15	44	14	7	0
Future Vol, veh/h	0	15	44	14	7	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	63	63	38	38	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	24	116	37	11	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	153	0	-	0	158	134
Stage 1	-	-	-	-	134	-
Stage 2	-	-	-	-	24	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1428	-	-	-	833	915
Stage 1	-	-	-	-	892	-
Stage 2	-	-	-	-	999	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1428	-	-	-	833	915
Mov Cap-2 Maneuver	-	-	-	-	833	-
Stage 1	-	-	-	-	892	-
Stage 2	-	-	-	-	999	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1428	-	-	-	833
HCM Lane V/C Ratio	-	-	-	-	0.013
HCM Control Delay (s)	0	-	-	-	9.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	39	86	51	29	0
Future Vol, veh/h	0	39	86	51	29	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	63	63	38	38	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	62	226	134	46	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	361	0	-	0	355	293
Stage 1	-	-	-	-	293	-
Stage 2	-	-	-	-	62	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1198	-	-	-	643	746
Stage 1	-	-	-	-	757	-
Stage 2	-	-	-	-	961	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1198	-	-	-	643	746
Mov Cap-2 Maneuver	-	-	-	-	643	-
Stage 1	-	-	-	-	757	-
Stage 2	-	-	-	-	961	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1198	-	-	-	643
HCM Lane V/C Ratio	-	-	-	-	0.072
HCM Control Delay (s)	0	-	-	-	11
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	20	59	19	9	0
Future Vol, veh/h	0	20	59	19	9	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	63	63	38	38	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	32	155	50	14	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	205	0	-	0	212	180
Stage 1	-	-	-	-	180	-
Stage 2	-	-	-	-	32	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1366	-	-	-	776	863
Stage 1	-	-	-	-	851	-
Stage 2	-	-	-	-	991	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1366	-	-	-	776	863
Mov Cap-2 Maneuver	-	-	-	-	776	-
Stage 1	-	-	-	-	851	-
Stage 2	-	-	-	-	991	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1366	-	-	-	776
HCM Lane V/C Ratio	-	-	-	-	0.018
HCM Control Delay (s)	0	-	-	-	9.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	44	101	56	31	0
Future Vol, veh/h	0	44	101	56	31	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	63	63	38	38	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	70	266	147	49	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	413	0	-	0	409	339
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	70	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1146	-	-	-	599	703
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	953	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1146	-	-	-	599	703
Mov Cap-2 Maneuver	-	-	-	-	599	-
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	953	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1146	-	-	-	599
HCM Lane V/C Ratio	-	-	-	-	0.082
HCM Control Delay (s)	0	-	-	-	11.5
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	44	101	56	31	0
Future Vol, veh/h	0	44	101	56	31	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	63	63	38	38	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	70	266	147	49	0

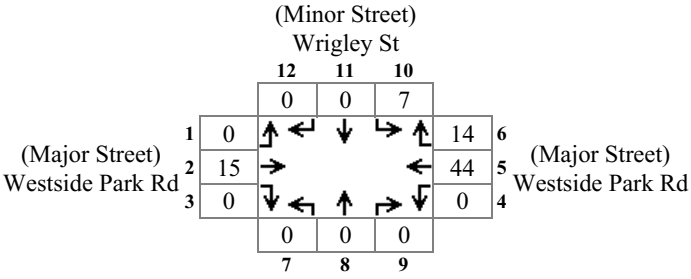
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	413	0	-	0	409	339
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	70	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1146	-	-	-	599	703
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	953	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1146	-	-	-	599	703
Mov Cap-2 Maneuver	-	-	-	-	599	-
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	953	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.5
HCM LOS			B

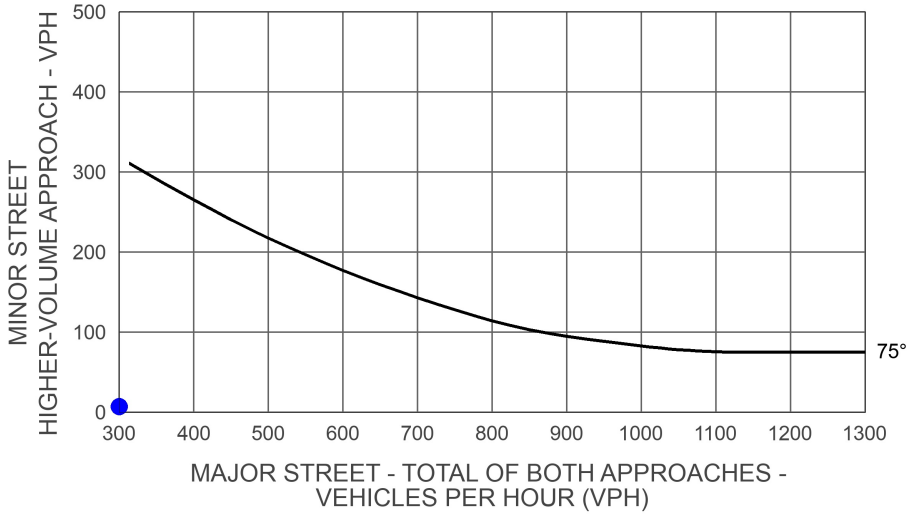
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1146	-	-	-	599
HCM Lane V/C Ratio	-	-	-	-	0.082
HCM Control Delay (s)	0	-	-	-	11.5
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 2

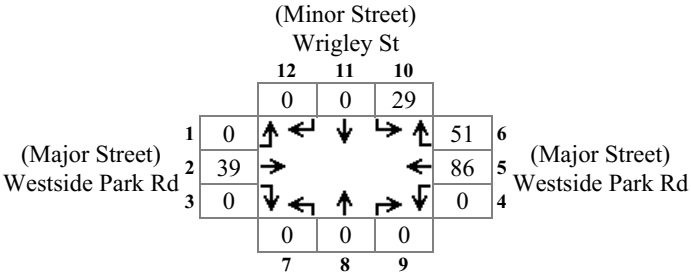


Major Total: 73
Minor High Volume: 7

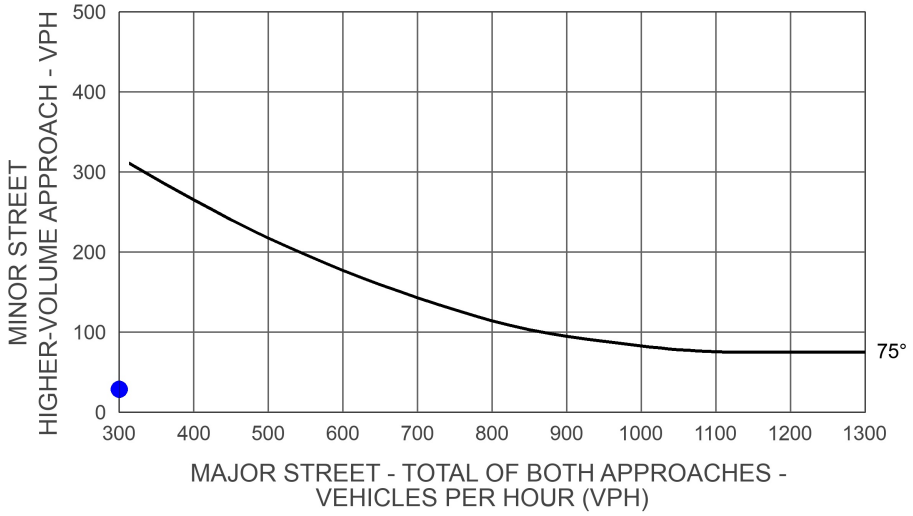


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 2

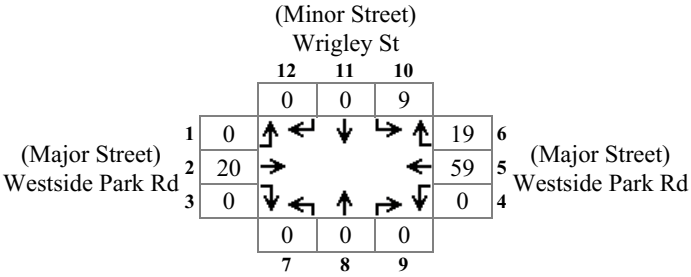


Major Total: 176
Minor High Volume: 29

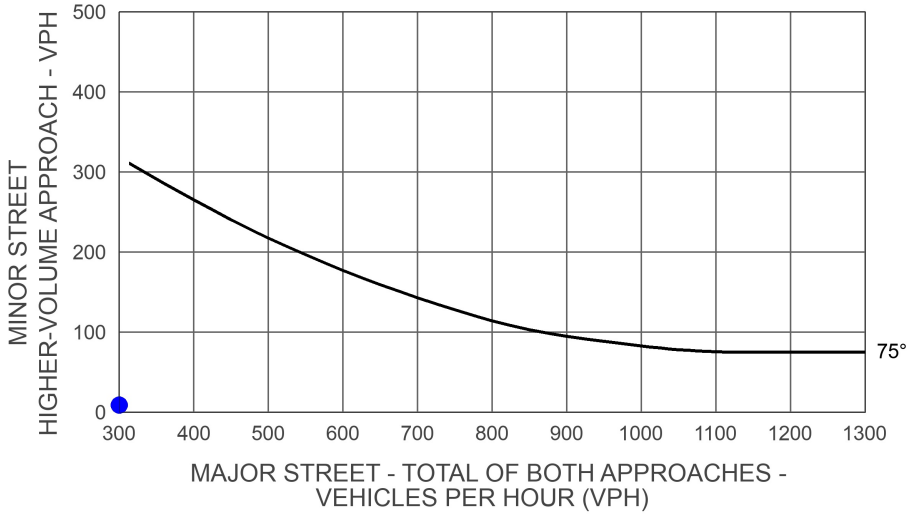


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 2

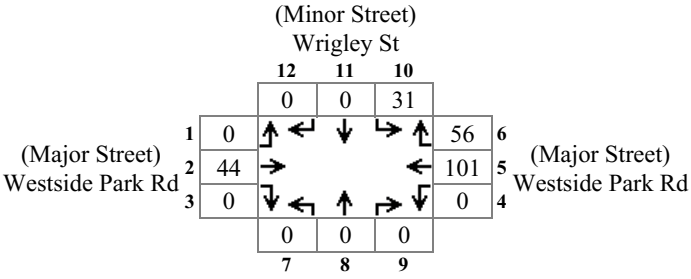


Major Total: 98
Minor High Volume: 9

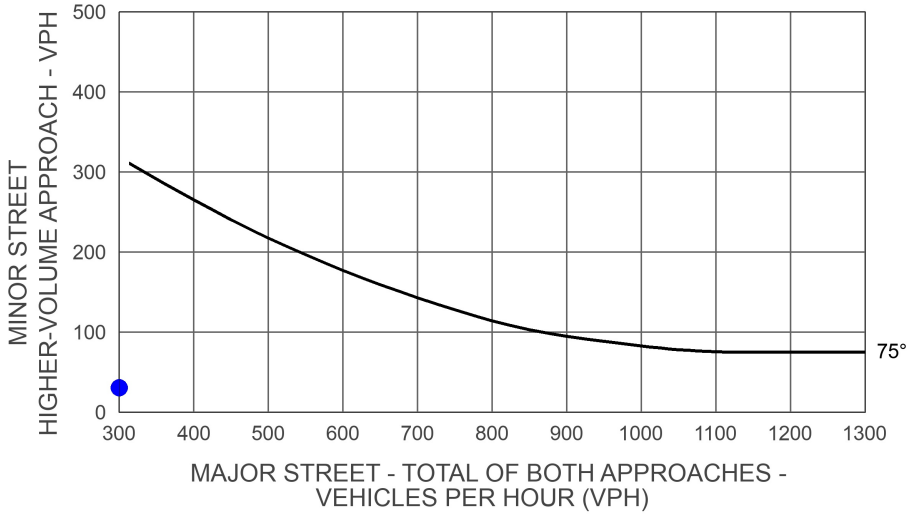


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 2



Major Total: 201
Minor High Volume: 31



Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	5	6	3	10	0
Future Vol, veh/h	0	5	6	3	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	63	63	38	38	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	16	8	16	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	24	0	-	0	28	20
Stage 1	-	-	-	-	20	-
Stage 2	-	-	-	-	8	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1591	-	-	-	987	1058
Stage 1	-	-	-	-	1003	-
Stage 2	-	-	-	-	1015	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1591	-	-	-	987	1058
Mov Cap-2 Maneuver	-	-	-	-	987	-
Stage 1	-	-	-	-	1003	-
Stage 2	-	-	-	-	1015	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1591	-	-	-	987
HCM Lane V/C Ratio	-	-	-	-	0.016
HCM Control Delay (s)	0	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	44	19	15	46	0
Future Vol, veh/h	0	44	19	15	46	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	63	63	38	38	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	70	50	39	73	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	89	0	-	0	140	70
Stage 1	-	-	-	-	70	-
Stage 2	-	-	-	-	70	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1506	-	-	-	853	993
Stage 1	-	-	-	-	953	-
Stage 2	-	-	-	-	953	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1506	-	-	-	853	993
Mov Cap-2 Maneuver	-	-	-	-	853	-
Stage 1	-	-	-	-	953	-
Stage 2	-	-	-	-	953	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1506	-	-	-	853
HCM Lane V/C Ratio	-	-	-	-	0.086
HCM Control Delay (s)	0	-	-	-	9.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	7	8	4	13	0
Future Vol, veh/h	0	7	8	4	13	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	63	63	38	38	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	21	11	21	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	32	0	-	0	37	26
Stage 1	-	-	-	-	26	-
Stage 2	-	-	-	-	11	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1580	-	-	-	975	1050
Stage 1	-	-	-	-	997	-
Stage 2	-	-	-	-	1012	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1580	-	-	-	975	1050
Mov Cap-2 Maneuver	-	-	-	-	975	-
Stage 1	-	-	-	-	997	-
Stage 2	-	-	-	-	1012	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1580	-	-	-	975
HCM Lane V/C Ratio	-	-	-	-	0.021
HCM Control Delay (s)	0	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	46	21	16	49	0
Future Vol, veh/h	0	46	21	16	49	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	63	63	38	38	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	73	55	42	78	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	97	0	-	0	149	76
Stage 1	-	-	-	-	76	-
Stage 2	-	-	-	-	73	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1496	-	-	-	843	985
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	950	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1496	-	-	-	843	985
Mov Cap-2 Maneuver	-	-	-	-	843	-
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	950	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1496	-	-	-	843
HCM Lane V/C Ratio	-	-	-	-	0.092
HCM Control Delay (s)	0	-	-	-	9.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	0	46	21	16	49	0
Future Vol, veh/h	0	46	21	16	49	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	63	63	38	38	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	73	55	42	78	0

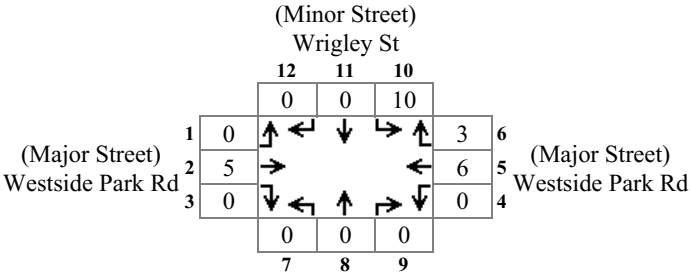
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	97	0	-	0	149	76
Stage 1	-	-	-	-	76	-
Stage 2	-	-	-	-	73	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1496	-	-	-	843	985
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	950	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1496	-	-	-	843	985
Mov Cap-2 Maneuver	-	-	-	-	843	-
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	950	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.7
HCM LOS			A

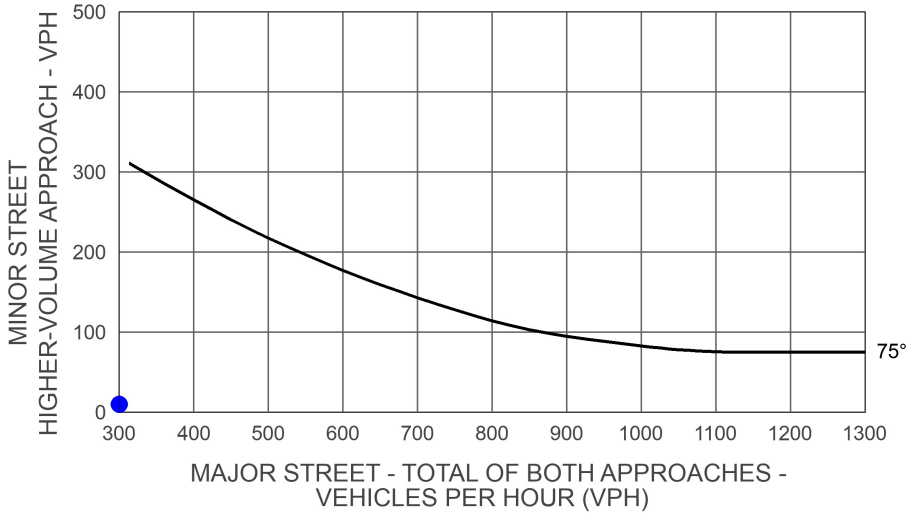
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1496	-	-	-	843
HCM Lane V/C Ratio	-	-	-	-	0.092
HCM Control Delay (s)	0	-	-	-	9.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 2

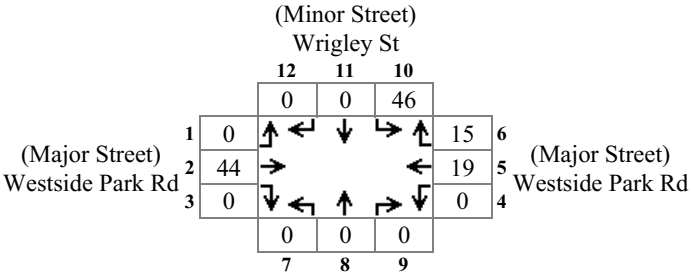


Major Total: 14
Minor High Volume: 10

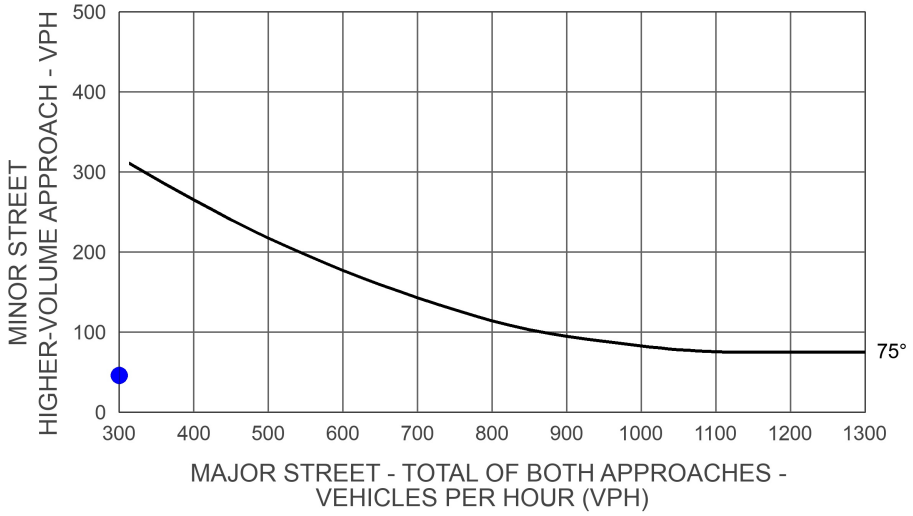


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 2

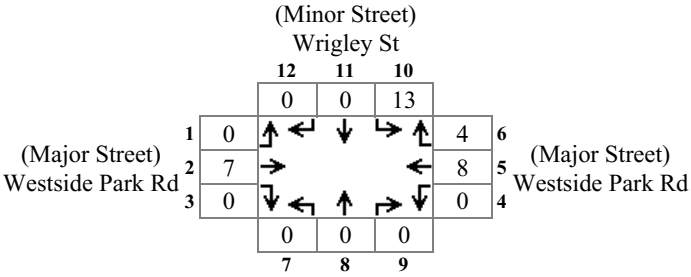


Major Total: 78
Minor High Volume: 46

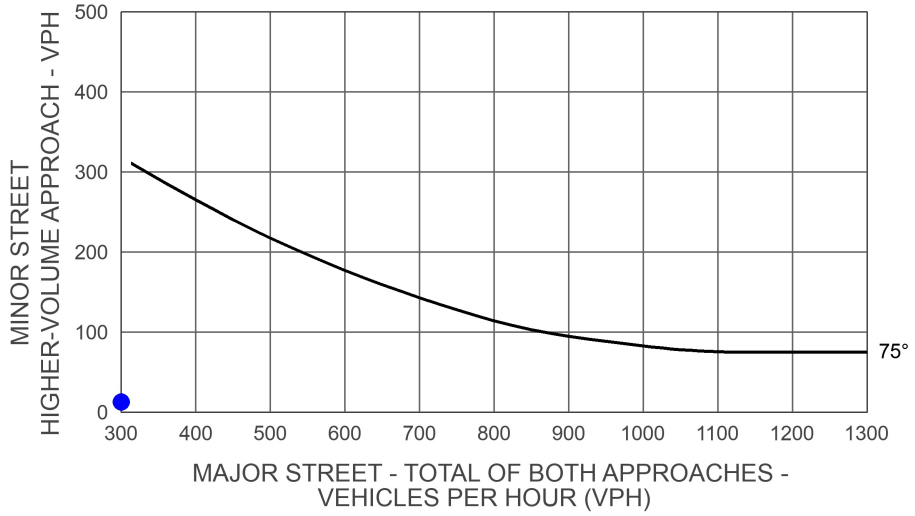


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 2

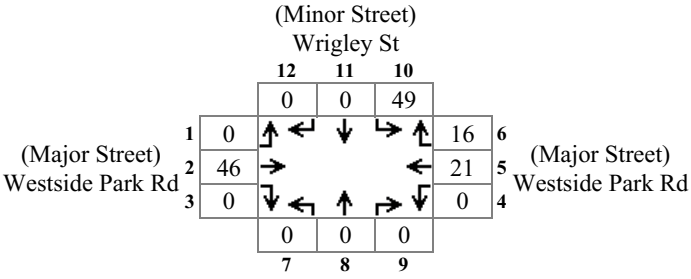


Major Total: 19
Minor High Volume: 13

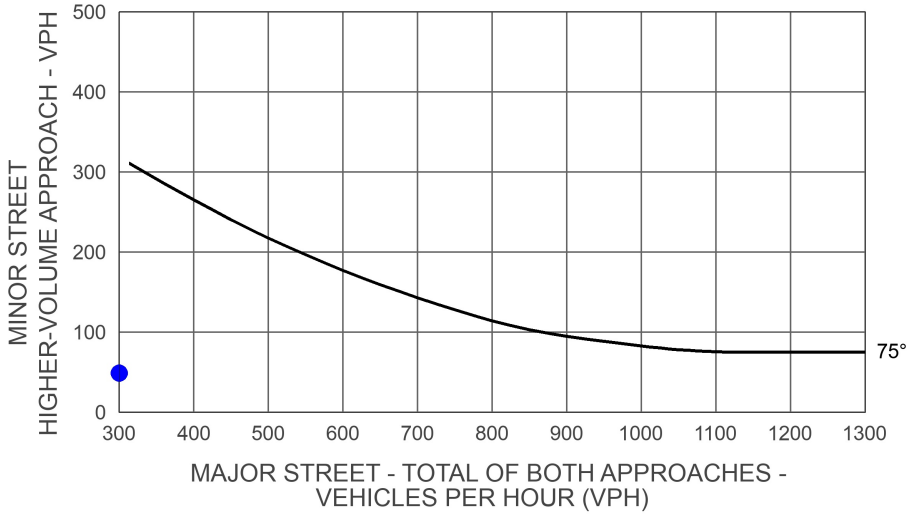


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Project
Intersection #: 2



Major Total: 83
Minor High Volume: 49



Intersection 3
Parallel Dr & Westside Park Rd

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	1	43	105	60	109	3
Future Vol, veh/h	1	43	105	60	109	3
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	81	75	83	65	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	53	140	72	168	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	529	182	181	0	-	0
Stage 1	177	-	-	-	-	-
Stage 2	352	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	510	861	1394	-	-	-
Stage 1	854	-	-	-	-	-
Stage 2	712	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	455	854	1388	-	-	-
Mov Cap-2 Maneuver	455	-	-	-	-	-
Stage 1	850	-	-	-	-	-
Stage 2	638	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	5.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1388	-	805	-	-
HCM Lane V/C Ratio	0.101	-	0.071	-	-
HCM Control Delay (s)	7.9	-	9.8	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.2	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	1	89	184	60	109	3
Future Vol, veh/h	1	89	184	60	109	3
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	81	75	83	65	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	110	245	72	168	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	740	182	181	0	-	0
Stage 1	177	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	384	861	1394	-	-	-
Stage 1	854	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	314	854	1388	-	-	-
Mov Cap-2 Maneuver	314	-	-	-	-	-
Stage 1	850	-	-	-	-	-
Stage 2	467	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	6.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1388	-	805	-	-
HCM Lane V/C Ratio	0.177	-	0.141	-	-
HCM Control Delay (s)	8.2	-	10.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.6	-	0.5	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	1	57	140	80	145	4
Future Vol, veh/h	1	57	140	80	145	4
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	81	75	83	65	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	70	187	96	223	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	703	238	239	0	-	0
Stage 1	233	-	-	-	-	-
Stage 2	470	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	404	801	1328	-	-	-
Stage 1	806	-	-	-	-	-
Stage 2	629	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	344	794	1322	-	-	-
Mov Cap-2 Maneuver	344	-	-	-	-	-
Stage 1	803	-	-	-	-	-
Stage 2	538	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	5.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1322	-	742	-	-
HCM Lane V/C Ratio	0.141	-	0.1	-	-
HCM Control Delay (s)	8.2	-	10.4	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.5	-	0.3	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	1	103	219	80	145	4
Future Vol, veh/h	1	103	219	80	145	4
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	81	75	83	65	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	127	292	96	223	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	913	238	239	0	-	0
Stage 1	233	-	-	-	-	-
Stage 2	680	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	304	801	1328	-	-	-
Stage 1	806	-	-	-	-	-
Stage 2	503	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	235	794	1322	-	-	-
Mov Cap-2 Maneuver	235	-	-	-	-	-
Stage 1	803	-	-	-	-	-
Stage 2	390	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	6.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1322	-	740	-	-
HCM Lane V/C Ratio	0.221	-	0.177	-	-
HCM Control Delay (s)	8.5	-	10.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.8	-	0.6	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	1	103	219	80	145	4
Future Vol, veh/h	1	103	219	80	145	4
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	81	75	83	65	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	127	292	96	223	11

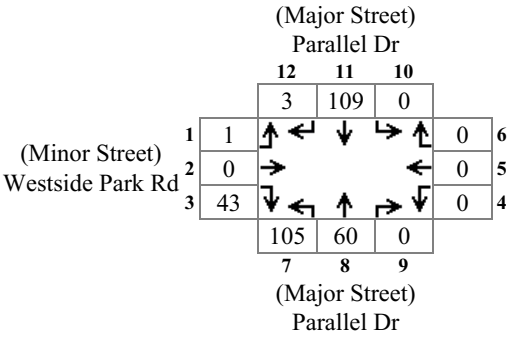
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	913	238	239	0	-	0
Stage 1	233	-	-	-	-	-
Stage 2	680	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	304	801	1328	-	-	-
Stage 1	806	-	-	-	-	-
Stage 2	503	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	235	794	1322	-	-	-
Mov Cap-2 Maneuver	235	-	-	-	-	-
Stage 1	803	-	-	-	-	-
Stage 2	390	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	6.4	0
HCM LOS	B		

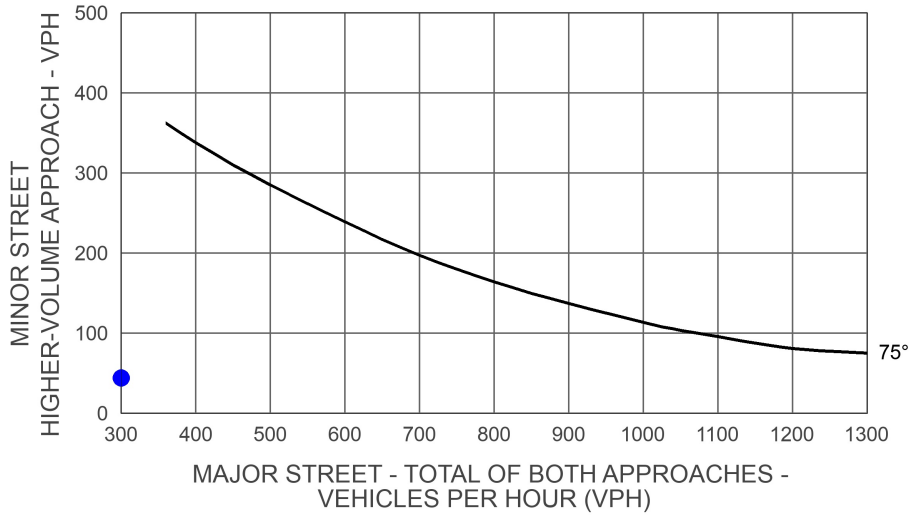
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1322	-	740	-	-
HCM Lane V/C Ratio	0.221	-	0.177	-	-
HCM Control Delay (s)	8.5	-	10.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.8	-	0.6	-	-

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 3

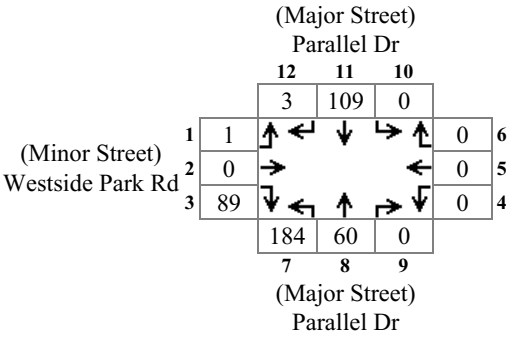


Major Total: 277
Minor High Volume: 44

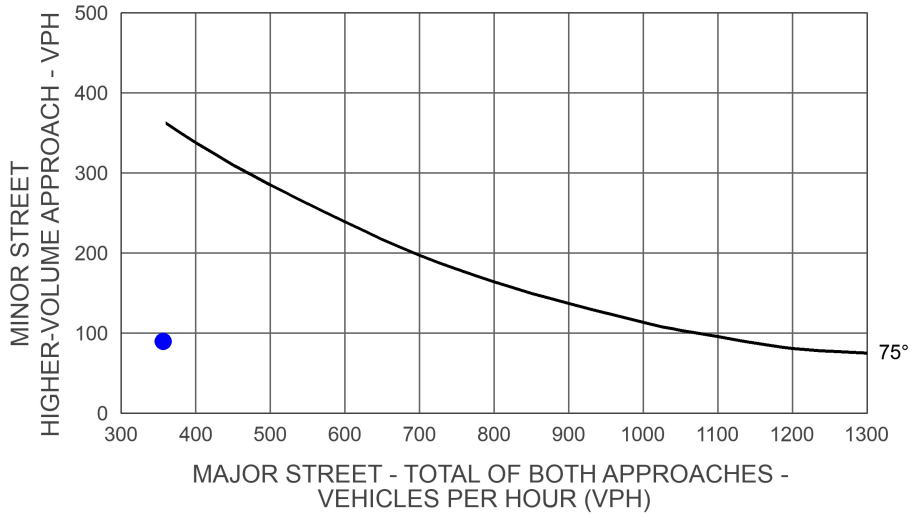


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing+Project
Intersection #: 3

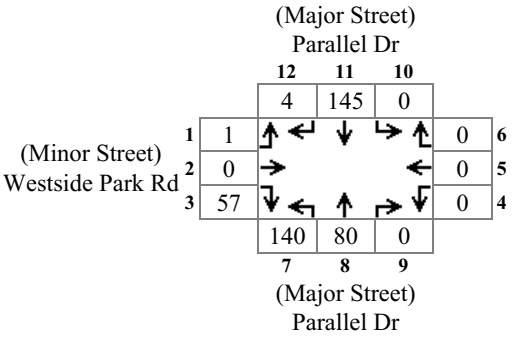


Major Total: 356
Minor High Volume: 90

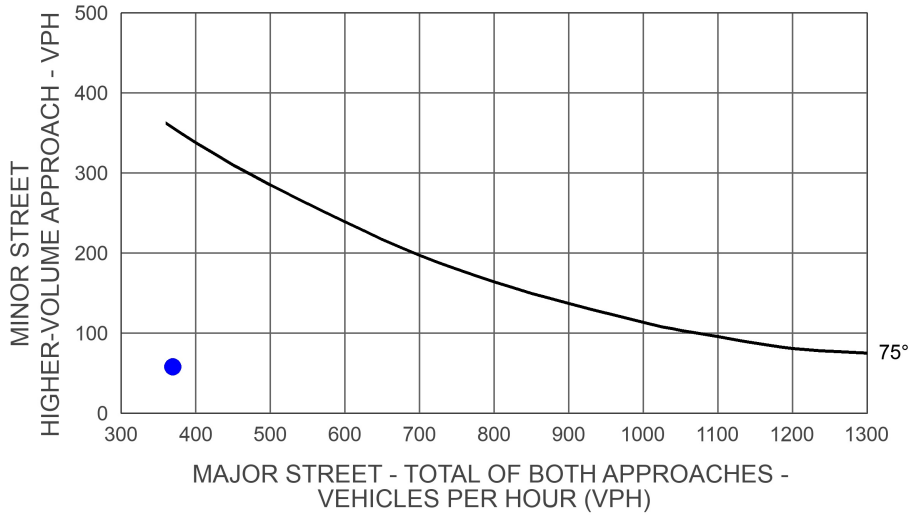


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future
Intersection #: 3

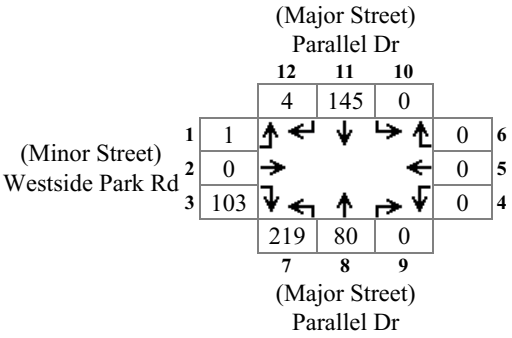


Major Total: 369
Minor High Volume: 58

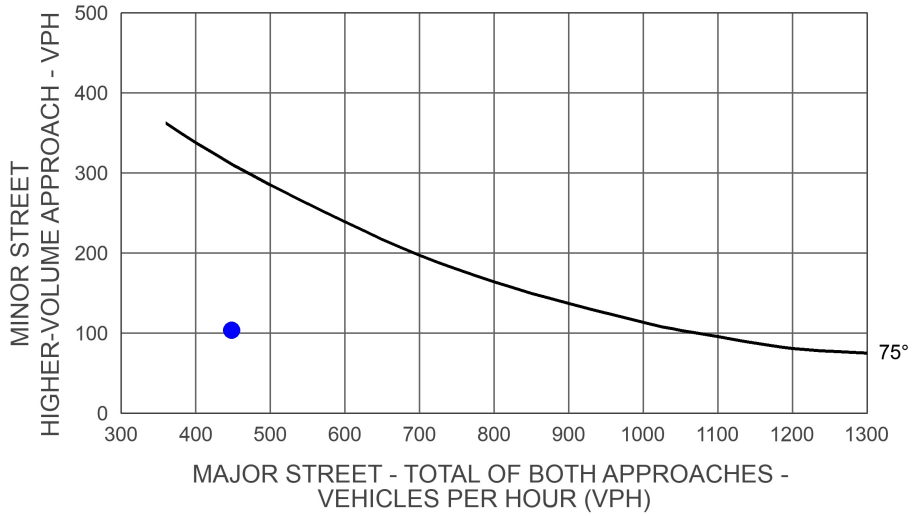


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Future+Project
Intersection #: 3



Major Total: 448
Minor High Volume: 104



Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	0	9	106	24	0
Future Vol, veh/h	0	0	9	106	24	0
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	81	75	83	65	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	12	128	37	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	194	47	42	0	-	0
Stage 1	42	-	-	-	-	-
Stage 2	152	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	795	1022	1567	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	876	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	782	1014	1560	-	-	-
Mov Cap-2 Maneuver	782	-	-	-	-	-
Stage 1	976	-	-	-	-	-
Stage 2	866	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1560	-	-	-	-
HCM Lane V/C Ratio	0.008	-	-	-	-
HCM Control Delay (s)	7.3	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	76	33	106	24	0
Future Vol, veh/h	0	76	33	106	24	0
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	81	75	83	65	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	94	44	128	37	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	258	47	42	0	-	0
Stage 1	42	-	-	-	-	-
Stage 2	216	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	731	1022	1567	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	820	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	704	1014	1560	-	-	-
Mov Cap-2 Maneuver	704	-	-	-	-	-
Stage 1	976	-	-	-	-	-
Stage 2	794	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	1.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1560	-	1014	-	-
HCM Lane V/C Ratio	0.028	-	0.093	-	-
HCM Control Delay (s)	7.4	-	8.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	0	12	141	32	0
Future Vol, veh/h	0	0	12	141	32	0
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	81	75	83	65	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	16	170	49	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	256	59	54	0	-	0
Stage 1	54	-	-	-	-	-
Stage 2	202	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	733	1007	1551	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	832	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	719	999	1545	-	-	-
Mov Cap-2 Maneuver	719	-	-	-	-	-
Stage 1	965	-	-	-	-	-
Stage 2	820	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1545	-	-	-	-
HCM Lane V/C Ratio	0.01	-	-	-	-
HCM Control Delay (s)	7.4	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	76	36	141	32	0
Future Vol, veh/h	0	76	36	141	32	0
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	81	75	83	65	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	94	48	170	49	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	320	59	54	0	-	0
Stage 1	54	-	-	-	-	-
Stage 2	266	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	673	1007	1551	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	779	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	647	999	1545	-	-	-
Mov Cap-2 Maneuver	647	-	-	-	-	-
Stage 1	965	-	-	-	-	-
Stage 2	752	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	1.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1545	-	999	-	-
HCM Lane V/C Ratio	0.031	-	0.094	-	-
HCM Control Delay (s)	7.4	-	9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	76	36	141	32	0
Future Vol, veh/h	0	76	36	141	32	0
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	80	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	25	81	75	83	65	38
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	94	48	170	49	0

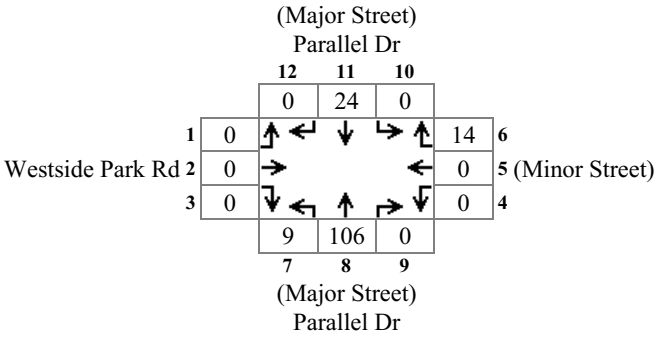
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	320	59	54	0	-	0
Stage 1	54	-	-	-	-	-
Stage 2	266	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	673	1007	1551	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	779	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	647	999	1545	-	-	-
Mov Cap-2 Maneuver	647	-	-	-	-	-
Stage 1	965	-	-	-	-	-
Stage 2	752	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	1.6	0
HCM LOS	A		

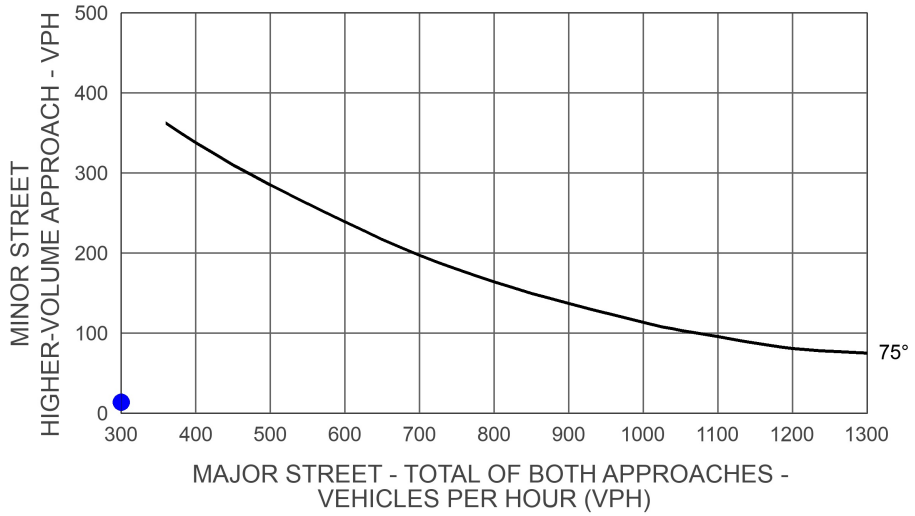
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1545	-	999	-	-
HCM Lane V/C Ratio	0.031	-	0.094	-	-
HCM Control Delay (s)	7.4	-	9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 3

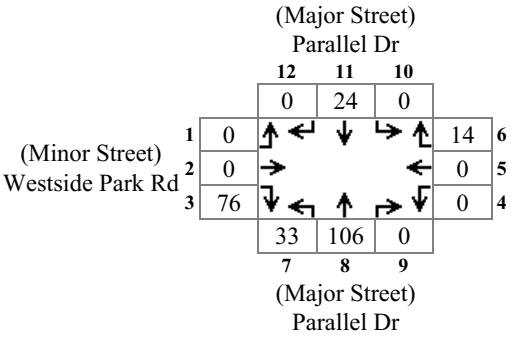


Major Total: 139
Minor High Volume: 14

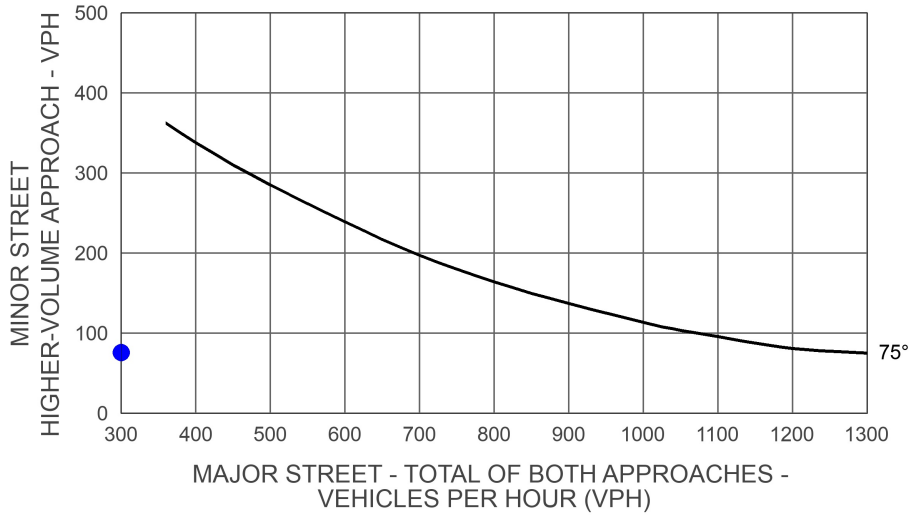


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 3

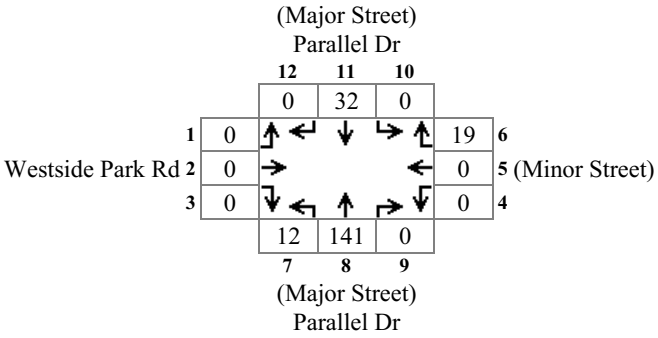


Major Total: 163
Minor High Volume: 76

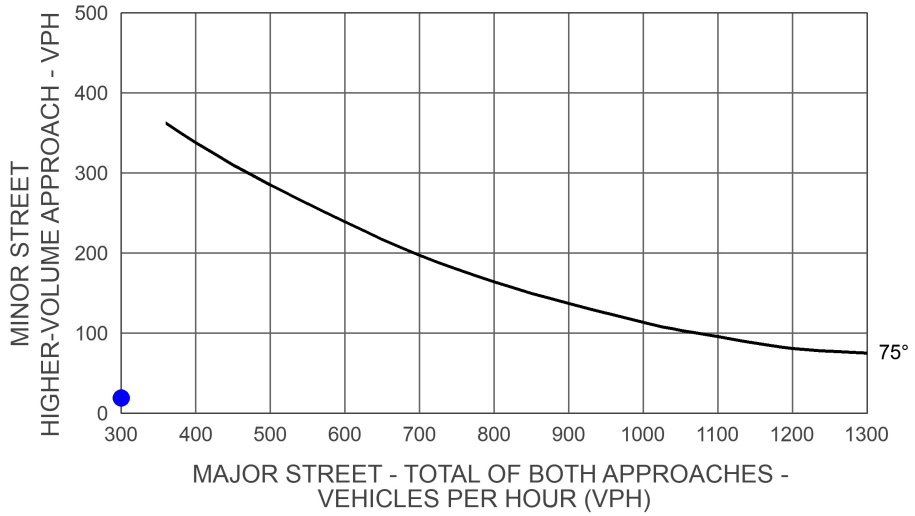


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 3

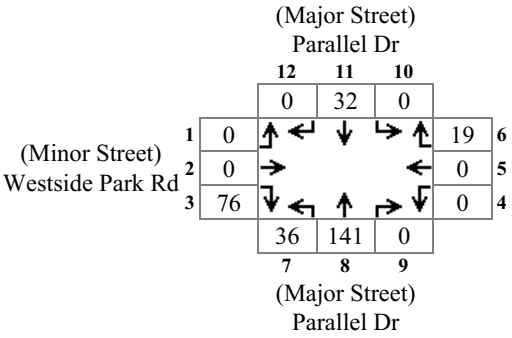


Major Total: 185
Minor High Volume: 19

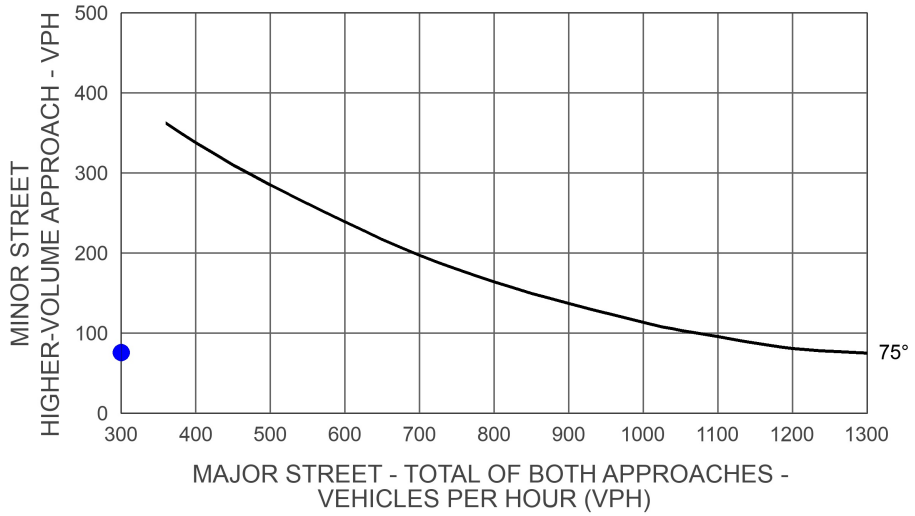


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Project
Intersection #: 3



Major Total: 209
Minor High Volume: 76



Intersection 4
Parallel Dr & Lakeport Blvd

Intersection	
Intersection Delay, s/veh	0.0
Intersection LOS	-

Approach	EB	WB	NB	SB
Entry Lanes	0	0	0	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	0	0	0
Demand Flow Rate, veh/h	0	0	0	0
Vehicles Circulating, veh/h	415	59	373	130
Vehicles Exiting, veh/h	96	424	127	209
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	0.0	0.0	0.0
Approach LOS	-	-	-	-

Lane
Designated Moves
Assumed Moves
RT Channelized
Lane Util
Critical Headway, s
Entry Flow, veh/h
Cap Entry Lane, veh/h
Entry HV Adj Factor
Flow Entry, veh/h
Cap Entry, veh/h
V/C Ratio
Control Delay, s/veh
LOS
95th %tile Queue, veh

Intersection	
Intersection Delay, s/veh	0.0
Intersection LOS	-

Approach	EB	WB	NB	SB
Entry Lanes	0	0	0	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	0	0	0
Demand Flow Rate, veh/h	0	0	0	0
Vehicles Circulating, veh/h	480	67	432	130
Vehicles Exiting, veh/h	96	483	133	308
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	0.0	0.0	0.0
Approach LOS	-	-	-	-

Lane
Designated Moves
Assumed Moves
RT Channelized
Lane Util
Critical Headway, s
Entry Flow, veh/h
Cap Entry Lane, veh/h
Entry HV Adj Factor
Flow Entry, veh/h
Cap Entry, veh/h
V/C Ratio
Control Delay, s/veh
LOS
95th %tile Queue, veh

Intersection	
Intersection Delay, s/veh	0.0
Intersection LOS	-

Approach	EB	WB	NB	SB
Entry Lanes	0	0	0	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	0	0	0
Demand Flow Rate, veh/h	0	0	0	0
Vehicles Circulating, veh/h	555	78	496	174
Vehicles Exiting, veh/h	128	565	171	278
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	0.0	0.0	0.0
Approach LOS	-	-	-	-

Lane
Designated Moves
Assumed Moves
RT Channelized
Lane Util
Critical Headway, s
Entry Flow, veh/h
Cap Entry Lane, veh/h
Entry HV Adj Factor
Flow Entry, veh/h
Cap Entry, veh/h
V/C Ratio
Control Delay, s/veh
LOS
95th %tile Queue, veh

Intersection	
Intersection Delay, s/veh	0.0
Intersection LOS	-

Approach	EB	WB	NB	SB
Entry Lanes	0	0	0	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	0	0	0
Demand Flow Rate, veh/h	0	0	0	0
Vehicles Circulating, veh/h	619	87	554	174
Vehicles Exiting, veh/h	128	623	177	378
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	0.0	0.0	0.0
Approach LOS	-	-	-	-

Lane
Designated Moves
Assumed Moves
RT Channelized
Lane Util
Critical Headway, s
Entry Flow, veh/h
Cap Entry Lane, veh/h
Entry HV Adj Factor
Flow Entry, veh/h
Cap Entry, veh/h
V/C Ratio
Control Delay, s/veh
LOS
95th %tile Queue, veh

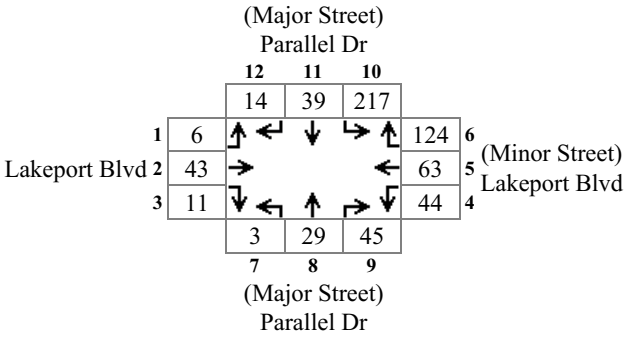
Intersection	
Intersection Delay, s/veh	0.0
Intersection LOS	-

Approach	EB	WB	NB	SB
Entry Lanes	0	0	0	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	0	0	0
Demand Flow Rate, veh/h	0	0	0	0
Vehicles Circulating, veh/h	619	87	554	174
Vehicles Exiting, veh/h	128	623	177	378
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	0.0	0.0	0.0
Approach LOS	-	-	-	-

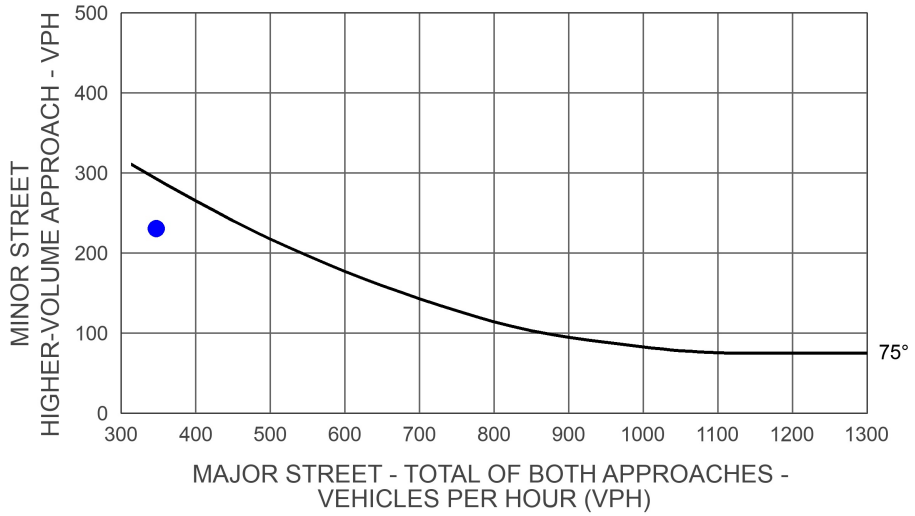
Lane
Designated Moves
Assumed Moves
RT Channelized
Lane Util
Critical Headway, s
Entry Flow, veh/h
Cap Entry Lane, veh/h
Entry HV Adj Factor
Flow Entry, veh/h
Cap Entry, veh/h
V/C Ratio
Control Delay, s/veh
LOS
95th %tile Queue, veh

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: PM Existing
Intersection #: 4

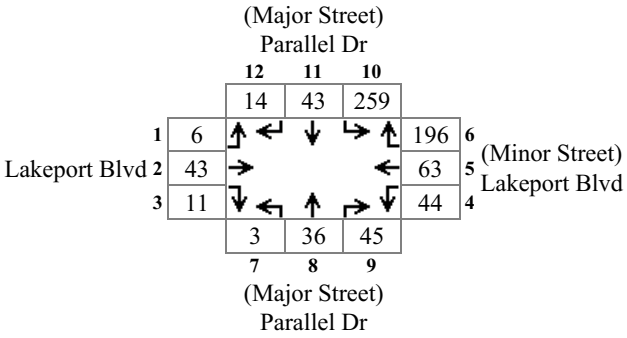


Major Total: 347
Minor High Volume: 231

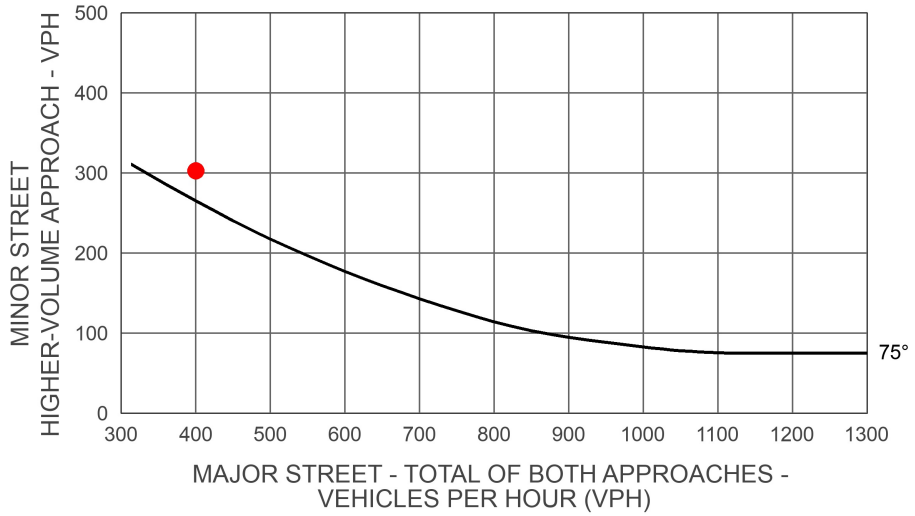


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Existing+Project
Intersection #: 4

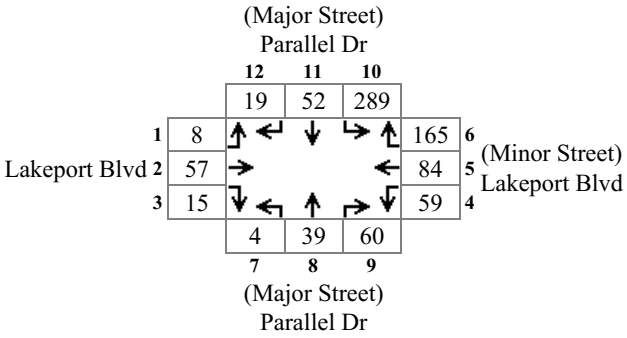


Major Total: 400
Minor High Volume: 303

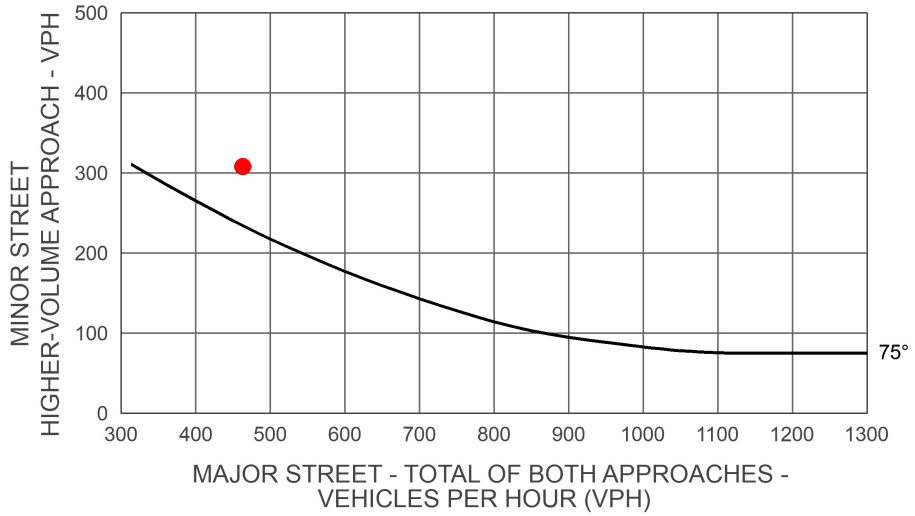


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future
Intersection #: 4

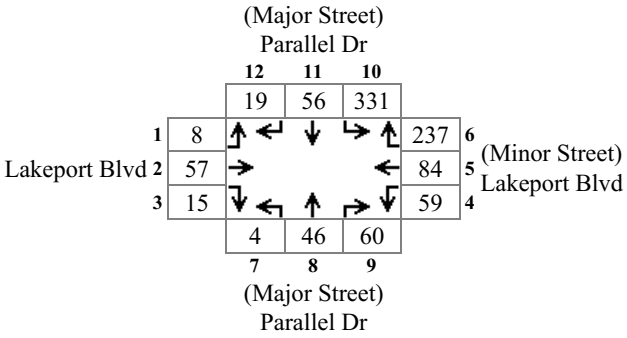


Major Total: 463
Minor High Volume: 308

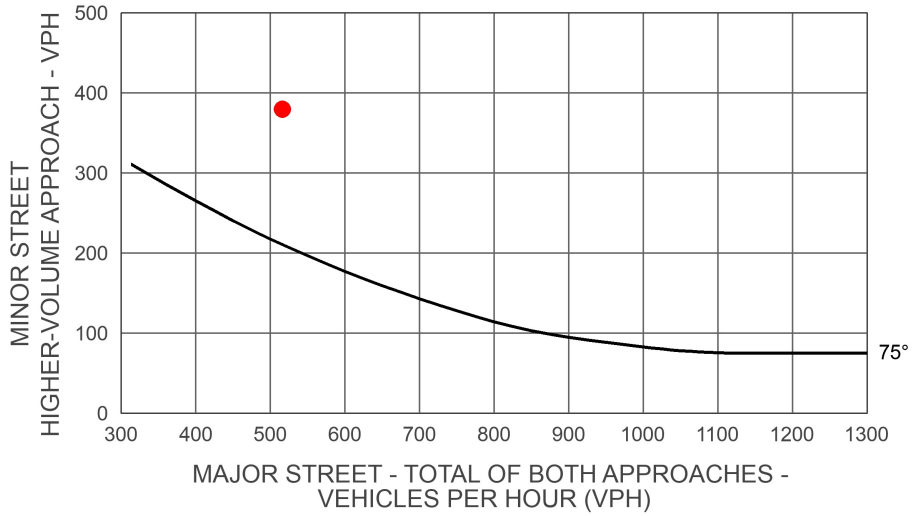


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future+Project
Intersection #: 4



Major Total: 516
Minor High Volume: 380



Intersection	
Intersection Delay, s/veh	0.0
Intersection LOS	-

Approach	EB	WB	NB	SB
Entry Lanes	0	0	0	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	0	0	0
Demand Flow Rate, veh/h	0	0	0	0
Vehicles Circulating, veh/h	164	57	151	77
Vehicles Exiting, veh/h	36	184	74	175
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	0.0	0.0	0.0
Approach LOS	-	-	-	-

Lane
Designated Moves
Assumed Moves
RT Channelized
Lane Util
Critical Headway, s
Entry Flow, veh/h
Cap Entry Lane, veh/h
Entry HV Adj Factor
Flow Entry, veh/h
Cap Entry, veh/h
V/C Ratio
Control Delay, s/veh
LOS
95th %tile Queue, veh

Intersection	
Intersection Delay, s/veh	0.0
Intersection LOS	-

Approach	EB	WB	NB	SB
Entry Lanes	0	0	0	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	0	0	0
Demand Flow Rate, veh/h	0	0	0	0
Vehicles Circulating, veh/h	272	59	249	77
Vehicles Exiting, veh/h	36	282	84	204
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	0.0	0.0	0.0
Approach LOS	-	-	-	-

Lane
Designated Moves
Assumed Moves
RT Channelized
Lane Util
Critical Headway, s
Entry Flow, veh/h
Cap Entry Lane, veh/h
Entry HV Adj Factor
Flow Entry, veh/h
Cap Entry, veh/h
V/C Ratio
Control Delay, s/veh
LOS
95th %tile Queue, veh

Intersection	
Intersection Delay, s/veh	0.0
Intersection LOS	-

Approach	EB	WB	NB	SB
Entry Lanes	0	0	0	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	0	0	0
Demand Flow Rate, veh/h	0	0	0	0
Vehicles Circulating, veh/h	218	76	200	103
Vehicles Exiting, veh/h	49	243	99	232
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	0.0	0.0	0.0
Approach LOS	-	-	-	-

Lane
Designated Moves
Assumed Moves
RT Channelized
Lane Util
Critical Headway, s
Entry Flow, veh/h
Cap Entry Lane, veh/h
Entry HV Adj Factor
Flow Entry, veh/h
Cap Entry, veh/h
V/C Ratio
Control Delay, s/veh
LOS
95th %tile Queue, veh

Intersection	
Intersection Delay, s/veh	0.0
Intersection LOS	-

Approach	EB	WB	NB	SB
Entry Lanes	0	0	0	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	0	0	0
Demand Flow Rate, veh/h	0	0	0	0
Vehicles Circulating, veh/h	325	79	298	103
Vehicles Exiting, veh/h	49	341	108	263
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	0.0	0.0	0.0
Approach LOS	-	-	-	-

Lane
Designated Moves
Assumed Moves
RT Channelized
Lane Util
Critical Headway, s
Entry Flow, veh/h
Cap Entry Lane, veh/h
Entry HV Adj Factor
Flow Entry, veh/h
Cap Entry, veh/h
V/C Ratio
Control Delay, s/veh
LOS
95th %tile Queue, veh

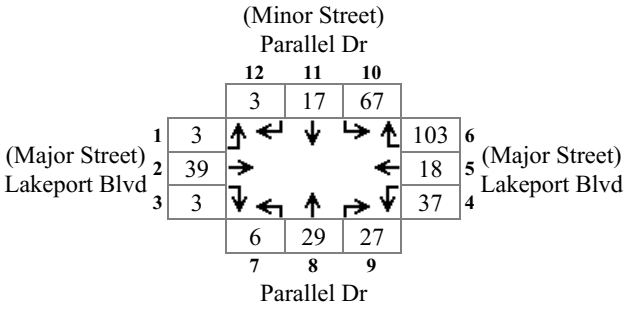
Intersection	
Intersection Delay, s/veh	0.0
Intersection LOS	-

Approach	EB	WB	NB	SB
Entry Lanes	0	0	0	0
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	0	0	0	0
Demand Flow Rate, veh/h	0	0	0	0
Vehicles Circulating, veh/h	325	79	298	103
Vehicles Exiting, veh/h	49	341	108	263
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	0.0	0.0	0.0	0.0
Approach LOS	-	-	-	-

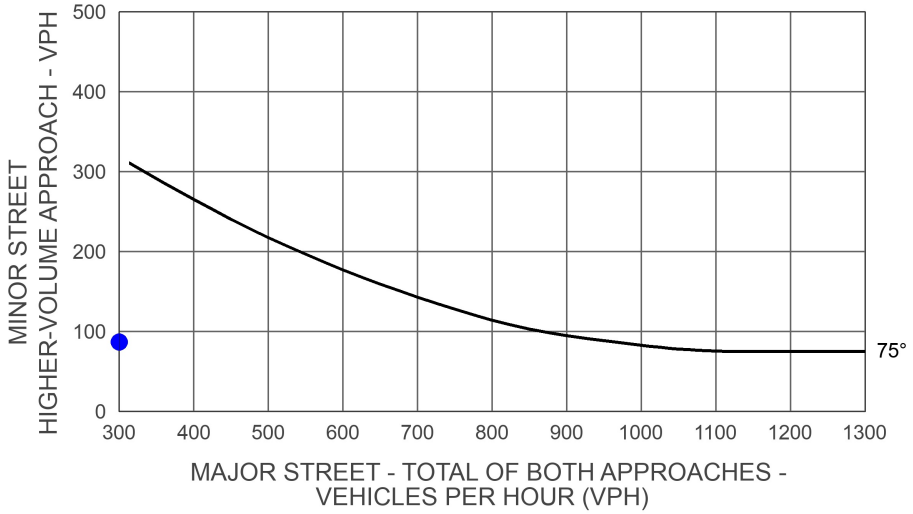
Lane
Designated Moves
Assumed Moves
RT Channelized
Lane Util
Critical Headway, s
Entry Flow, veh/h
Cap Entry Lane, veh/h
Entry HV Adj Factor
Flow Entry, veh/h
Cap Entry, veh/h
V/C Ratio
Control Delay, s/veh
LOS
95th %tile Queue, veh

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 4

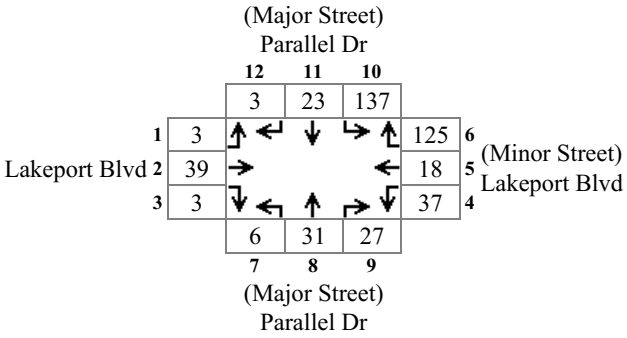


Major Total: 203
Minor High Volume: 87

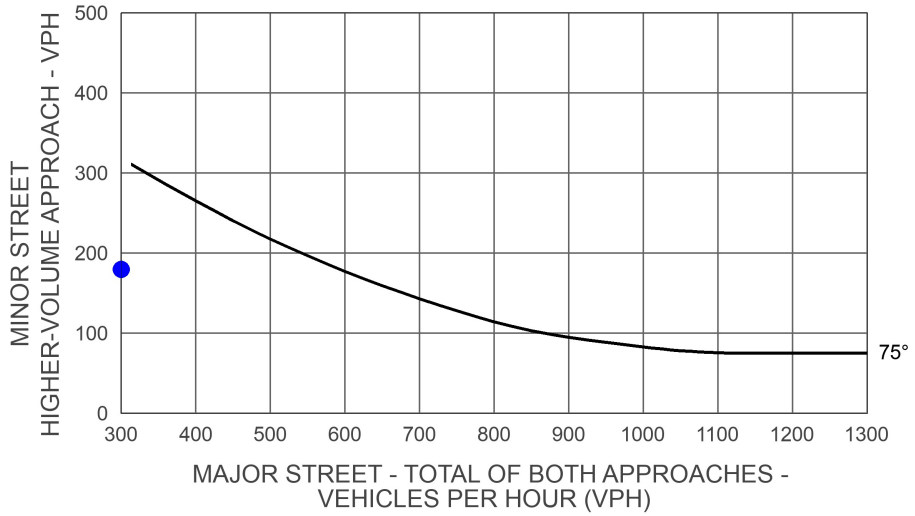


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 4

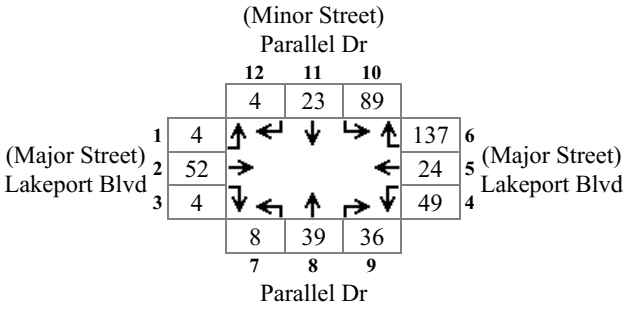


Major Total: 227
Minor High Volume: 180

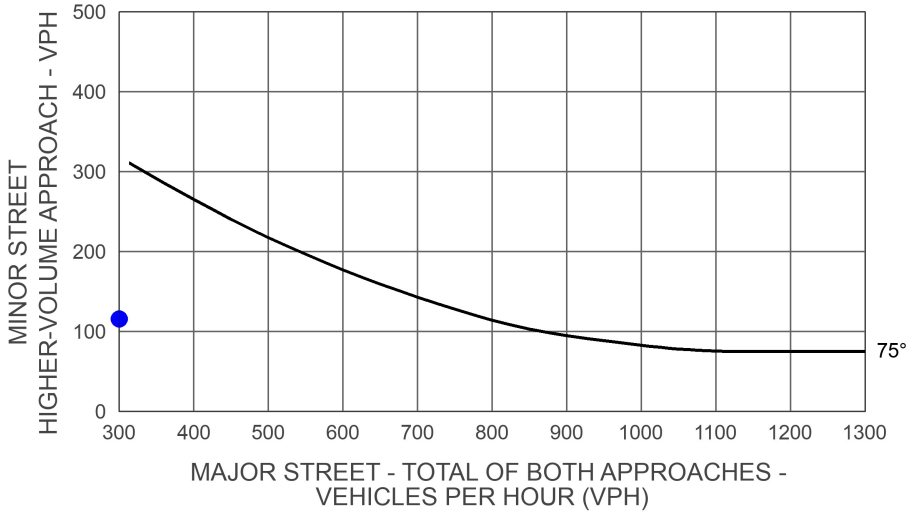


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 4

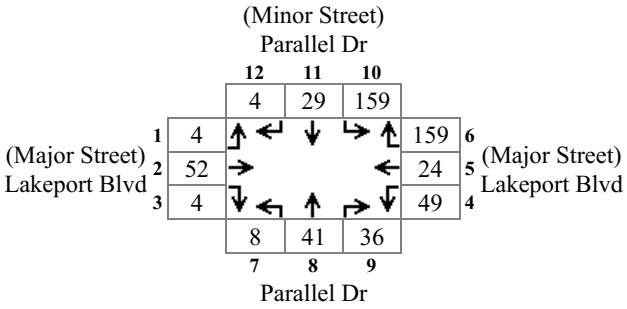


Major Total: 270
Minor High Volume: 116

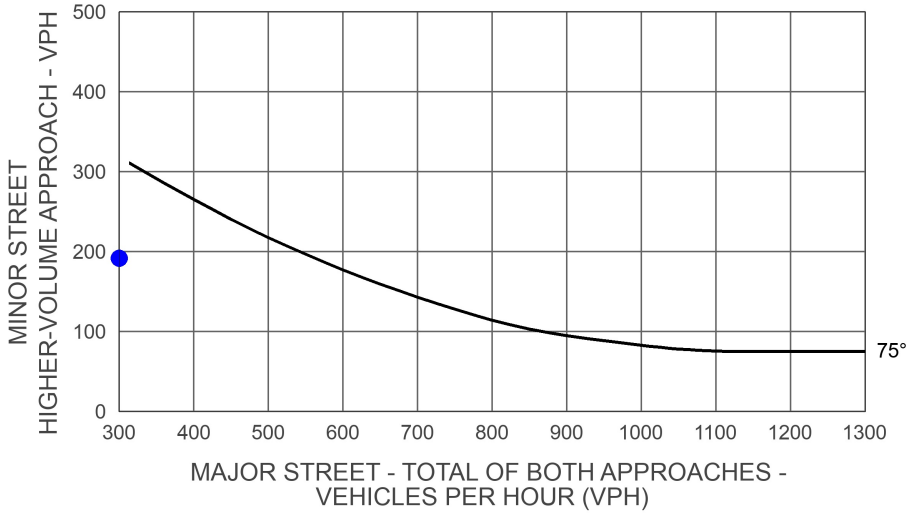


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future+Project
Intersection #: 4



Major Total: 292
Minor High Volume: 192



Intersection 5
SR 29 SB Offramp/SR 29 SB Onramp & Lakeport Blvd

Intersection	
Int Delay, s/veh	22.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	277	73	254	216	0	0	0	0	100	0	127
Future Vol, veh/h	0	277	73	254	216	0	0	0	0	100	0	127
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	-	-	-	140	-	-	-	-	-	-	-	600
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	69	94	78	79	92	92	92	92	78	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	401	78	326	273	0	0	0	0	128	0	155

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	273	0	0	479	0	0	1365	1404	273
Stage 1	-	-	-	-	-	-	925	925	-
Stage 2	-	-	-	-	-	-	440	479	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1290	-	-	1083	-	-	162	140	766
Stage 1	-	-	-	-	-	-	386	348	-
Stage 2	-	-	-	-	-	-	649	555	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1290	-	-	1083	-	-	~ 113	0	766
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 113	0	-
Stage 1	-	-	-	-	-	-	270	0	-
Stage 2	-	-	-	-	-	-	649	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	5.3	95.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1290	-	-	1083	-	-	113	766
HCM Lane V/C Ratio	-	-	-	0.301	-	-	1.135	0.202
HCM Control Delay (s)	0	-	-	9.7	-	-	198.2	10.9
HCM Lane LOS	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0	-	-	1.3	-	-	7.9	0.8

Notes

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

Intersection	
Int Delay, s/veh	29

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	309	83	254	271	0	0	0	0	100	0	144
Future Vol, veh/h	0	309	83	254	271	0	0	0	0	100	0	144
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	-	-	-	140	-	-	-	-	-	-	-	600
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	69	94	78	79	92	92	92	92	78	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	448	88	326	343	0	0	0	0	128	0	176

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	343	0	0	536	0	0	1486	1530	343
Stage 1	-	-	-	-	-	-	994	994	-
Stage 2	-	-	-	-	-	-	492	536	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1216	-	-	1032	-	-	137	117	700
Stage 1	-	-	-	-	-	-	358	323	-
Stage 2	-	-	-	-	-	-	615	523	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1216	-	-	1032	-	-	~ 94	0	700
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 94	0	-
Stage 1	-	-	-	-	-	-	245	0	-
Stage 2	-	-	-	-	-	-	615	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	4.9	133.1
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1216	-	-	1032	-	-	94	700
HCM Lane V/C Ratio	-	-	-	0.316	-	-	1.364	0.251
HCM Control Delay (s)	0	-	-	10.1	-	-	299	11.9
HCM Lane LOS	A	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	0	-	-	1.4	-	-	9.4	1

Notes

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

Intersection	
Int Delay, s/veh	135.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	369	97	339	288	0	0	0	0	133	0	169
Future Vol, veh/h	0	369	97	339	288	0	0	0	0	133	0	169
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	-	-	-	140	-	-	-	-	-	-	-	600
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	69	94	78	79	92	92	92	92	78	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	535	103	435	365	0	0	0	0	171	0	206

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	365	0	0	638	0	0	1820	1872	365
Stage 1	-	-	-	-	-	-	1234	1234	-
Stage 2	-	-	-	-	-	-	586	638	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1194	-	-	946	-	-	~ 85	72	680
Stage 1	-	-	-	-	-	-	275	249	-
Stage 2	-	-	-	-	-	-	556	471	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1194	-	-	946	-	-	~ 46	0	680
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 46	0	-
Stage 1	-	-	-	-	-	-	~ 149	0	-
Stage 2	-	-	-	-	-	-	556	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	6.5	$ 640.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1194	-	-	946	-	-	46	680
HCM Lane V/C Ratio	-	-	-	0.459	-	-	3.707	0.303
HCM Control Delay (s)	0	-	-	12	-	-	$ 1400.4	12.6
HCM Lane LOS	A	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	0	-	-	2.5	-	-	18.9	1.3

Notes

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

Intersection	
Int Delay, s/veh	164.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	401	107	339	343	0	0	0	0	133	0	186
Future Vol, veh/h	0	401	107	339	343	0	0	0	0	133	0	186
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	-	-	-	140	-	-	-	-	-	-	-	600
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	69	94	78	79	92	92	92	92	78	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	581	114	435	434	0	0	0	0	171	0	227

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	434	0	0	695	0	0	1941	1998	434
Stage 1	-	-	-	-	-	-	1303	1303	-
Stage 2	-	-	-	-	-	-	638	695	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1126	-	-	901	-	-	~ 72	60	622
Stage 1	-	-	-	-	-	-	254	231	-
Stage 2	-	-	-	-	-	-	526	444	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1126	-	-	901	-	-	~ 37	0	622
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 37	0	-
Stage 1	-	-	-	-	-	-	~ 131	0	-
Stage 2	-	-	-	-	-	-	526	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	6.3	$ 798.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1126	-	-	901	-	-	37	622
HCM Lane V/C Ratio	-	-	-	0.482	-	-	4.608	0.365
HCM Control Delay (s)	0	-	-	12.7	-	-	$ 1842.1	14.1
HCM Lane LOS	A	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	0	-	-	2.7	-	-	19.9	1.7

Notes

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

Intersection	
Int Delay, s/veh	164.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	401	107	339	343	0	0	0	0	133	0	186
Future Vol, veh/h	0	401	107	339	343	0	0	0	0	133	0	186
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	-	-	-	140	-	-	-	-	-	-	-	600
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	69	94	78	79	92	92	92	92	78	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	581	114	435	434	0	0	0	0	171	0	227

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	434	0	0	695	0	0	1941	1998	434
Stage 1	-	-	-	-	-	-	1303	1303	-
Stage 2	-	-	-	-	-	-	638	695	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1126	-	-	901	-	-	~ 72	60	622
Stage 1	-	-	-	-	-	-	254	231	-
Stage 2	-	-	-	-	-	-	526	444	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1126	-	-	901	-	-	~ 37	0	622
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 37	0	-
Stage 1	-	-	-	-	-	-	~ 131	0	-
Stage 2	-	-	-	-	-	-	526	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	6.3	$ 798.6
HCM LOS			F

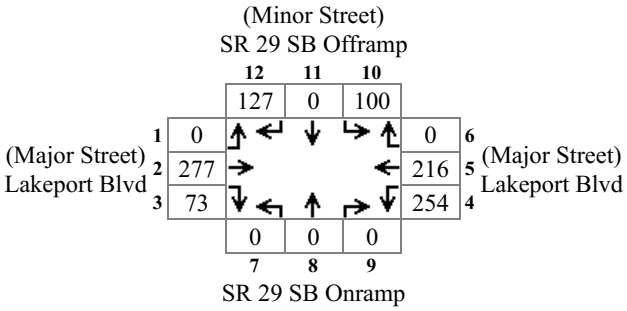
Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1126	-	-	901	-	-	37	622
HCM Lane V/C Ratio	-	-	-	0.482	-	-	4.608	0.365
HCM Control Delay (s)	0	-	-	12.7	-	-	$ 1842.1	14.1
HCM Lane LOS	A	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	0	-	-	2.7	-	-	19.9	1.7

Notes

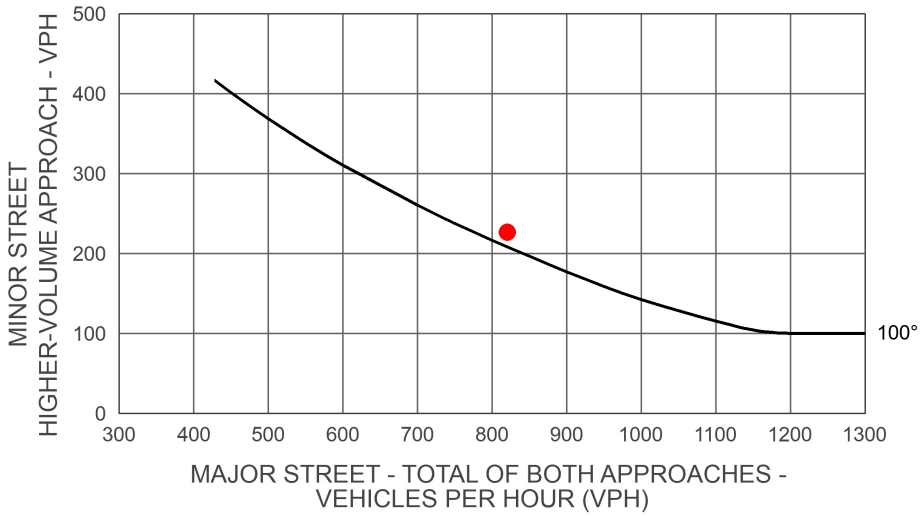
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Existing
Intersection #: 5

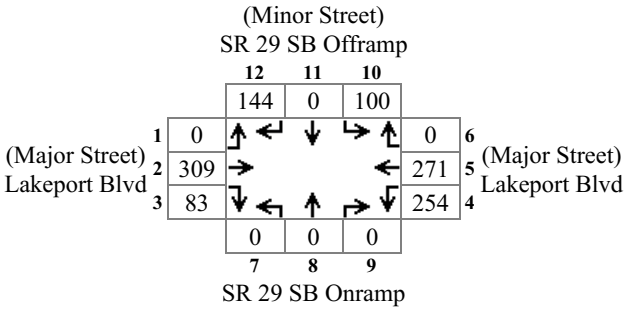


Major Total: 820
Minor High Volume: 227

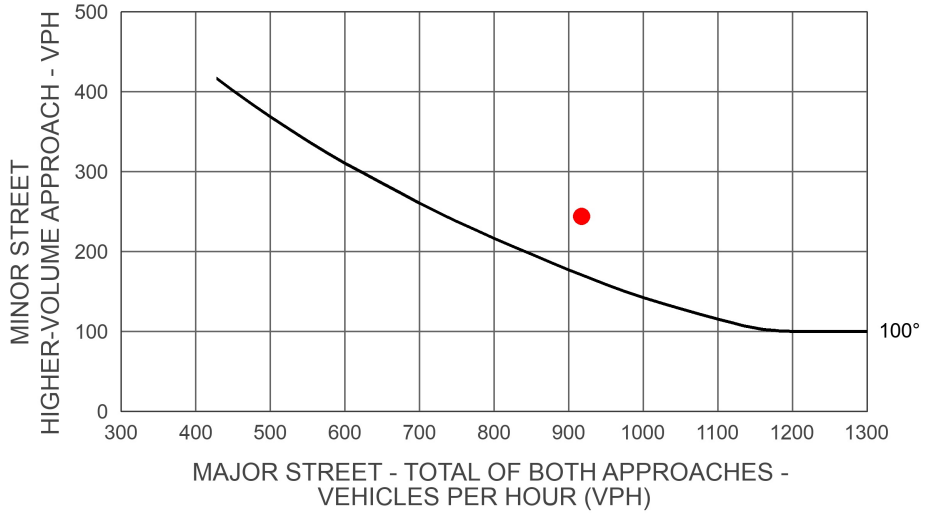


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Existing+Project
Intersection #: 5

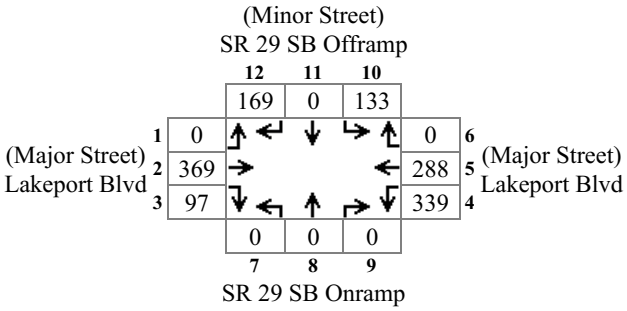


Major Total: 917
Minor High Volume: 244

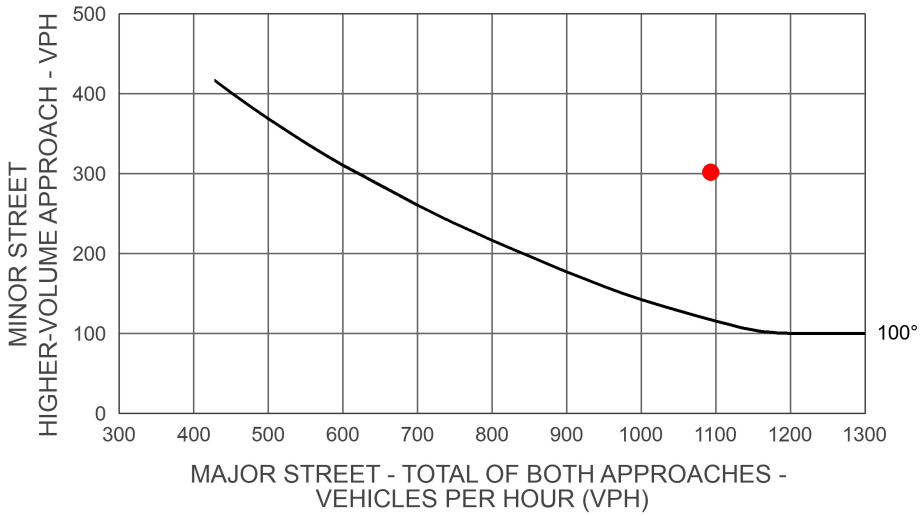


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future
Intersection #: 5

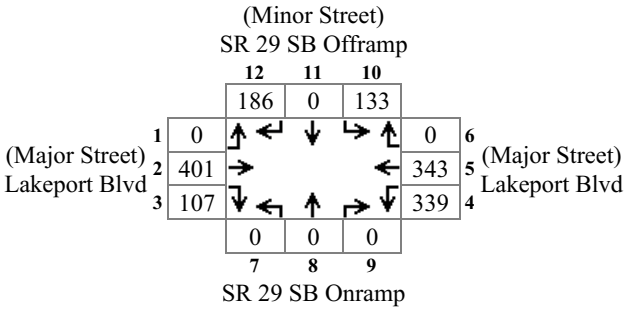


Major Total: 1093
Minor High Volume: 302

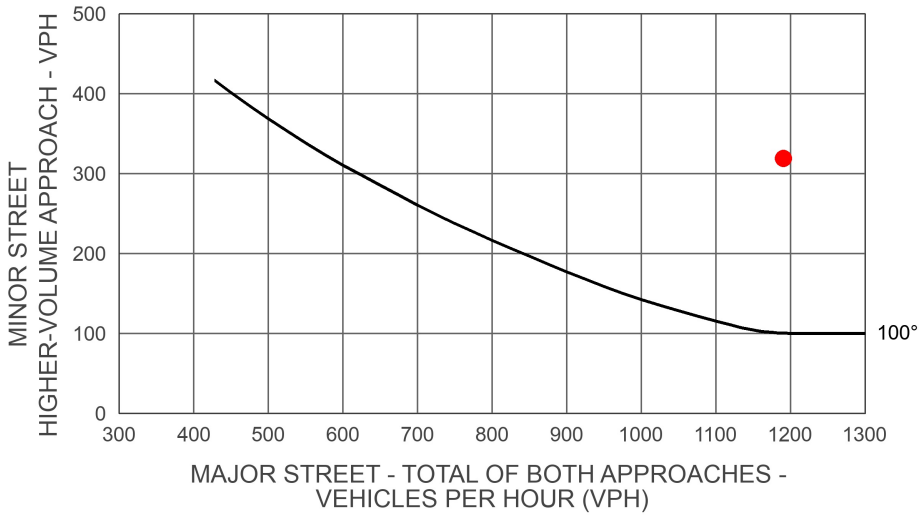


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future+Project
Intersection #: 5



Major Total: 1190
Minor High Volume: 319



Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	152	28	86	137	0	0	0	0	138	0	116
Future Vol, veh/h	0	152	28	86	137	0	0	0	0	138	0	116
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	-	-	-	140	-	-	-	-	-	-	-	600
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	69	94	78	79	92	92	92	92	78	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	220	30	110	173	0	0	0	0	177	0	141

Major/Minor	Major1			Major2					Minor2		
Conflicting Flow All	173	0	0	250	0	0			629	644	173
Stage 1	-	-	-	-	-	-			394	394	-
Stage 2	-	-	-	-	-	-			235	250	-
Critical Hdwy	4.12	-	-	4.12	-	-			6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-			5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-			5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-			3.518	4.018	3.318
Pot Cap-1 Maneuver	1404	-	-	1316	-	-			446	391	871
Stage 1	-	-	-	-	-	-			681	605	-
Stage 2	-	-	-	-	-	-			804	700	-
Platoon blocked, %		-	-		-	-					
Mov Cap-1 Maneuver	1404	-	-	1316	-	-			409	0	871
Mov Cap-2 Maneuver	-	-	-	-	-	-			409	0	-
Stage 1	-	-	-	-	-	-			624	0	-
Stage 2	-	-	-	-	-	-			804	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	3.1	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1404	-	-	1316	-	-	409	871
HCM Lane V/C Ratio	-	-	-	0.084	-	-	0.433	0.162
HCM Control Delay (s)	0	-	-	8	-	-	20.3	9.9
HCM Lane LOS	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0	-	-	0.3	-	-	2.1	0.6

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	205	45	86	154	0	0	0	0	138	0	121
Future Vol, veh/h	0	205	45	86	154	0	0	0	0	138	0	121
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	-	-	-	140	-	-	-	-	-	-	-	600
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	69	94	78	79	92	92	92	92	78	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	297	48	110	195	0	0	0	0	177	0	148

Major/Minor	Major1			Major2					Minor2		
Conflicting Flow All	195	0	0	345	0	0			736	760	195
Stage 1	-	-	-	-	-	-			415	415	-
Stage 2	-	-	-	-	-	-			321	345	-
Critical Hdwy	4.12	-	-	4.12	-	-			6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-			5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-			5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-			3.518	4.018	3.318
Pot Cap-1 Maneuver	1378	-	-	1214	-	-			386	336	846
Stage 1	-	-	-	-	-	-			666	592	-
Stage 2	-	-	-	-	-	-			735	636	-
Platoon blocked, %		-	-		-	-					
Mov Cap-1 Maneuver	1378	-	-	1214	-	-			351	0	846
Mov Cap-2 Maneuver	-	-	-	-	-	-			351	0	-
Stage 1	-	-	-	-	-	-			606	0	-
Stage 2	-	-	-	-	-	-			735	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	3	18.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1378	-	-	1214	-	-	351	846
HCM Lane V/C Ratio	-	-	-	0.091	-	-	0.504	0.174
HCM Control Delay (s)	0	-	-	8.3	-	-	25.2	10.2
HCM Lane LOS	A	-	-	A	-	-	D	B
HCM 95th %tile Q(veh)	0	-	-	0.3	-	-	2.7	0.6

Intersection	
Int Delay, s/veh	13.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	203	37	115	183	0	0	0	0	184	0	155
Future Vol, veh/h	0	203	37	115	183	0	0	0	0	184	0	155
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	-	-	-	140	-	-	-	-	-	-	-	600
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	69	94	78	79	92	92	92	92	78	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	294	39	147	232	0	0	0	0	236	0	189

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	232	0	0	334	0	0	841	861	232
Stage 1	-	-	-	-	-	-	527	527	-
Stage 2	-	-	-	-	-	-	314	334	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1336	-	-	1225	-	-	335	293	807
Stage 1	-	-	-	-	-	-	592	528	-
Stage 2	-	-	-	-	-	-	741	643	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1336	-	-	1225	-	-	295	0	807
Mov Cap-2 Maneuver	-	-	-	-	-	-	295	0	-
Stage 1	-	-	-	-	-	-	521	0	-
Stage 2	-	-	-	-	-	-	741	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	3.2	33.8
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1336	-	-	1225	-	-	295	807
HCM Lane V/C Ratio	-	-	-	0.12	-	-	0.8	0.234
HCM Control Delay (s)	0	-	-	8.3	-	-	52.3	10.8
HCM Lane LOS	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0	-	-	0.4	-	-	6.4	0.9

Intersection	
Int Delay, s/veh	18.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	256	54	115	200	0	0	0	0	184	0	160
Future Vol, veh/h	0	256	54	115	200	0	0	0	0	184	0	160
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	-	-	-	140	-	-	-	-	-	-	-	600
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	69	94	78	79	92	92	92	92	78	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	371	57	147	253	0	0	0	0	236	0	195

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	253	0	0	428	0	0	948	976	253
Stage 1	-	-	-	-	-	-	548	548	-
Stage 2	-	-	-	-	-	-	400	428	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1312	-	-	1131	-	-	289	251	786
Stage 1	-	-	-	-	-	-	579	517	-
Stage 2	-	-	-	-	-	-	677	585	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1312	-	-	1131	-	-	251	0	786
Mov Cap-2 Maneuver	-	-	-	-	-	-	251	0	-
Stage 1	-	-	-	-	-	-	504	0	-
Stage 2	-	-	-	-	-	-	677	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	3.2	51.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1312	-	-	1131	-	-	251	786
HCM Lane V/C Ratio	-	-	-	0.13	-	-	0.94	0.248
HCM Control Delay (s)	0	-	-	8.7	-	-	84.9	11.1
HCM Lane LOS	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0	-	-	0.4	-	-	8.5	1

Intersection	
Int Delay, s/veh	18.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	256	54	115	200	0	0	0	0	184	0	160
Future Vol, veh/h	0	256	54	115	200	0	0	0	0	184	0	160
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	-	-	-	140	-	-	-	-	-	-	-	600
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	69	94	78	79	92	92	92	92	78	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	371	57	147	253	0	0	0	0	236	0	195

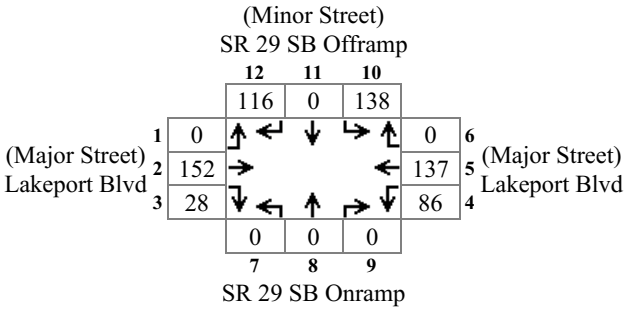
Major/Minor	Major1			Major2					Minor2		
Conflicting Flow All	253	0	0	428	0	0			948	976	253
Stage 1	-	-	-	-	-	-			548	548	-
Stage 2	-	-	-	-	-	-			400	428	-
Critical Hdwy	4.12	-	-	4.12	-	-			6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-			5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-			5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-			3.518	4.018	3.318
Pot Cap-1 Maneuver	1312	-	-	1131	-	-			289	251	786
Stage 1	-	-	-	-	-	-			579	517	-
Stage 2	-	-	-	-	-	-			677	585	-
Platoon blocked, %		-	-		-	-					
Mov Cap-1 Maneuver	1312	-	-	1131	-	-			251	0	786
Mov Cap-2 Maneuver	-	-	-	-	-	-			251	0	-
Stage 1	-	-	-	-	-	-			504	0	-
Stage 2	-	-	-	-	-	-			677	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	3.2	51.5
HCM LOS			F

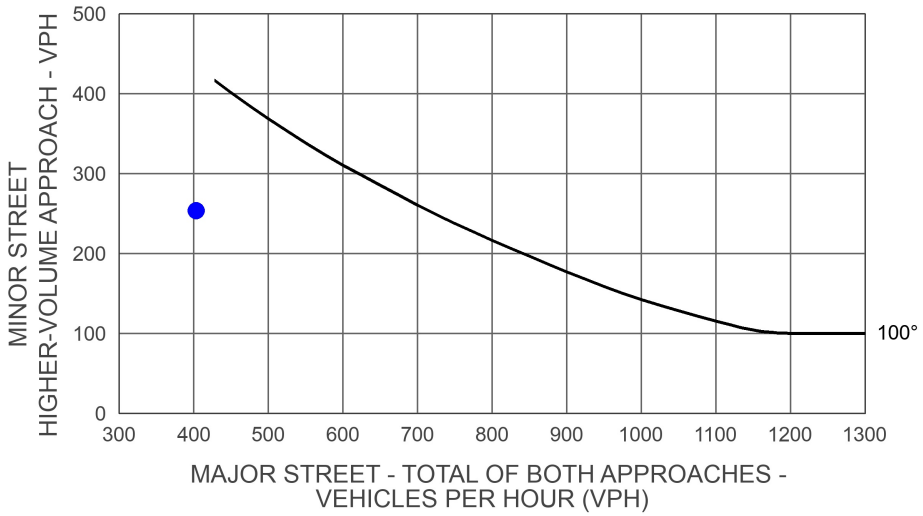
Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1312	-	-	1131	-	-	251	786
HCM Lane V/C Ratio	-	-	-	0.13	-	-	0.94	0.248
HCM Control Delay (s)	0	-	-	8.7	-	-	84.9	11.1
HCM Lane LOS	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0	-	-	0.4	-	-	8.5	1

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 5

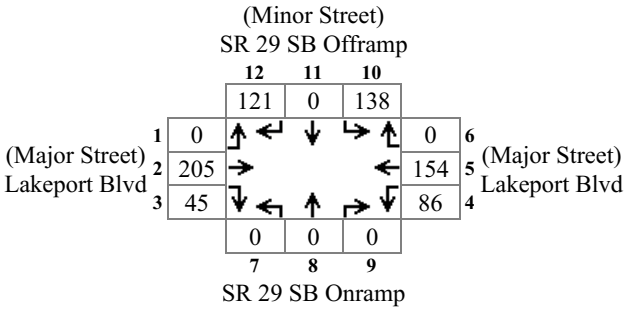


Major Total: 403
Minor High Volume: 254

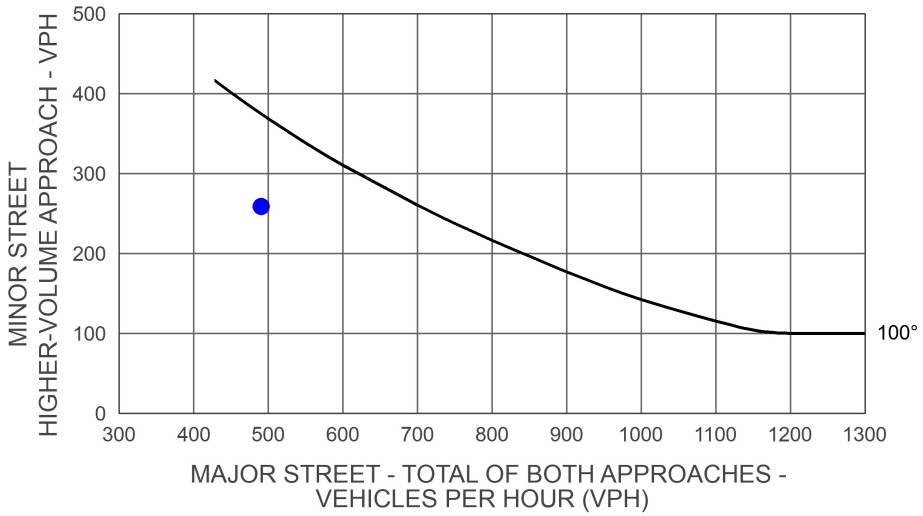


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 5

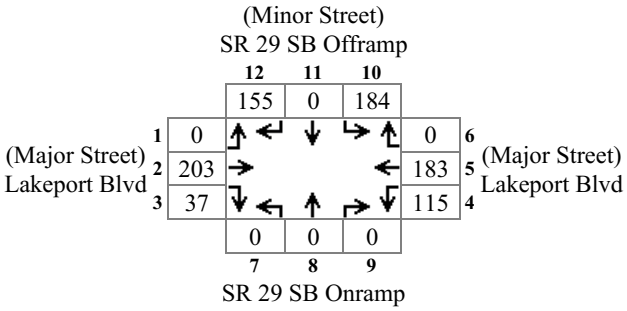


Major Total: 490
Minor High Volume: 259

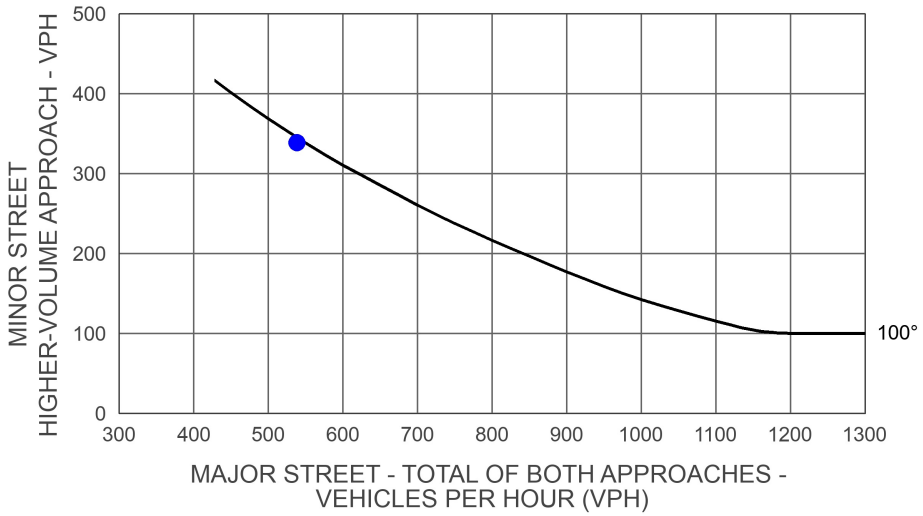


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Future
Intersection #: 5

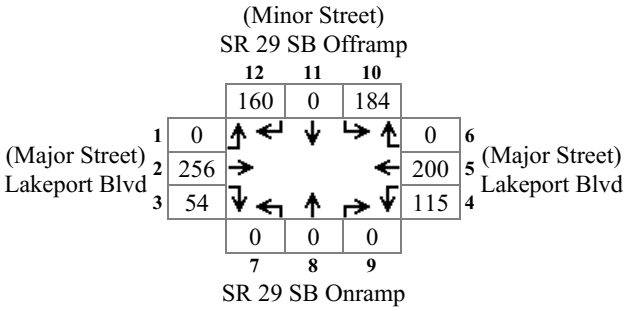


Major Total: 538
Minor High Volume: 339

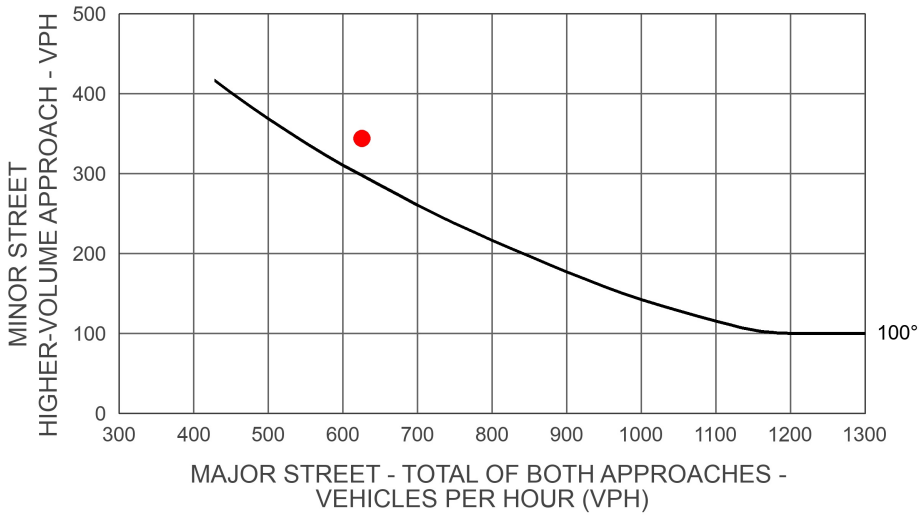


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future+Project
Intersection #: 5



Major Total: 625
Minor High Volume: 344



Intersection 6
SR 29 NB Onramp/SR 29 NB Offramp & Lakeport Blvd

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	114	265	0	0	429	198	40	0	136	0	0	0
Future Vol, veh/h	114	265	0	0	429	198	40	0	136	0	0	0
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	150	-	-	-	-	-	0	-	40	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	95	92	92	76	73	77	92	83	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	141	279	0	0	564	271	52	0	164	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	836	0	0	279	0	0	1260	1396	279
Stage 1	-	-	-	-	-	-	560	560	-
Stage 2	-	-	-	-	-	-	700	836	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	798	-	-	1284	-	-	188	141	760
Stage 1	-	-	-	-	-	-	572	511	-
Stage 2	-	-	-	-	-	-	493	382	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	798	-	-	1284	-	-	155	0	760
Mov Cap-2 Maneuver	-	-	-	-	-	-	155	0	-
Stage 1	-	-	-	-	-	-	471	0	-
Stage 2	-	-	-	-	-	-	493	0	-

Approach	EB	WB	NB
HCM Control Delay, s	3.5	0	17.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	155	760	798	-	-	1284	-	-
HCM Lane V/C Ratio	0.335	0.216	0.176	-	-	-	-	-
HCM Control Delay (s)	39.5	11	10.5	-	-	0	-	-
HCM Lane LOS	E	B	B	-	-	A	-	-
HCM 95th %tile Q(veh)	1.4	0.8	0.6	-	-	0	-	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	126	285	0	0	464	198	60	0	136	0	0	0
Future Vol, veh/h	126	285	0	0	464	198	60	0	136	0	0	0
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	150	-	-	-	-	-	0	-	40	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	95	92	92	76	73	77	92	83	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	156	300	0	0	611	271	78	0	164	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	882	0	0	300	0	0	1357	1493	300
Stage 1	-	-	-	-	-	-	611	611	-
Stage 2	-	-	-	-	-	-	746	882	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	767	-	-	1261	-	-	164	123	740
Stage 1	-	-	-	-	-	-	542	484	-
Stage 2	-	-	-	-	-	-	469	364	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	767	-	-	1261	-	-	131	0	740
Mov Cap-2 Maneuver	-	-	-	-	-	-	131	0	-
Stage 1	-	-	-	-	-	-	432	0	-
Stage 2	-	-	-	-	-	-	469	0	-

Approach	EB	WB	NB
HCM Control Delay, s	3.7	0	29
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	131	740	767	-	-	1261	-	-
HCM Lane V/C Ratio	0.595	0.221	0.203	-	-	-	-	-
HCM Control Delay (s)	66.5	11.2	10.9	-	-	0	-	-
HCM Lane LOS	F	B	B	-	-	A	-	-
HCM 95th %tile Q(veh)	3	0.8	0.8	-	-	0	-	-

Intersection	
Int Delay, s/veh	9.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	152	353	0	0	572	264	53	0	181	0	0	0
Future Vol, veh/h	152	353	0	0	572	264	53	0	181	0	0	0
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	150	-	-	-	-	-	0	-	40	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	95	92	92	76	73	77	92	83	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	188	372	0	0	753	362	69	0	218	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	1114	0	0	372	0	0	1680	1861	372
Stage 1	-	-	-	-	-	-	747	747	-
Stage 2	-	-	-	-	-	-	933	1114	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	627	-	-	1186	-	-	104	73	674
Stage 1	-	-	-	-	-	-	468	420	-
Stage 2	-	-	-	-	-	-	383	284	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	627	-	-	1186	-	-	73	0	674
Mov Cap-2 Maneuver	-	-	-	-	-	-	73	0	-
Stage 1	-	-	-	-	-	-	328	0	-
Stage 2	-	-	-	-	-	-	383	0	-

Approach	EB	WB	NB
HCM Control Delay, s	4.4	0	54.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	73	674	627	-	-	1186	-	-
HCM Lane V/C Ratio	0.943	0.324	0.299	-	-	-	-	-
HCM Control Delay (s)	186.7	12.9	13.2	-	-	0	-	-
HCM Lane LOS	F	B	B	-	-	A	-	-
HCM 95th %tile Q(veh)	4.8	1.4	1.3	-	-	0	-	-

Intersection	
Int Delay, s/veh	22.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	164	373	0	0	607	264	73	0	181	0	0	0
Future Vol, veh/h	164	373	0	0	607	264	73	0	181	0	0	0
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	150	-	-	-	-	-	0	-	40	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	95	92	92	76	73	77	92	83	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	202	393	0	0	799	362	95	0	218	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	1160	0	0	393	0	0	1778	1958	393
Stage 1	-	-	-	-	-	-	798	798	-
Stage 2	-	-	-	-	-	-	980	1160	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	602	-	-	1166	-	-	~ 91	64	656
Stage 1	-	-	-	-	-	-	443	398	-
Stage 2	-	-	-	-	-	-	364	270	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	602	-	-	1166	-	-	~ 60	0	656
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 60	0	-
Stage 1	-	-	-	-	-	-	294	0	-
Stage 2	-	-	-	-	-	-	364	0	-

Approach	EB	WB	NB
HCM Control Delay, s	4.8	0	142.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	60	656	602	-	-	1166	-	-
HCM Lane V/C Ratio	1.58	0.332	0.336	-	-	-	-	-
HCM Control Delay (s)	$ 439.9	13.2	14	-	-	0	-	-
HCM Lane LOS	F	B	B	-	-	A	-	-
HCM 95th %tile Q(veh)	8.5	1.5	1.5	-	-	0	-	-

Notes

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

Intersection	
Int Delay, s/veh	22.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	164	373	0	0	607	264	73	0	181	0	0	0
Future Vol, veh/h	164	373	0	0	607	264	73	0	181	0	0	0
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	150	-	-	-	-	-	0	-	40	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	95	92	92	76	73	77	92	83	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	202	393	0	0	799	362	95	0	218	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	1160	0	0	393	0	0	1778	1958	393
Stage 1	-	-	-	-	-	-	798	798	-
Stage 2	-	-	-	-	-	-	980	1160	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	602	-	-	1166	-	-	~ 91	64	656
Stage 1	-	-	-	-	-	-	443	398	-
Stage 2	-	-	-	-	-	-	364	270	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	602	-	-	1166	-	-	~ 60	0	656
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 60	0	-
Stage 1	-	-	-	-	-	-	294	0	-
Stage 2	-	-	-	-	-	-	364	0	-

Approach	EB	WB	NB
HCM Control Delay, s	4.8	0	142.5
HCM LOS			F

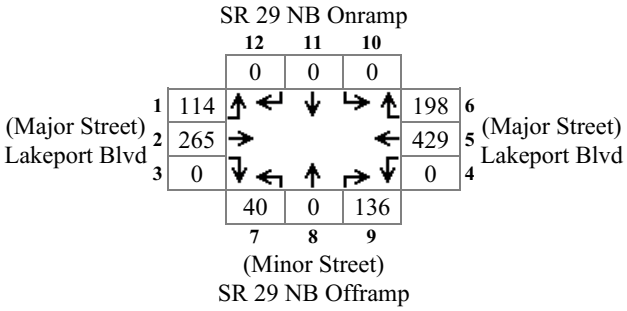
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	60	656	602	-	-	1166	-	-
HCM Lane V/C Ratio	1.58	0.332	0.336	-	-	-	-	-
HCM Control Delay (s)	$ 439.9	13.2	14	-	-	0	-	-
HCM Lane LOS	F	B	B	-	-	A	-	-
HCM 95th %tile Q(veh)	8.5	1.5	1.5	-	-	0	-	-

Notes

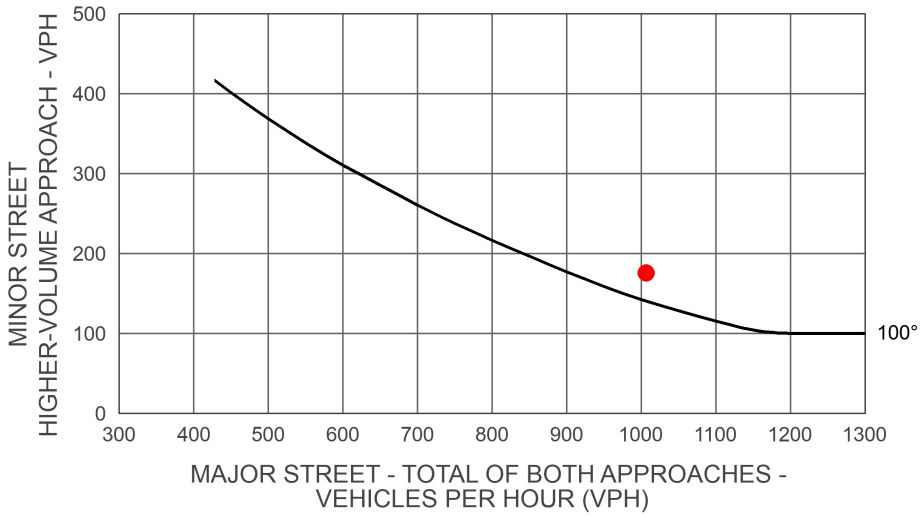
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Existing
Intersection #: 6

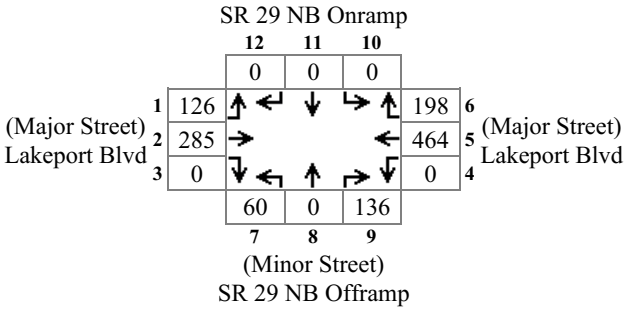


Major Total: 1006
Minor High Volume: 176

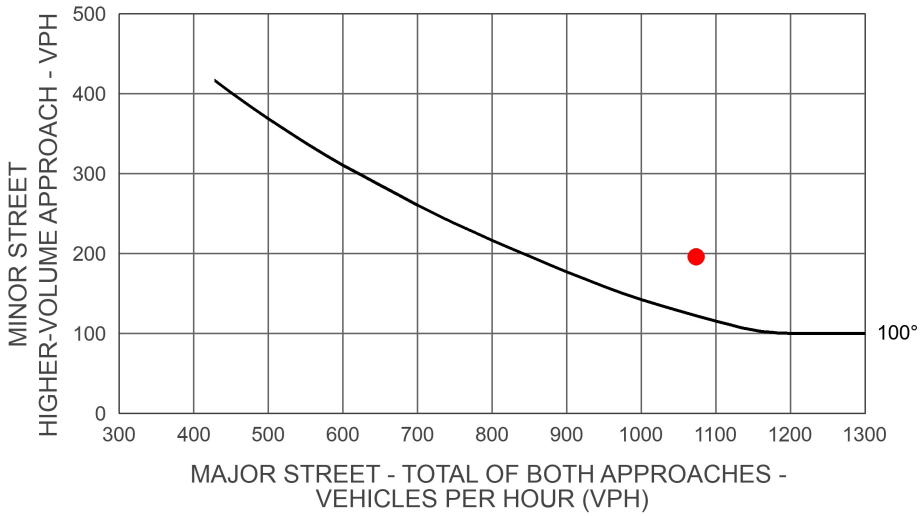


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Existing+Project
Intersection #: 6

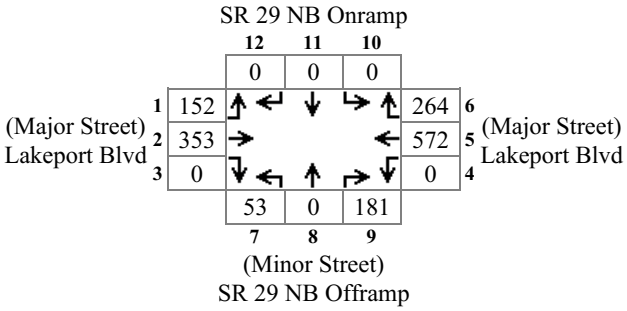


Major Total: 1073
Minor High Volume: 196

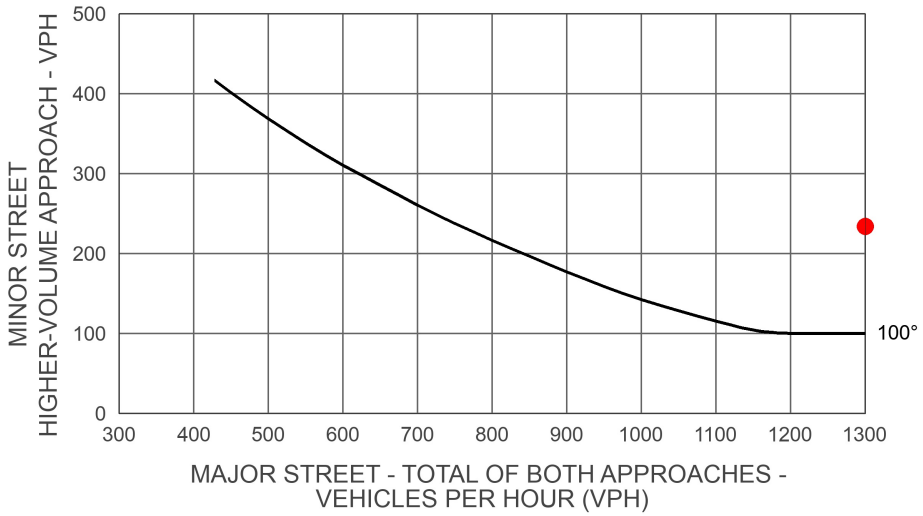


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future
Intersection #: 6

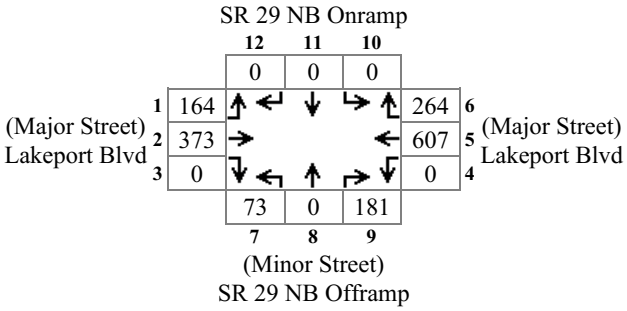


Major Total: 1341
Minor High Volume: 234

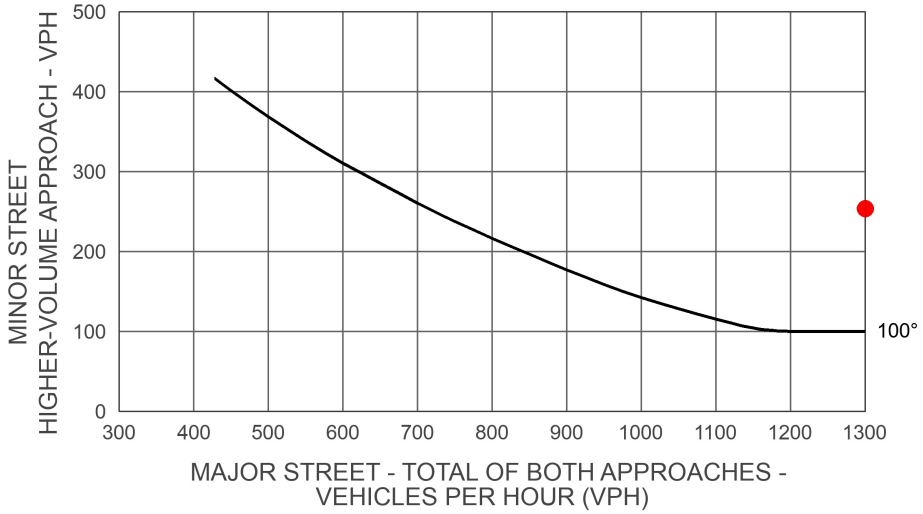


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future+Project
Intersection #: 6



Major Total: 1408
Minor High Volume: 254



Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	54	235	1	0	164	76	58	0	273	0	0	0
Future Vol, veh/h	54	235	1	0	164	76	58	0	273	0	0	0
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	150	-	-	-	-	-	0	-	40	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	95	92	92	76	73	77	92	83	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	67	247	1	0	216	104	75	0	329	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	320	0	0	248	0	0	649	701	248
Stage 1	-	-	-	-	-	-	381	381	-
Stage 2	-	-	-	-	-	-	268	320	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1240	-	-	1318	-	-	434	363	791
Stage 1	-	-	-	-	-	-	691	613	-
Stage 2	-	-	-	-	-	-	777	652	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1240	-	-	1318	-	-	411	0	791
Mov Cap-2 Maneuver	-	-	-	-	-	-	411	0	-
Stage 1	-	-	-	-	-	-	654	0	-
Stage 2	-	-	-	-	-	-	777	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.7	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	411	791	1240	-	-	1318	-	-
HCM Lane V/C Ratio	0.183	0.416	0.054	-	-	-	-	-
HCM Control Delay (s)	15.7	12.8	8.1	-	-	0	-	-
HCM Lane LOS	C	B	A	-	-	A	-	-
HCM 95th %tile Q(veh)	0.7	2.1	0.2	-	-	0	-	-

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	74	268	1	0	175	76	64	0	273	0	0	0
Future Vol, veh/h	74	268	1	0	175	76	64	0	273	0	0	0
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	150	-	-	-	-	-	0	-	40	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	95	92	92	76	73	77	92	83	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	91	282	1	0	230	104	83	0	329	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	334	0	0	283	0	0	747	799	283
Stage 1	-	-	-	-	-	-	465	465	-
Stage 2	-	-	-	-	-	-	282	334	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1225	-	-	1279	-	-	381	319	756
Stage 1	-	-	-	-	-	-	632	563	-
Stage 2	-	-	-	-	-	-	766	643	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1225	-	-	1279	-	-	353	0	756
Mov Cap-2 Maneuver	-	-	-	-	-	-	353	0	-
Stage 1	-	-	-	-	-	-	585	0	-
Stage 2	-	-	-	-	-	-	766	0	-

Approach	EB	WB	NB
HCM Control Delay, s	2	0	14.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	353	756	1225	-	-	1279	-	-
HCM Lane V/C Ratio	0.235	0.435	0.075	-	-	-	-	-
HCM Control Delay (s)	18.3	13.4	8.2	-	-	0	-	-
HCM Lane LOS	C	B	A	-	-	A	-	-
HCM 95th %tile Q(veh)	0.9	2.2	0.2	-	-	0	-	-

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	72	313	1	0	219	101	77	0	364	0	0	0
Future Vol, veh/h	72	313	1	0	219	101	77	0	364	0	0	0
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	150	-	-	-	-	-	0	-	40	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	95	92	92	76	73	77	92	83	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	89	329	1	0	288	138	100	0	439	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	427	0	0	331	0	0	865	935	330
Stage 1	-	-	-	-	-	-	508	508	-
Stage 2	-	-	-	-	-	-	357	427	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1132	-	-	1228	-	-	324	265	712
Stage 1	-	-	-	-	-	-	604	539	-
Stage 2	-	-	-	-	-	-	708	585	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1132	-	-	1228	-	-	299	0	712
Mov Cap-2 Maneuver	-	-	-	-	-	-	299	0	-
Stage 1	-	-	-	-	-	-	557	0	-
Stage 2	-	-	-	-	-	-	708	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.8	0	18.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	299	712	1132	-	-	1228	-	-
HCM Lane V/C Ratio	0.334	0.616	0.079	-	-	-	-	-
HCM Control Delay (s)	23	17.8	8.5	-	-	0	-	-
HCM Lane LOS	C	C	A	-	-	A	-	-
HCM 95th %tile Q(veh)	1.4	4.3	0.3	-	-	0	-	-

Intersection	
Int Delay, s/veh	8.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	92	346	1	0	230	101	83	0	364	0	0	0
Future Vol, veh/h	92	346	1	0	230	101	83	0	364	0	0	0
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	150	-	-	-	-	-	0	-	40	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	95	92	92	76	73	77	92	83	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	114	364	1	0	303	138	108	0	439	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	441	0	0	365	0	0	964	1033	365
Stage 1	-	-	-	-	-	-	592	592	-
Stage 2	-	-	-	-	-	-	372	441	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1119	-	-	1194	-	-	283	232	680
Stage 1	-	-	-	-	-	-	553	494	-
Stage 2	-	-	-	-	-	-	697	577	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1119	-	-	1194	-	-	254	0	680
Mov Cap-2 Maneuver	-	-	-	-	-	-	254	0	-
Stage 1	-	-	-	-	-	-	497	0	-
Stage 2	-	-	-	-	-	-	697	0	-

Approach	EB	WB	NB
HCM Control Delay, s	2	0	21.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	254	680	1119	-	-	1194	-	-
HCM Lane V/C Ratio	0.424	0.645	0.102	-	-	-	-	-
HCM Control Delay (s)	29.2	19.4	8.6	-	-	0	-	-
HCM Lane LOS	D	C	A	-	-	A	-	-
HCM 95th %tile Q(veh)	2	4.7	0.3	-	-	0	-	-

Intersection	
Int Delay, s/veh	8.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	92	346	1	0	230	101	83	0	364	0	0	0
Future Vol, veh/h	92	346	1	0	230	101	83	0	364	0	0	0
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	150	-	-	-	-	-	0	-	40	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	95	92	92	76	73	77	92	83	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	114	364	1	0	303	138	108	0	439	0	0	0

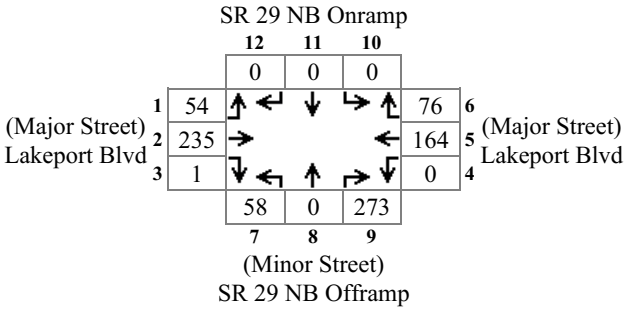
Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	441	0	0	365	0	0	964	1033	365
Stage 1	-	-	-	-	-	-	592	592	-
Stage 2	-	-	-	-	-	-	372	441	-
Critical Hdwy	4.12	-	-	4.12	-	-	6.42	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	5.42	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.42	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	1119	-	-	1194	-	-	283	232	680
Stage 1	-	-	-	-	-	-	553	494	-
Stage 2	-	-	-	-	-	-	697	577	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1119	-	-	1194	-	-	254	0	680
Mov Cap-2 Maneuver	-	-	-	-	-	-	254	0	-
Stage 1	-	-	-	-	-	-	497	0	-
Stage 2	-	-	-	-	-	-	697	0	-

Approach	EB	WB	NB
HCM Control Delay, s	2	0	21.3
HCM LOS			C

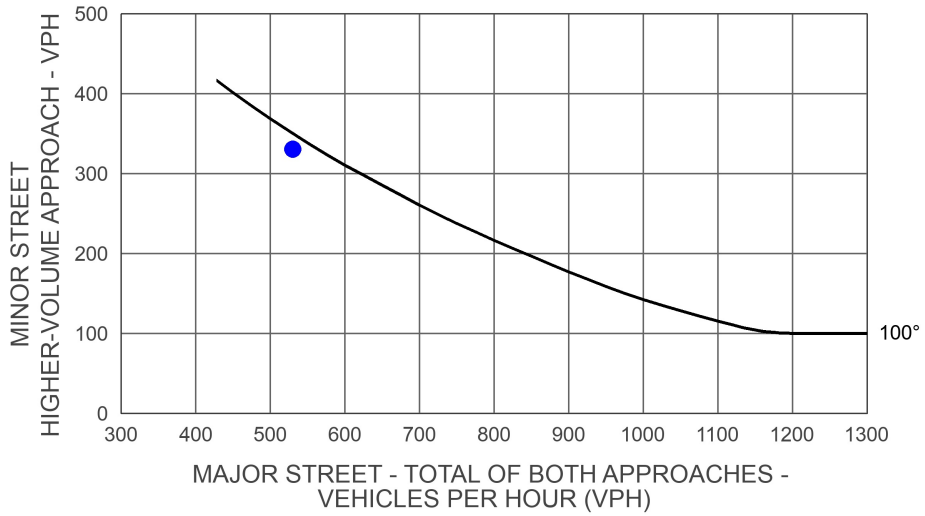
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR
Capacity (veh/h)	254	680	1119	-	-	1194	-	-
HCM Lane V/C Ratio	0.424	0.645	0.102	-	-	-	-	-
HCM Control Delay (s)	29.2	19.4	8.6	-	-	0	-	-
HCM Lane LOS	D	C	A	-	-	A	-	-
HCM 95th %tile Q(veh)	2	4.7	0.3	-	-	0	-	-

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 6

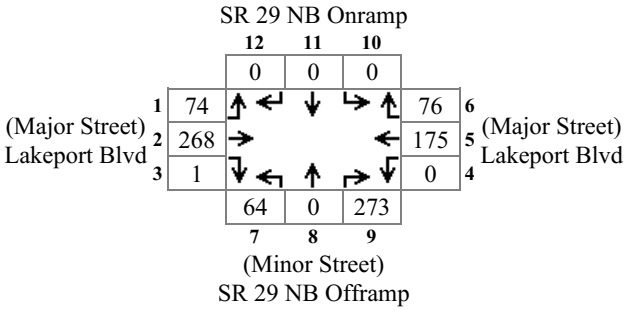


Major Total: 530
Minor High Volume: 331

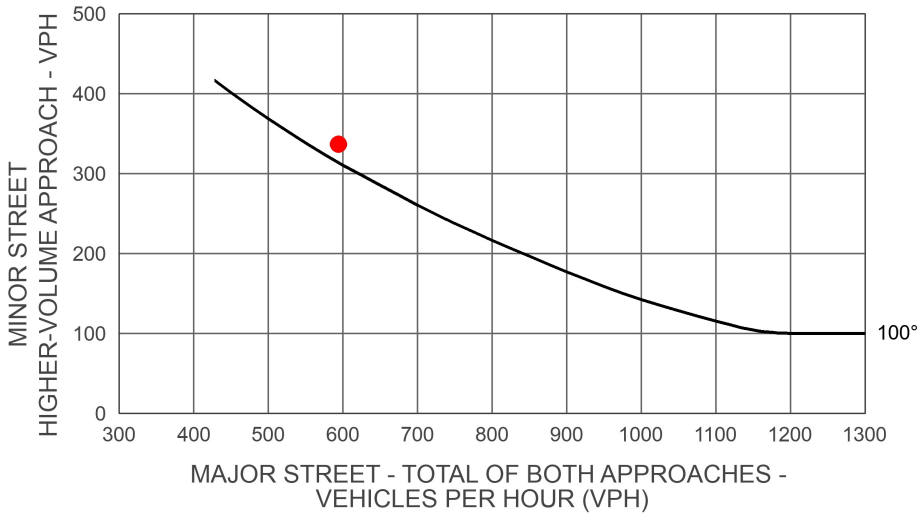


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Existing+Project
Intersection #: 6

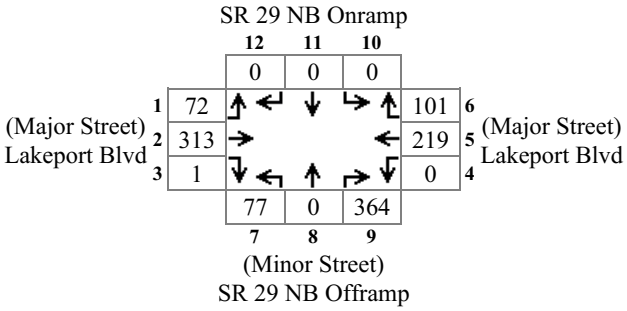


Major Total: 594
Minor High Volume: 337

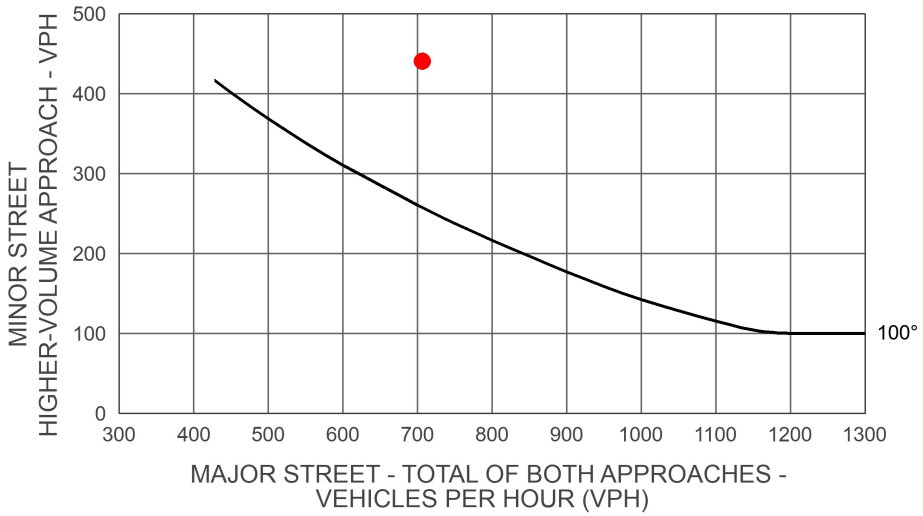


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future
Intersection #: 6

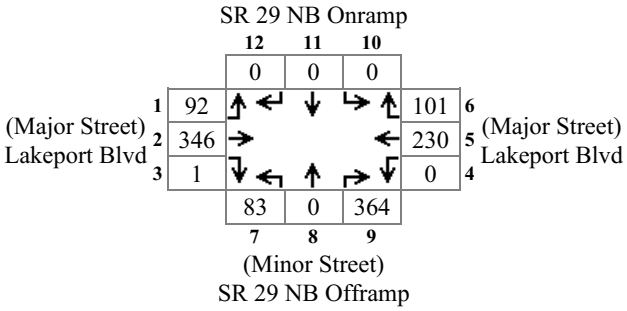


Major Total: 706
Minor High Volume: 441

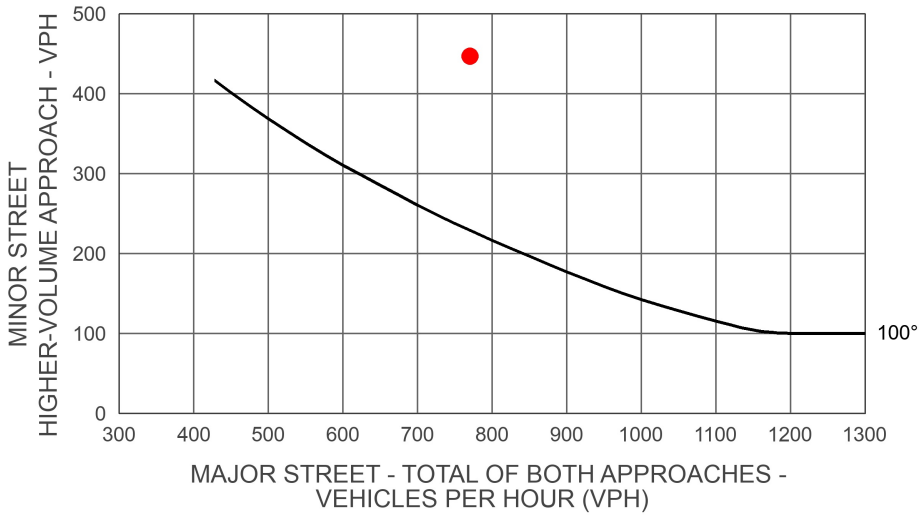


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future+Project
Intersection #: 6



Major Total: 770
Minor High Volume: 447



Intersection 7
Bevins St & Lakeport Blvd

Intersection	
Int Delay, s/veh	18.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	118	279	15	1	364	27	11	1	21	41	1	246
Future Vol, veh/h	118	279	15	1	364	27	11	1	21	41	1	246
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	100	-	-	60	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	87	56	50	88	85	38	92	38	58	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	151	321	27	2	414	32	29	1	55	71	1	300

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	445	0	0	347	0	0	1221	1086	334	1071	1084	430
Stage 1	-	-	-	-	-	-	637	637	-	434	434	-
Stage 2	-	-	-	-	-	-	584	449	-	637	650	-
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	1115	-	-	1212	-	-	157	216	708	198	217	625
Stage 1	-	-	-	-	-	-	465	471	-	600	581	-
Stage 2	-	-	-	-	-	-	498	572	-	465	465	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1115	-	-	1212	-	-	73	186	708	163	187	625
Mov Cap-2 Maneuver	-	-	-	-	-	-	73	186	-	163	187	-
Stage 1	-	-	-	-	-	-	402	407	-	519	580	-
Stage 2	-	-	-	-	-	-	258	571	-	370	402	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.6	0	35.7	59.3
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	75	708	1115	-	-	1212	-	-	404
HCM Lane V/C Ratio	0.4	0.078	0.136	-	-	0.002	-	-	0.92
HCM Control Delay (s)	82	10.5	8.7	-	-	8	-	-	59.3
HCM Lane LOS	F	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	1.6	0.3	0.5	-	-	0	-	-	10

Intersection	
Int Delay, s/veh	24

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	120	297	15	1	395	27	11	1	21	41	1	250
Future Vol, veh/h	120	297	15	1	395	27	11	1	21	41	1	250
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	100	-	-	60	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	87	56	50	88	85	38	92	38	58	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	154	341	27	2	449	32	29	1	55	71	1	305

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	481	0	0	368	0	0	1284	1147	355	1132	1145	465
Stage 1	-	-	-	-	-	-	662	662	-	469	469	-
Stage 2	-	-	-	-	-	-	622	485	-	663	676	-
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	1082	-	-	1191	-	-	142	199	689	180	200	597
Stage 1	-	-	-	-	-	-	451	459	-	575	561	-
Stage 2	-	-	-	-	-	-	474	552	-	450	453	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1082	-	-	1191	-	-	62	170	689	147	171	597
Mov Cap-2 Maneuver	-	-	-	-	-	-	62	170	-	147	171	-
Stage 1	-	-	-	-	-	-	387	394	-	493	560	-
Stage 2	-	-	-	-	-	-	231	551	-	354	389	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.6	0	44.3	79.9
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	63	689	1082	-	-	1191	-	-	377
HCM Lane V/C Ratio	0.477	0.08	0.142	-	-	0.002	-	-	0.999
HCM Control Delay (s)	106	10.7	8.9	-	-	8	-	-	79.9
HCM Lane LOS	F	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	1.9	0.3	0.5	-	-	0	-	-	11.9

Intersection	
Int Delay, s/veh	149.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	157	372	20	1	485	36	15	1	28	55	1	328
Future Vol, veh/h	157	372	20	1	485	36	15	1	28	55	1	328
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	100	-	-	60	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	87	56	50	88	85	38	92	38	58	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	201	428	36	2	551	42	39	1	74	95	1	400

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	593	0	0	463	0	0	1625	1445	445	1425	1442	572
Stage 1	-	-	-	-	-	-	848	848	-	576	576	-
Stage 2	-	-	-	-	-	-	777	597	-	849	866	-
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	983	-	-	1098	-	-	82	132	613	113	132	520
Stage 1	-	-	-	-	-	-	356	378	-	503	502	-
Stage 2	-	-	-	-	-	-	390	491	-	356	370	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	983	-	-	1098	-	-	~ 16	105	613	~ 83	105	520
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 16	105	-	~ 83	105	-
Stage 1	-	-	-	-	-	-	283	301	-	400	501	-
Stage 2	-	-	-	-	-	-	90	490	-	248	294	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	0	$ 429.5	$ 461.2
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	16	613	983	-	-	1098	-	-	258
HCM Lane V/C Ratio	2.535	0.12	0.205	-	-	0.002	-	-	1.922
HCM Control Delay (s)	$ 1188.5	11.7	9.6	-	-	8.3	-	-	$ 461.2
HCM Lane LOS	F	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	5.7	0.4	0.8	-	-	0	-	-	35

Notes

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

Intersection	
Int Delay, s/veh	181.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	159	390	20	1	516	36	15	1	28	55	1	332
Future Vol, veh/h	159	390	20	1	516	36	15	1	28	55	1	332
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	100	-	-	60	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	87	56	50	88	85	38	92	38	58	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	204	448	36	2	586	42	39	1	74	95	1	405

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	629	0	0	484	0	0	1689	1507	466	1486	1504	608
Stage 1	-	-	-	-	-	-	874	874	-	612	612	-
Stage 2	-	-	-	-	-	-	815	633	-	874	892	-
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	953	-	-	1079	-	-	74	121	597	103	121	496
Stage 1	-	-	-	-	-	-	344	367	-	480	484	-
Stage 2	-	-	-	-	-	-	371	473	-	344	360	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	953	-	-	1079	-	-	~ 11	95	597	~ 75	95	496
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 11	95	-	~ 75	95	-
Stage 1	-	-	-	-	-	-	270	288	-	377	483	-
Stage 2	-	-	-	-	-	-	68	472	-	236	283	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	0	$ 678.8	$ 540.3
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	11	597	953	-	-	1079	-	-	239
HCM Lane V/C Ratio	3.687	0.123	0.214	-	-	0.002	-	-	2.095
HCM Control Delay (s)	$ 1890.2	11.9	9.8	-	-	8.3	-	-	$ 540.3
HCM Lane LOS	F	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	6.2	0.4	0.8	-	-	0	-	-	37.7

Notes

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

Intersection	
Int Delay, s/veh	181.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	159	390	20	1	516	36	15	1	28	55	1	332
Future Vol, veh/h	159	390	20	1	516	36	15	1	28	55	1	332
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	100	-	-	60	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	87	56	50	88	85	38	92	38	58	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	204	448	36	2	586	42	39	1	74	95	1	405

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	629	0	0	484	0	0	1689	1507	466	1486	1504	608
Stage 1	-	-	-	-	-	-	874	874	-	612	612	-
Stage 2	-	-	-	-	-	-	815	633	-	874	892	-
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	953	-	-	1079	-	-	74	121	597	103	121	496
Stage 1	-	-	-	-	-	-	344	367	-	480	484	-
Stage 2	-	-	-	-	-	-	371	473	-	344	360	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	953	-	-	1079	-	-	~ 11	95	597	~ 75	95	496
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 11	95	-	~ 75	95	-
Stage 1	-	-	-	-	-	-	270	288	-	377	483	-
Stage 2	-	-	-	-	-	-	68	472	-	236	283	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	0	$ 678.8	$ 540.3
HCM LOS			F	F

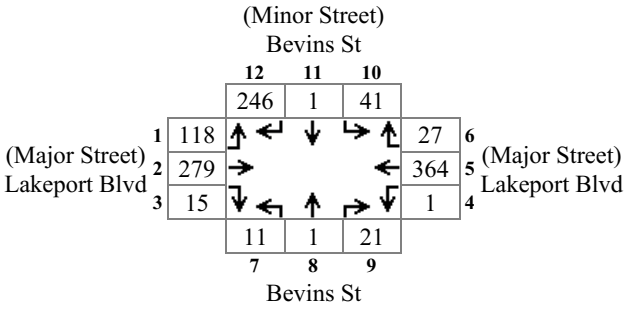
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	11	597	953	-	-	1079	-	-	239
HCM Lane V/C Ratio	3.687	0.123	0.214	-	-	0.002	-	-	2.095
HCM Control Delay (s)	$ 1890.2	11.9	9.8	-	-	8.3	-	-	$ 540.3
HCM Lane LOS	F	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	6.2	0.4	0.8	-	-	0	-	-	37.7

Notes

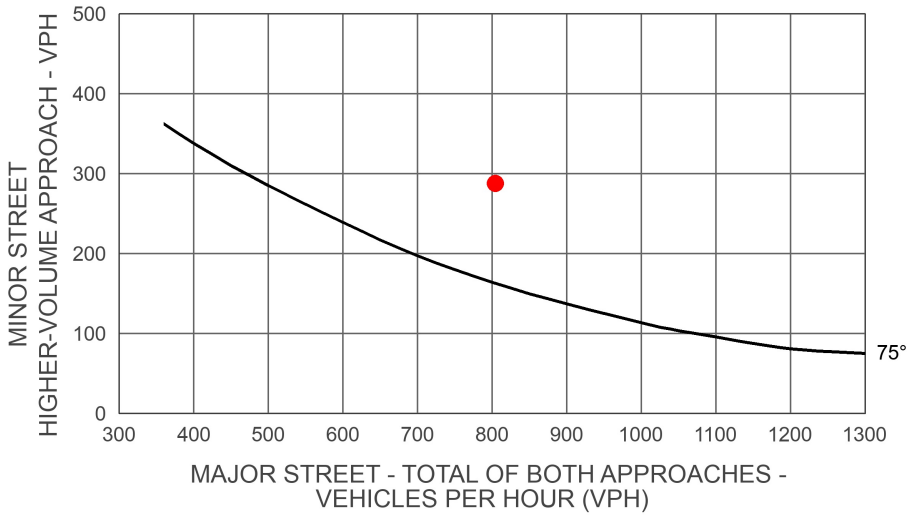
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Existing
Intersection #: 7

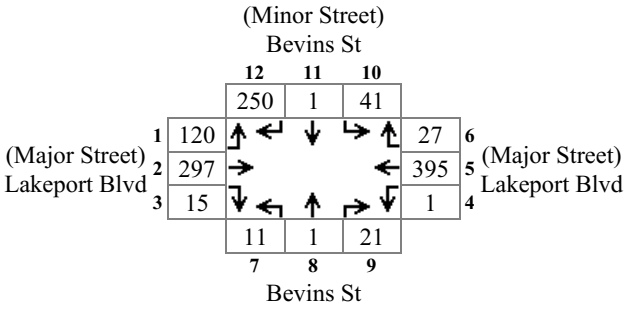


Major Total: 804
Minor High Volume: 288

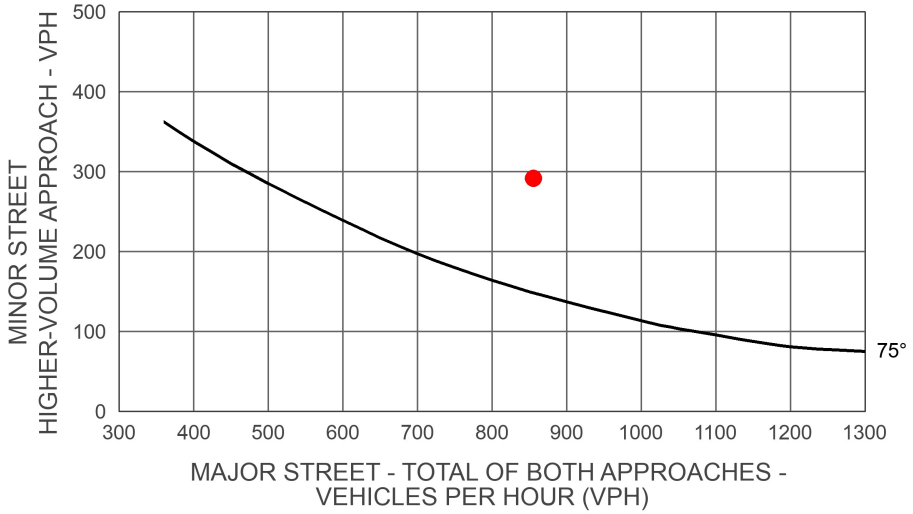


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Existing+Project
Intersection #: 7

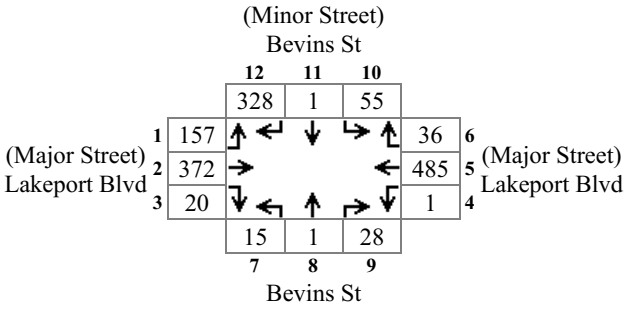


Major Total: 855
Minor High Volume: 292

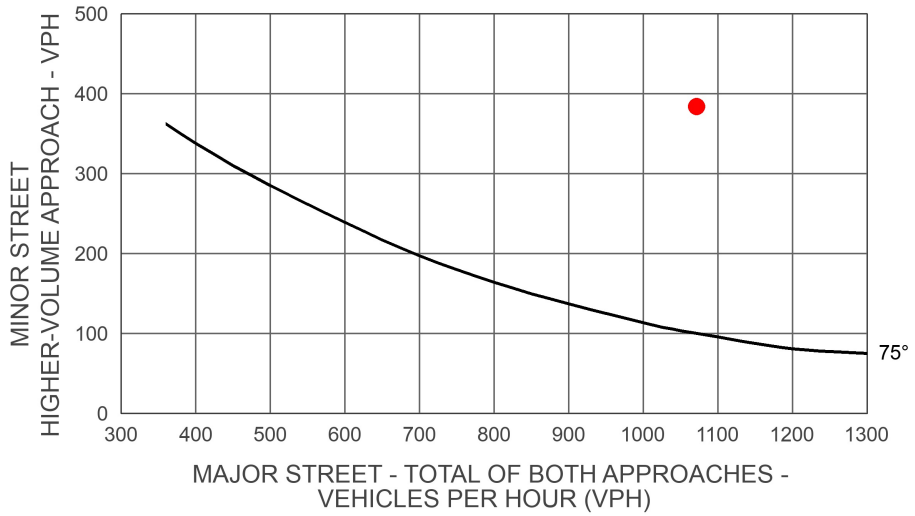


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future
Intersection #: 7

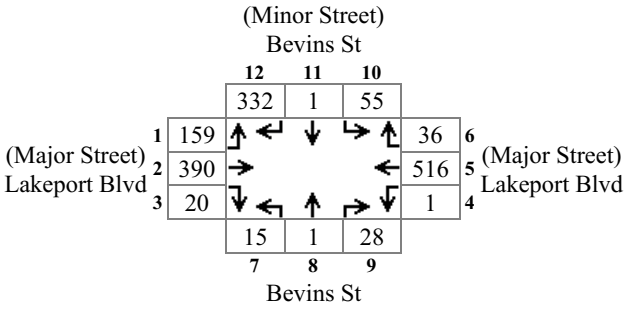


Major Total: 1071
Minor High Volume: 384

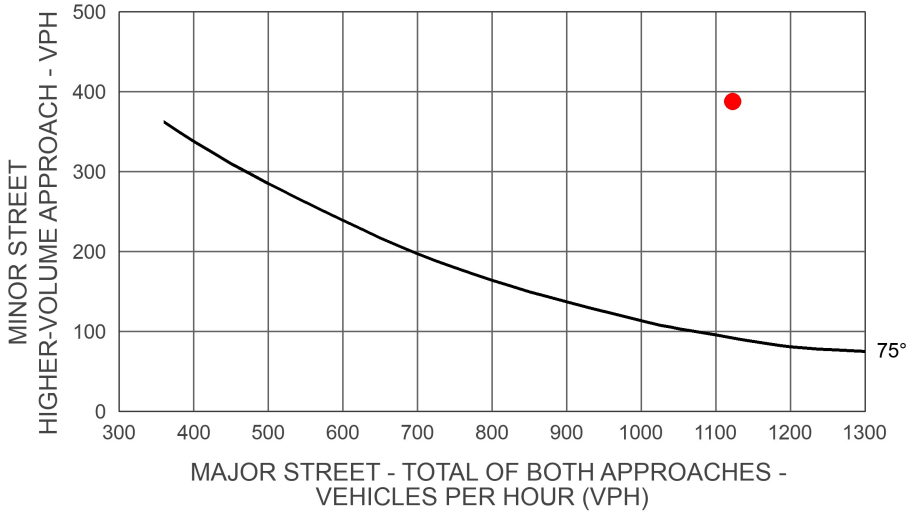


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future+Project
Intersection #: 7



Major Total: 1122
Minor High Volume: 388



Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	236	269	9	4	127	41	3	0	3	14	0	112
Future Vol, veh/h	236	269	9	4	127	41	3	0	3	14	0	112
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	100	-	-	60	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	87	56	50	88	85	38	92	38	58	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	303	309	16	8	144	48	8	0	8	24	0	137

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	193	0	0	325	0	0	1175	1131	317	1106	1114	168
Stage 1	-	-	-	-	-	-	922	922	-	184	184	-
Stage 2	-	-	-	-	-	-	253	209	-	922	930	-
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	1380	-	-	1235	-	-	168	203	724	188	208	876
Stage 1	-	-	-	-	-	-	324	349	-	818	747	-
Stage 2	-	-	-	-	-	-	751	729	-	324	346	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1380	-	-	1235	-	-	117	157	724	154	161	876
Mov Cap-2 Maneuver	-	-	-	-	-	-	117	157	-	154	161	-
Stage 1	-	-	-	-	-	-	253	272	-	638	742	-
Stage 2	-	-	-	-	-	-	630	724	-	250	270	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4	0.3	24	15.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	117	724	1380	-	-	1235	-	-	514
HCM Lane V/C Ratio	0.067	0.011	0.219	-	-	0.006	-	-	0.313
HCM Control Delay (s)	38	10	8.3	-	-	7.9	-	-	15.2
HCM Lane LOS	E	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.2	0	0.8	-	-	0	-	-	1.3

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	239	299	9	4	137	41	3	0	3	14	0	113
Future Vol, veh/h	239	299	9	4	137	41	3	0	3	14	0	113
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	100	-	-	60	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	87	56	50	88	85	38	92	38	58	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	306	344	16	8	156	48	8	0	8	24	0	138

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	204	0	0	360	0	0	1230	1185	352	1161	1169	180
Stage 1	-	-	-	-	-	-	965	965	-	196	196	-
Stage 2	-	-	-	-	-	-	265	220	-	965	973	-
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	1368	-	-	1199	-	-	154	189	692	172	193	863
Stage 1	-	-	-	-	-	-	306	333	-	806	739	-
Stage 2	-	-	-	-	-	-	740	721	-	306	330	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1368	-	-	1199	-	-	107	146	692	140	149	863
Mov Cap-2 Maneuver	-	-	-	-	-	-	107	146	-	140	149	-
Stage 1	-	-	-	-	-	-	238	259	-	626	734	-
Stage 2	-	-	-	-	-	-	618	716	-	235	256	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.9	0.3	25.8	16
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	107	692	1368	-	-	1199	-	-	488
HCM Lane V/C Ratio	0.074	0.011	0.224	-	-	0.007	-	-	0.332
HCM Control Delay (s)	41.3	10.3	8.4	-	-	8	-	-	16
HCM Lane LOS	E	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.2	0	0.9	-	-	0	-	-	1.4

Intersection	
Int Delay, s/veh	9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	315	359	12	5	169	55	4	0	4	19	0	149
Future Vol, veh/h	315	359	12	5	169	55	4	0	4	19	0	149
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	100	-	-	60	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	87	56	50	88	85	38	92	38	58	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	404	413	21	10	192	65	11	0	11	33	0	182

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	257	0	0	434	0	0	1566	1508	423	1475	1486	224
Stage 1	-	-	-	-	-	-	1231	1231	-	244	244	-
Stage 2	-	-	-	-	-	-	335	277	-	1231	1242	-
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	1308	-	-	1126	-	-	90	121	631	104	124	815
Stage 1	-	-	-	-	-	-	217	250	-	760	704	-
Stage 2	-	-	-	-	-	-	679	681	-	217	247	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1308	-	-	1126	-	-	53	83	631	77	85	815
Mov Cap-2 Maneuver	-	-	-	-	-	-	53	83	-	77	85	-
Stage 1	-	-	-	-	-	-	150	173	-	525	698	-
Stage 2	-	-	-	-	-	-	523	675	-	147	171	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.3	0.3	49.9	33.9
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	53	631	1308	-	-	1126	-	-	331
HCM Lane V/C Ratio	0.199	0.017	0.309	-	-	0.009	-	-	0.648
HCM Control Delay (s)	89	10.8	9	-	-	8.2	-	-	33.9
HCM Lane LOS	F	B	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.7	0.1	1.3	-	-	0	-	-	4.3

Intersection	
Int Delay, s/veh	9.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	318	389	12	5	179	55	4	0	4	19	0	150
Future Vol, veh/h	318	389	12	5	179	55	4	0	4	19	0	150
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	100	-	-	60	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	87	56	50	88	85	38	92	38	58	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	408	447	21	10	203	65	11	0	11	33	0	183

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	268	0	0	469	0	0	1620	1561	458	1529	1540	236
Stage 1	-	-	-	-	-	-	1273	1273	-	256	256	-
Stage 2	-	-	-	-	-	-	347	288	-	1273	1284	-
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	1296	-	-	1093	-	-	83	112	603	96	115	803
Stage 1	-	-	-	-	-	-	205	238	-	749	696	-
Stage 2	-	-	-	-	-	-	669	674	-	205	235	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1296	-	-	1093	-	-	48	76	603	71	78	803
Mov Cap-2 Maneuver	-	-	-	-	-	-	48	76	-	71	78	-
Stage 1	-	-	-	-	-	-	140	163	-	513	690	-
Stage 2	-	-	-	-	-	-	512	668	-	138	161	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.2	0.3	55.5	38.5
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	48	603	1296	-	-	1093	-	-	313
HCM Lane V/C Ratio	0.219	0.017	0.315	-	-	0.009	-	-	0.689
HCM Control Delay (s)	99.9	11.1	9	-	-	8.3	-	-	38.5
HCM Lane LOS	F	B	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	0.7	0.1	1.4	-	-	0	-	-	4.8

Intersection	
Int Delay, s/veh	9.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	318	389	12	5	179	55	4	0	4	19	0	150
Future Vol, veh/h	318	389	12	5	179	55	4	0	4	19	0	150
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	100	-	-	60	-	-	-	-	25	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	87	56	50	88	85	38	92	38	58	92	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	408	447	21	10	203	65	11	0	11	33	0	183

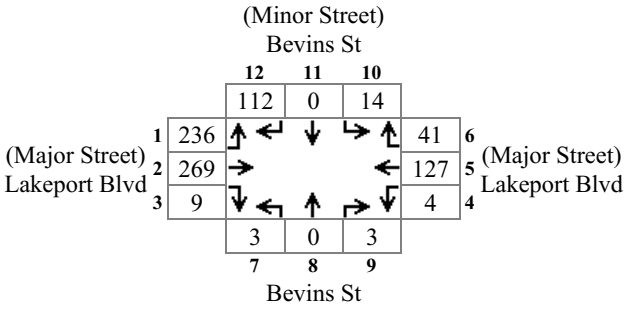
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	268	0	0	469	0	0	1620	1561	458	1529	1540	236
Stage 1	-	-	-	-	-	-	1273	1273	-	256	256	-
Stage 2	-	-	-	-	-	-	347	288	-	1273	1284	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	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	1296	-	-	1093	-	-	83	112	603	96	115	803
Stage 1	-	-	-	-	-	-	205	238	-	749	696	-
Stage 2	-	-	-	-	-	-	669	674	-	205	235	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1296	-	-	1093	-	-	48	76	603	71	78	803
Mov Cap-2 Maneuver	-	-	-	-	-	-	48	76	-	71	78	-
Stage 1	-	-	-	-	-	-	140	163	-	513	690	-
Stage 2	-	-	-	-	-	-	512	668	-	138	161	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.2	0.3	55.5	38.5
HCM LOS			F	E

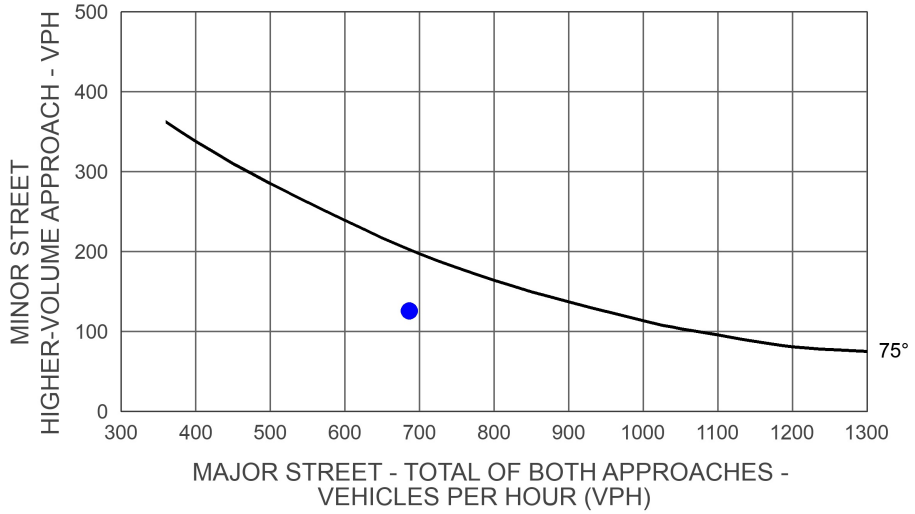
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	48	603	1296	-	-	1093	-	-	313
HCM Lane V/C Ratio	0.219	0.017	0.315	-	-	0.009	-	-	0.689
HCM Control Delay (s)	99.9	11.1	9	-	-	8.3	-	-	38.5
HCM Lane LOS	F	B	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	0.7	0.1	1.4	-	-	0	-	-	4.8

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 7

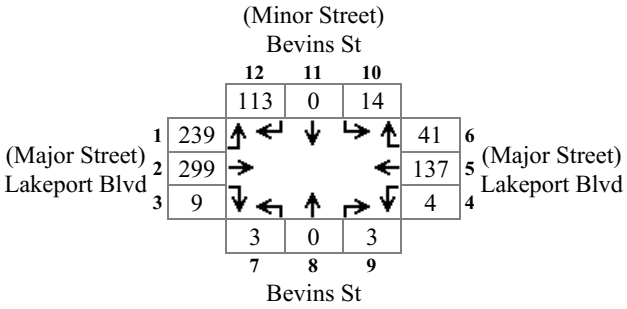


Major Total: 686
Minor High Volume: 126

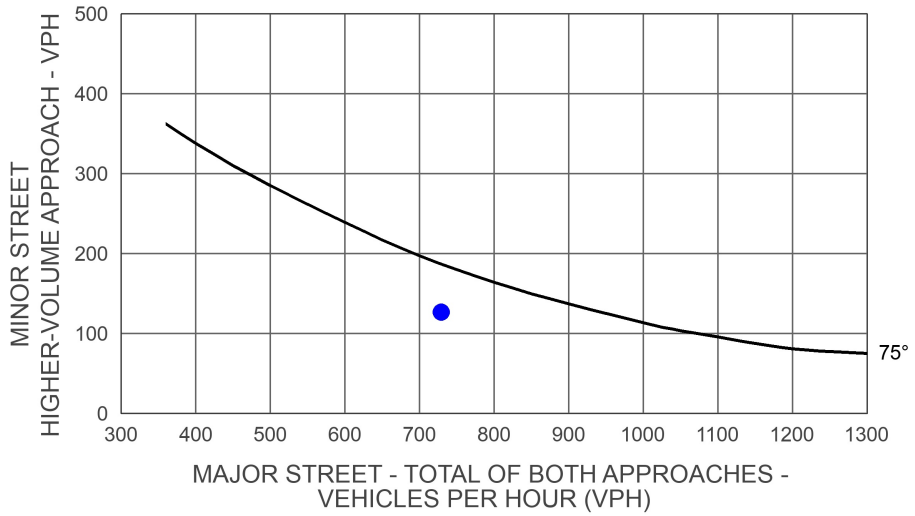


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 7

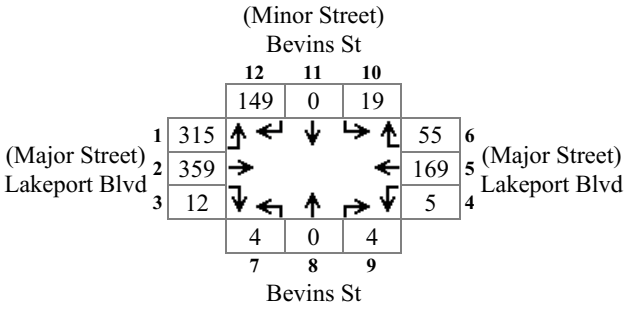


Major Total: 729
Minor High Volume: 127

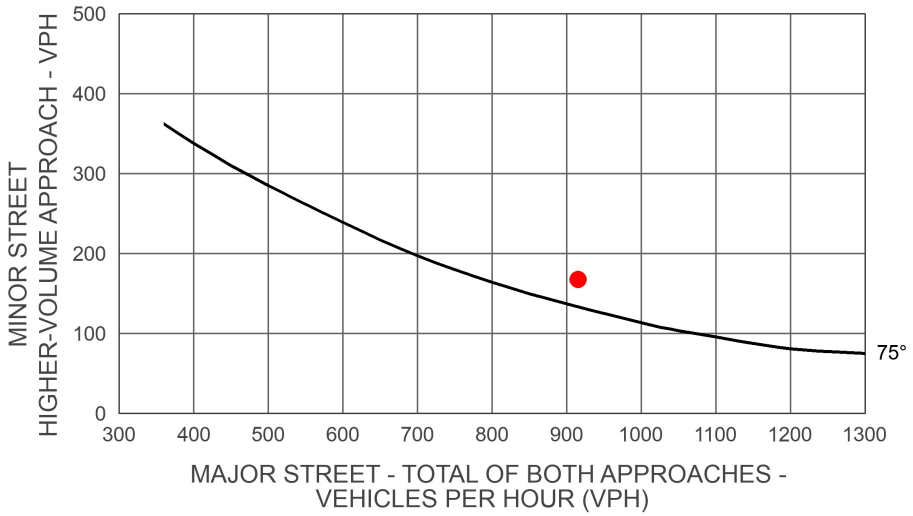


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future
Intersection #: 7

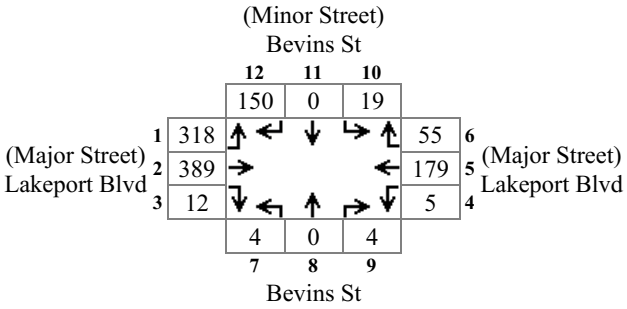


Major Total: 915
Minor High Volume: 168

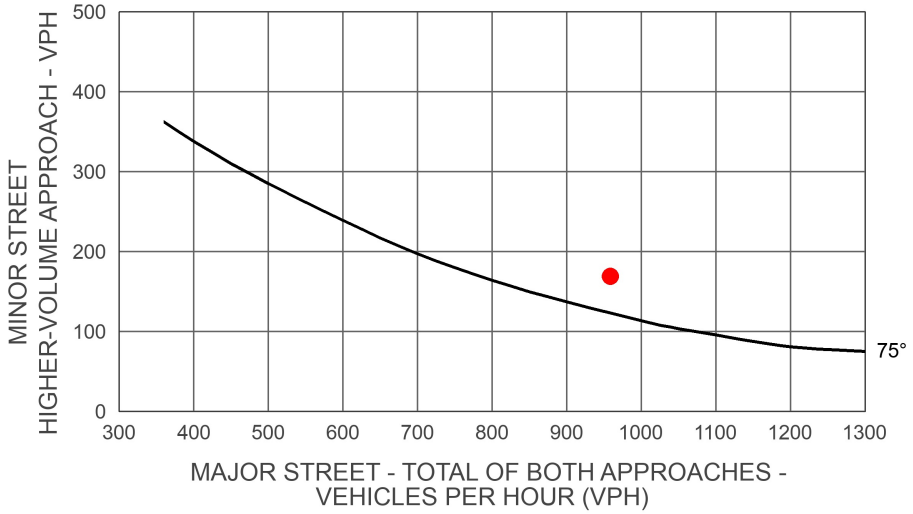


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future+Project
Intersection #: 7



Major Total: 958
Minor High Volume: 169



Intersection 8
S Main St & Lakeport Blvd

Intersection	
Intersection Delay, s/veh	13.2
Intersection LOS	B

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	165	96	0	96	252	0	231	180
Future Vol, veh/h	0	165	96	0	96	252	0	231	180
Peak Hour Factor	0.92	0.89	0.74	0.92	0.77	0.93	0.92	0.78	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	185	130	0	125	271	0	296	198
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	12.7	13.5	13.3
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	96	252	165	96	231	180
LT Vol	96	0	165	0	0	0
Through Vol	0	252	0	0	231	0
RT Vol	0	0	0	96	0	180
Lane Flow Rate	125	271	185	130	296	198
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.234	0.47	0.374	0.218	0.507	0.299
Departure Headway (Hd)	6.748	6.24	7.271	6.054	6.157	5.445
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	531	577	495	592	583	659
Service Time	4.499	3.991	5.025	3.807	3.906	3.195
HCM Lane V/C Ratio	0.235	0.47	0.374	0.22	0.508	0.3
HCM Control Delay	11.6	14.4	14.3	10.5	15.1	10.5
HCM Lane LOS	B	B	B	B	C	B
HCM 95th-tile Q	0.9	2.5	1.7	0.8	2.9	1.3

Intersection	
Intersection Delay, s/veh	13.7
Intersection LOS	B

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	181	98	0	100	252	0	231	207
Future Vol, veh/h	0	181	98	0	100	252	0	231	207
Peak Hour Factor	0.92	0.89	0.74	0.92	0.77	0.93	0.92	0.78	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	203	132	0	130	271	0	296	227
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	13.5	13.9	13.7
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	252	181	98	231	207
LT Vol	100	0	181	0	0	0
Through Vol	0	252	0	0	231	0
RT Vol	0	0	0	98	0	207
Lane Flow Rate	130	271	203	132	296	227
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.248	0.48	0.416	0.226	0.515	0.351
Departure Headway (Hd)	6.883	6.374	7.358	6.139	6.263	5.551
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	521	564	488	583	575	646
Service Time	4.644	4.134	5.114	3.895	4.02	3.308
HCM Lane V/C Ratio	0.25	0.48	0.416	0.226	0.515	0.351
HCM Control Delay	11.9	14.9	15.3	10.7	15.5	11.3
HCM Lane LOS	B	B	C	B	C	B
HCM 95th-tile Q	1	2.6	2	0.9	2.9	1.6

Intersection	
Intersection Delay, s/veh	21.2
Intersection LOS	C

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	220	128	0	128	336	0	308	240
Future Vol, veh/h	0	220	128	0	128	336	0	308	240
Peak Hour Factor	0.92	0.89	0.74	0.92	0.77	0.93	0.92	0.78	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	247	173	0	166	361	0	395	264
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	17.3	22.1	23
HCM LOS	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	128	336	220	128	308	240
LT Vol	128	0	220	0	0	0
Through Vol	0	336	0	0	308	0
RT Vol	0	0	0	128	0	240
Lane Flow Rate	166	361	247	173	395	264
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.352	0.713	0.549	0.325	0.766	0.452
Departure Headway (Hd)	7.619	7.107	8.114	6.886	6.983	6.278
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	474	513	447	526	521	578
Service Time	5.329	4.816	5.814	4.586	4.696	3.978
HCM Lane V/C Ratio	0.35	0.704	0.553	0.329	0.758	0.457
HCM Control Delay	14.4	25.6	20.3	12.9	29	14.1
HCM Lane LOS	B	D	C	B	D	B
HCM 95th-tile Q	1.6	5.7	3.2	1.4	6.8	2.3

Intersection	
Intersection Delay, s/veh	22.5
Intersection LOS	C

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	236	130	0	132	336	0	308	267
Future Vol, veh/h	0	236	130	0	132	336	0	308	267
Peak Hour Factor	0.92	0.89	0.74	0.92	0.77	0.93	0.92	0.78	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	265	176	0	171	361	0	395	293
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	18.8	23.2	24.3
HCM LOS	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	132	336	236	130	308	267
LT Vol	132	0	236	0	0	0
Through Vol	0	336	0	0	308	0
RT Vol	0	0	0	130	0	267
Lane Flow Rate	171	361	265	176	395	293
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.37	0.728	0.602	0.334	0.779	0.52
Departure Headway (Hd)	7.765	7.252	8.173	6.976	7.099	6.381
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	465	499	443	518	509	566
Service Time	5.495	4.981	5.905	4.676	4.827	4.109
HCM Lane V/C Ratio	0.368	0.723	0.598	0.34	0.776	0.518
HCM Control Delay	15	27.1	22.6	13.1	30.6	15.8
HCM Lane LOS	B	D	C	B	D	C
HCM 95th-tile Q	1.7	5.9	3.9	1.5	7	3

Intersection	
Intersection Delay, s/veh	22.5
Intersection LOS	C

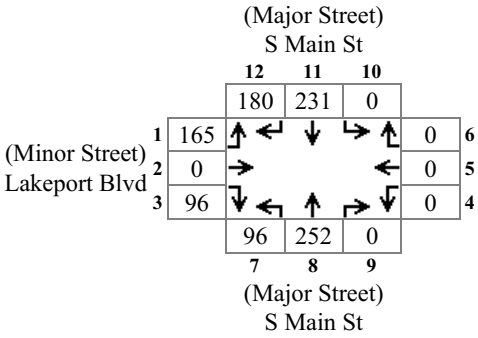
Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	236	130	0	132	336	0	308	267
Future Vol, veh/h	0	236	130	0	132	336	0	308	267
Peak Hour Factor	0.92	0.89	0.74	0.92	0.77	0.93	0.92	0.78	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	265	176	0	171	361	0	395	293
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	18.8	23.2	24.3
HCM LOS	C	C	C

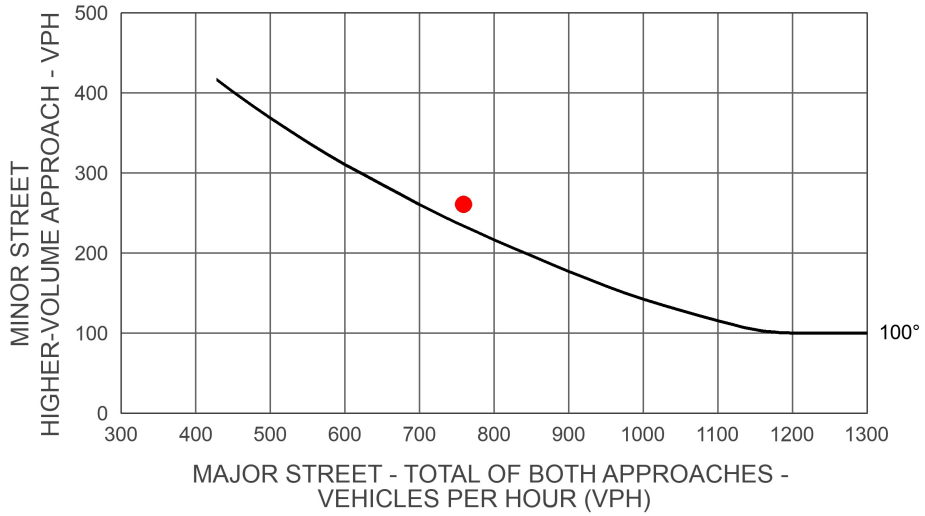
Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	132	336	236	130	308	267
LT Vol	132	0	236	0	0	0
Through Vol	0	336	0	0	308	0
RT Vol	0	0	0	130	0	267
Lane Flow Rate	171	361	265	176	395	293
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.37	0.728	0.602	0.334	0.779	0.52
Departure Headway (Hd)	7.765	7.252	8.173	6.976	7.099	6.381
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	465	499	443	518	509	566
Service Time	5.495	4.981	5.905	4.676	4.827	4.109
HCM Lane V/C Ratio	0.368	0.723	0.598	0.34	0.776	0.518
HCM Control Delay	15	27.1	22.6	13.1	30.6	15.8
HCM Lane LOS	B	D	C	B	D	C
HCM 95th-tile Q	1.7	5.9	3.9	1.5	7	3

Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Existing
Intersection #: 8

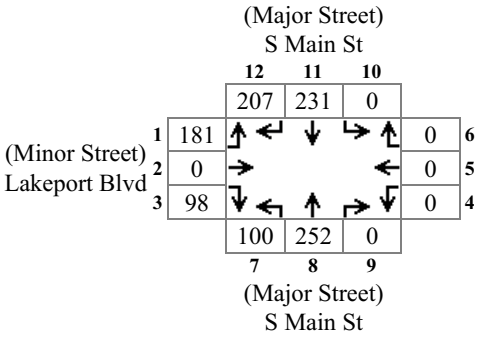


Major Total: 759
Minor High Volume: 261

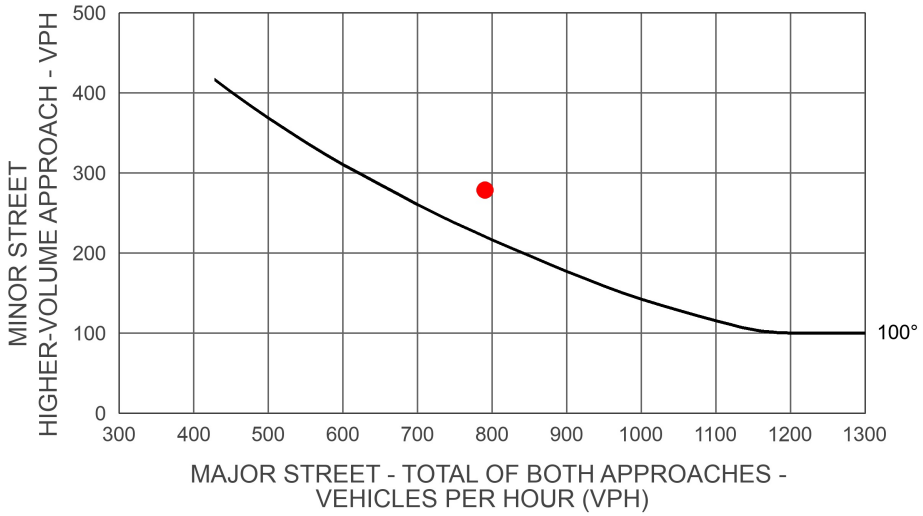


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Existing+Project
Intersection #: 8

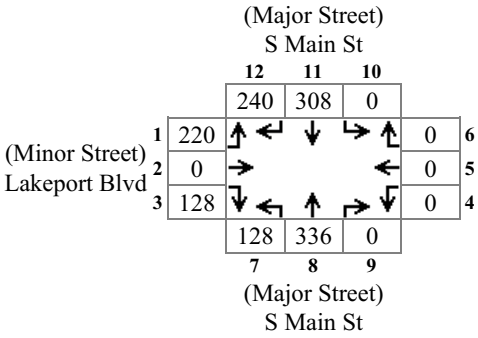


Major Total: 790
Minor High Volume: 279

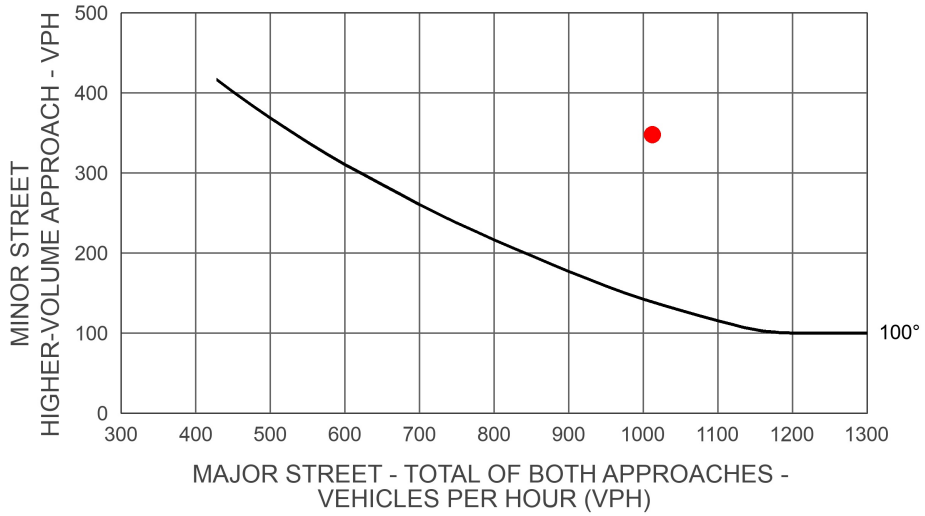


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future
Intersection #: 8

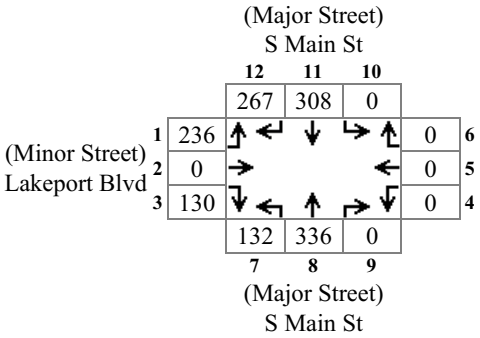


Major Total: 1012
Minor High Volume: 348

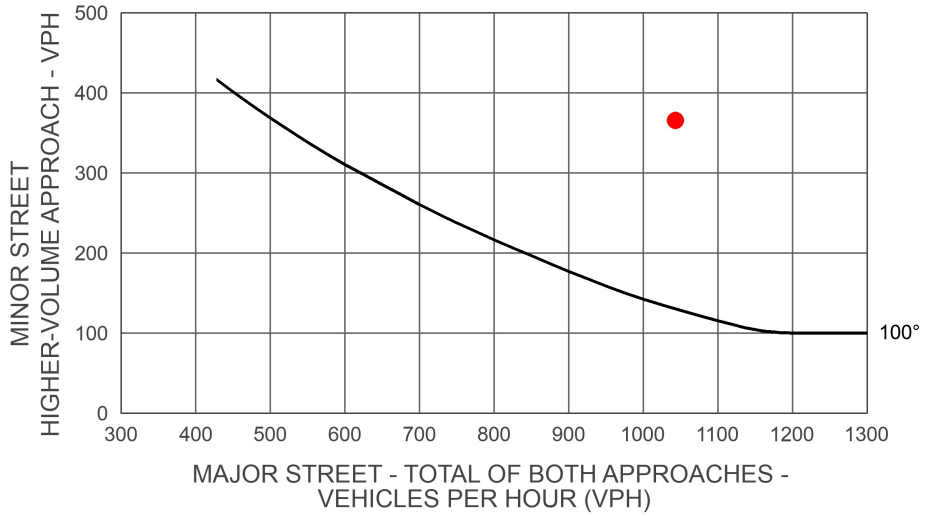


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: PM Future+Project
Intersection #: 8



Major Total: 1043
Minor High Volume: 366



Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	142	76	0	57	195	0	204	110
Future Vol, veh/h	0	142	76	0	57	195	0	204	110
Peak Hour Factor	0.92	0.79	0.92	0.92	0.85	0.75	0.92	0.69	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	180	83	0	67	260	0	296	147
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	12.1	12.6	12.3
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	57	195	142	76	204	110
LT Vol	57	0	142	0	0	0
Through Vol	0	195	0	0	204	0
RT Vol	0	0	0	76	0	110
Lane Flow Rate	67	260	180	83	296	147
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.121	0.431	0.349	0.132	0.481	0.21
Departure Headway (Hd)	6.472	5.965	6.987	5.772	5.854	5.144
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	554	603	516	620	615	698
Service Time	4.208	3.701	4.726	3.511	3.586	2.877
HCM Lane V/C Ratio	0.121	0.431	0.349	0.134	0.481	0.211
HCM Control Delay	10.1	13.2	13.4	9.4	13.9	9.2
HCM Lane LOS	B	B	B	A	B	A
HCM 95th-tile Q	0.4	2.2	1.6	0.5	2.6	0.8

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	168	79	0	58	195	0	204	119
Future Vol, veh/h	0	168	79	0	58	195	0	204	119
Peak Hour Factor	0.92	0.79	0.92	0.92	0.85	0.75	0.92	0.69	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	213	86	0	68	260	0	296	159
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	13.3	13	12.8
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	58	195	168	79	204	119
LT Vol	58	0	168	0	0	0
Through Vol	0	195	0	0	204	0
RT Vol	0	0	0	79	0	119
Lane Flow Rate	68	260	213	86	296	159
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.126	0.443	0.416	0.139	0.494	0.234
Departure Headway (Hd)	6.647	6.139	7.047	5.831	6.011	5.3
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	539	585	510	614	600	676
Service Time	4.391	3.883	4.792	3.576	3.75	3.04
HCM Lane V/C Ratio	0.126	0.444	0.418	0.14	0.493	0.235
HCM Control Delay	10.4	13.7	14.8	9.5	14.5	9.7
HCM Lane LOS	B	B	B	A	B	A
HCM 95th-tile Q	0.4	2.3	2	0.5	2.7	0.9

Intersection	
Intersection Delay, s/veh	18.3
Intersection LOS	C

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	189	101	0	76	260	0	272	147
Future Vol, veh/h	0	189	101	0	76	260	0	272	147
Peak Hour Factor	0.92	0.79	0.92	0.92	0.85	0.75	0.92	0.69	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	239	110	0	89	347	0	394	196
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	15.9	18.7	19.4
HCM LOS	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	76	260	189	101	272	147
LT Vol	76	0	189	0	0	0
Through Vol	0	260	0	0	272	0
RT Vol	0	0	0	101	0	147
Lane Flow Rate	89	347	239	110	394	196
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.177	0.638	0.509	0.196	0.708	0.313
Departure Headway (Hd)	7.135	6.625	7.652	6.429	6.464	5.75
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	500	541	469	556	556	621
Service Time	4.916	4.405	5.427	4.203	4.239	3.525
HCM Lane V/C Ratio	0.178	0.641	0.51	0.198	0.709	0.316
HCM Control Delay	11.5	20.5	18.2	10.8	23.5	11.2
HCM Lane LOS	B	C	C	B	C	B
HCM 95th-tile Q	0.6	4.5	2.8	0.7	5.7	1.3

Intersection	
Intersection Delay, s/veh	19.6
Intersection LOS	C

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	215	104	0	77	260	0	272	156
Future Vol, veh/h	0	215	104	0	77	260	0	272	156
Peak Hour Factor	0.92	0.79	0.92	0.92	0.85	0.75	0.92	0.69	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	272	113	0	91	347	0	394	208
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	17.9	19.7	20.6
HCM LOS	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	77	260	215	104	272	156
LT Vol	77	0	215	0	0	0
Through Vol	0	260	0	0	272	0
RT Vol	0	0	0	104	0	156
Lane Flow Rate	91	347	272	113	394	208
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.184	0.656	0.583	0.204	0.726	0.342
Departure Headway (Hd)	7.322	6.81	7.715	6.491	6.634	5.919
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	487	527	465	549	540	603
Service Time	5.113	4.601	5.496	4.271	4.421	3.705
HCM Lane V/C Ratio	0.187	0.658	0.585	0.206	0.73	0.345
HCM Control Delay	11.8	21.8	20.8	10.9	25.2	11.8
HCM Lane LOS	B	C	C	B	D	B
HCM 95th-tile Q	0.7	4.7	3.6	0.8	6	1.5

Intersection	
Intersection Delay, s/veh	19.6
Intersection LOS	C

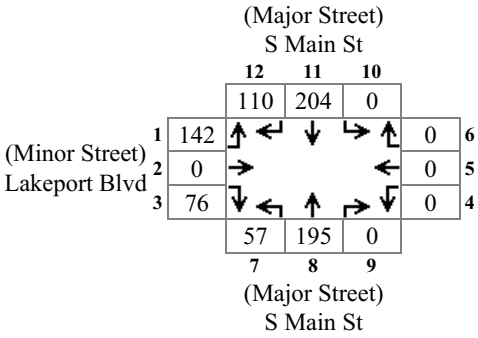
Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	215	104	0	77	260	0	272	156
Future Vol, veh/h	0	215	104	0	77	260	0	272	156
Peak Hour Factor	0.92	0.79	0.92	0.92	0.85	0.75	0.92	0.69	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	272	113	0	91	347	0	394	208
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	17.9	19.7	20.6
HCM LOS	C	C	C

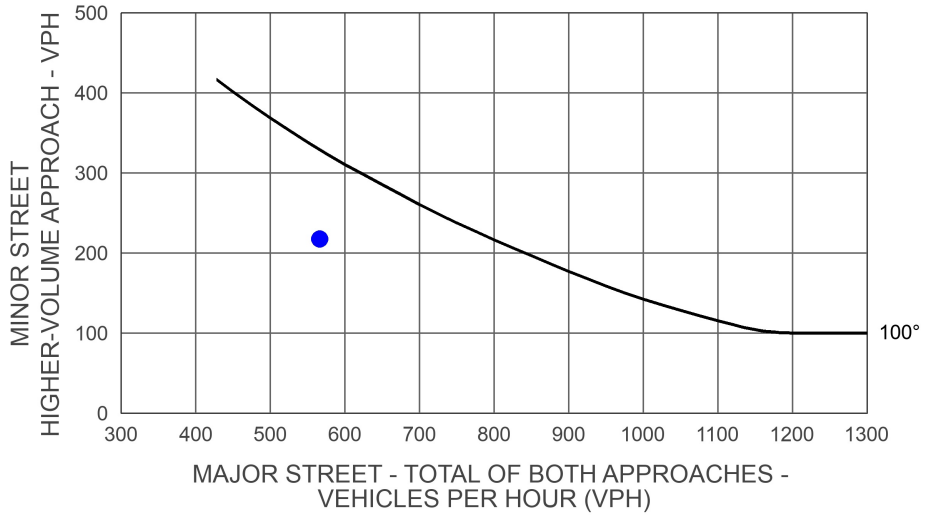
Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	77	260	215	104	272	156
LT Vol	77	0	215	0	0	0
Through Vol	0	260	0	0	272	0
RT Vol	0	0	0	104	0	156
Lane Flow Rate	91	347	272	113	394	208
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.184	0.656	0.583	0.204	0.726	0.342
Departure Headway (Hd)	7.322	6.81	7.715	6.491	6.634	5.919
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	487	527	465	549	540	603
Service Time	5.113	4.601	5.496	4.271	4.421	3.705
HCM Lane V/C Ratio	0.187	0.658	0.585	0.206	0.73	0.345
HCM Control Delay	11.8	21.8	20.8	10.9	25.2	11.8
HCM Lane LOS	B	C	C	B	D	B
HCM 95th-tile Q	0.7	4.7	3.6	0.8	6	1.5

Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing
Intersection #: 8

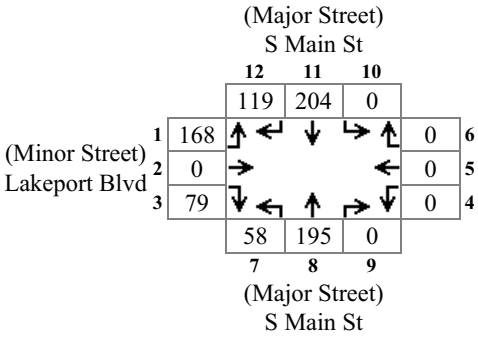


Major Total: 566
Minor High Volume: 218

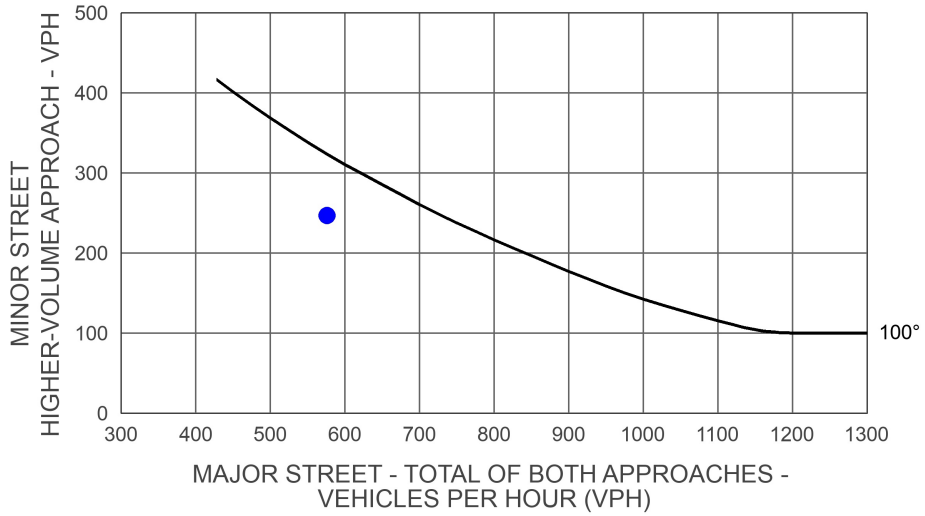


Rural Peak Hour Signal Warrant
Intersection Does Not Meet Signal Warrant

Scenario: AM Existing+Project
Intersection #: 8

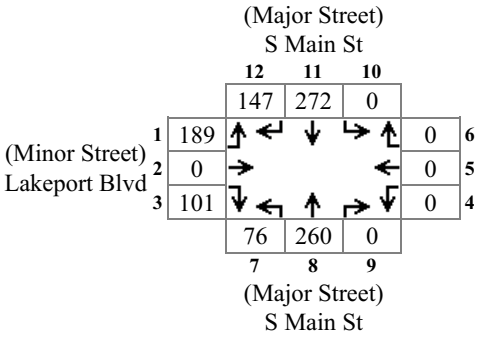


Major Total: 576
Minor High Volume: 247

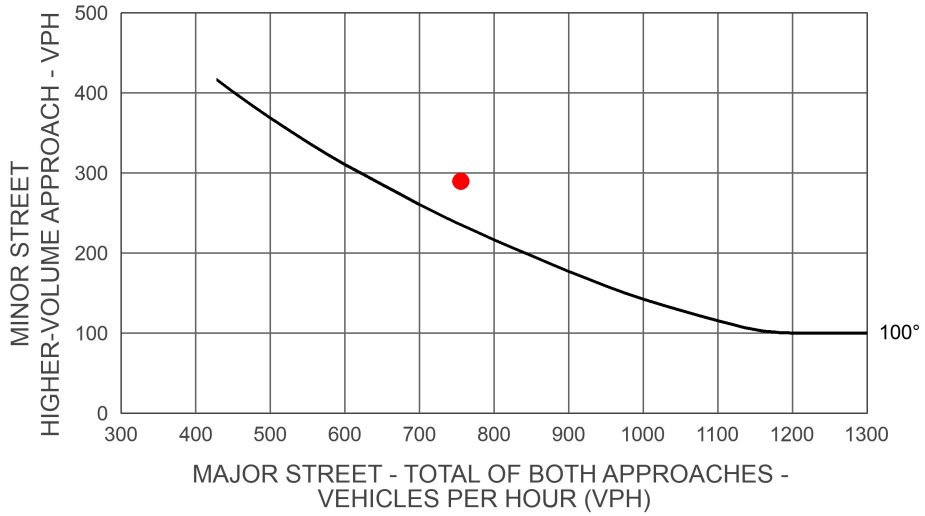


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future
Intersection #: 8

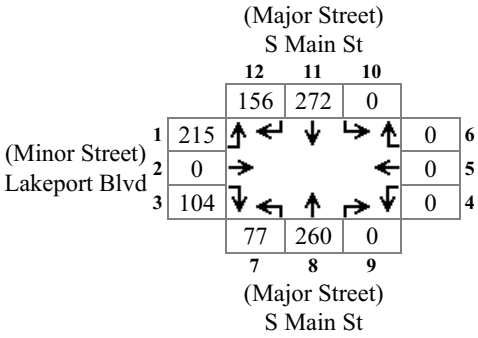


Major Total: 755
Minor High Volume: 290

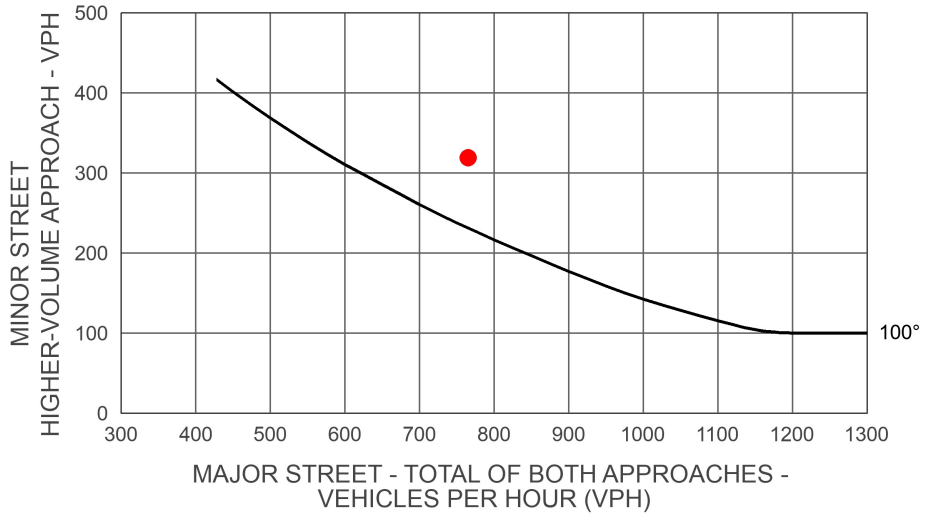


Rural Peak Hour Signal Warrant
Intersection Meets Signal Warrant

Scenario: AM Future+Project
Intersection #: 8



Major Total: 765
Minor High Volume: 319



VEHICLE TURN MOVEMENT DATA

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

City of Lakeport
N/S: Fenway Avenue
E/W: Westside Park Drive
Weather: Clear

File Name : 01_LKT_Fenway_West AM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 1

Groups Printed- Total Volume

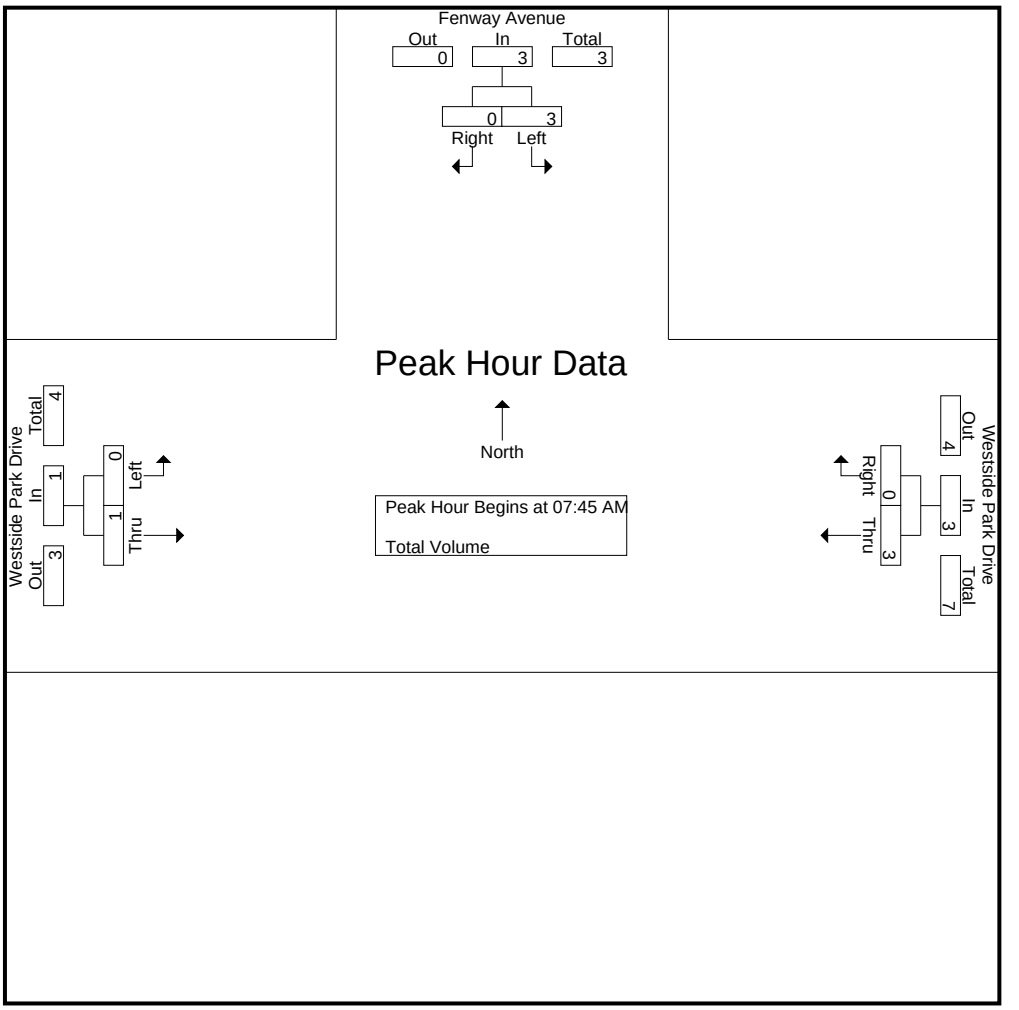
	Fenway Avenue Southbound			Westside Park Drive Westbound			Westside Park Drive Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	0	0	0	0	1	1	0	0	0	1
07:15 AM	1	0	1	0	0	0	0	0	0	1
07:30 AM	1	0	1	0	0	0	0	0	0	1
07:45 AM	1	0	1	0	0	0	0	0	0	1
Total	3	0	3	0	1	1	0	0	0	4
08:00 AM	1	0	1	0	0	0	0	0	0	1
08:15 AM	1	0	1	2	0	2	0	0	0	3
08:30 AM	0	0	0	1	0	1	0	1	1	2
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	2	0	2	3	0	3	0	1	1	6
Grand Total	5	0	5	3	1	4	0	1	1	10
Apprch %	100	0		75	25		0	100		
Total %	50	0	50	30	10	40	0	10	10	

	Fenway Avenue Southbound			Westside Park Drive Westbound			Westside Park Drive Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	**1**	0	**1**	0	0	0	0	0	0	1
08:00 AM	1	0	1	0	0	0	0	0	0	1
08:15 AM	1	0	1	**2**	0	**2**	0	0	0	**3**
08:30 AM	0	0	0	1	0	1	0	**1**	**1**	2
Total Volume	3	0	3	3	0	3	0	1	1	7
% App. Total	100	0		100	0		0	100		
PHF	.750	.000	.750	.375	.000	.375	.000	.250	.250	.583

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

City of Lakeport
N/S: Fenway Avenue
E/W: Westside Park Drive
Weather: Clear

File Name : 01_LKT_Fenway_West AM
Site Code : 99922322
Start Date : 4/19/2022



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

	07:15 AM			07:45 AM			07:45 AM		
+0 mins.	**1**	0	**1**	0	0	0	0	0	0
+15 mins.	1	0	1	0	0	0	0	0	0
+30 mins.	1	0	1	**2**	0	**2**	0	0	0
+45 mins.	1	0	1	1	0	1	0	**1**	**1**
Total Volume	4	0	4	3	0	3	0	1	1
% App. Total	100	0		100	0		0	100	
PHF	1.000	.000	1.000	.375	.000	.375	.000	.250	.250

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

City of Lakeport
N/S: Fenway Avenue
E/W: Westside Park Drive
Weather: Clear

File Name : 01_LKT_Fenway_West PM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 1

Groups Printed- Total Volume

	Fenway Avenue Southbound			Westside Park Drive Westbound			Westside Park Drive Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	1	0	1	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	1	1	1
04:45 PM	0	0	0	0	1	1	0	0	0	1
Total	1	0	1	0	1	1	0	1	1	3
05:00 PM	0	0	0	3	2	5	0	2	2	7
05:15 PM	0	0	0	2	1	3	0	0	0	3
05:30 PM	0	0	0	1	0	1	0	1	1	2
05:45 PM	1	0	1	0	0	0	0	1	1	2
Total	1	0	1	6	3	9	0	4	4	14
Grand Total	2	0	2	6	4	10	0	5	5	17
Apprch %	100	0		60	40		0	100		
Total %	11.8	0	11.8	35.3	23.5	58.8	0	29.4	29.4	

	Fenway Avenue Southbound			Westside Park Drive Westbound			Westside Park Drive Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	0	0	0	**3**	**2**	**5**	0	**2**	**2**	**7**
05:15 PM	0	0	0	2	1	3	0	0	0	3
05:30 PM	0	0	0	1	0	1	0	1	1	2
05:45 PM	**1**	0	**1**	0	0	0	0	1	1	2
Total Volume	1	0	1	6	3	9	0	4	4	14
% App. Total	100	0		66.7	33.3		0	100		
PHF	.250	.000	.250	.500	.375	.450	.000	.500	.500	.500

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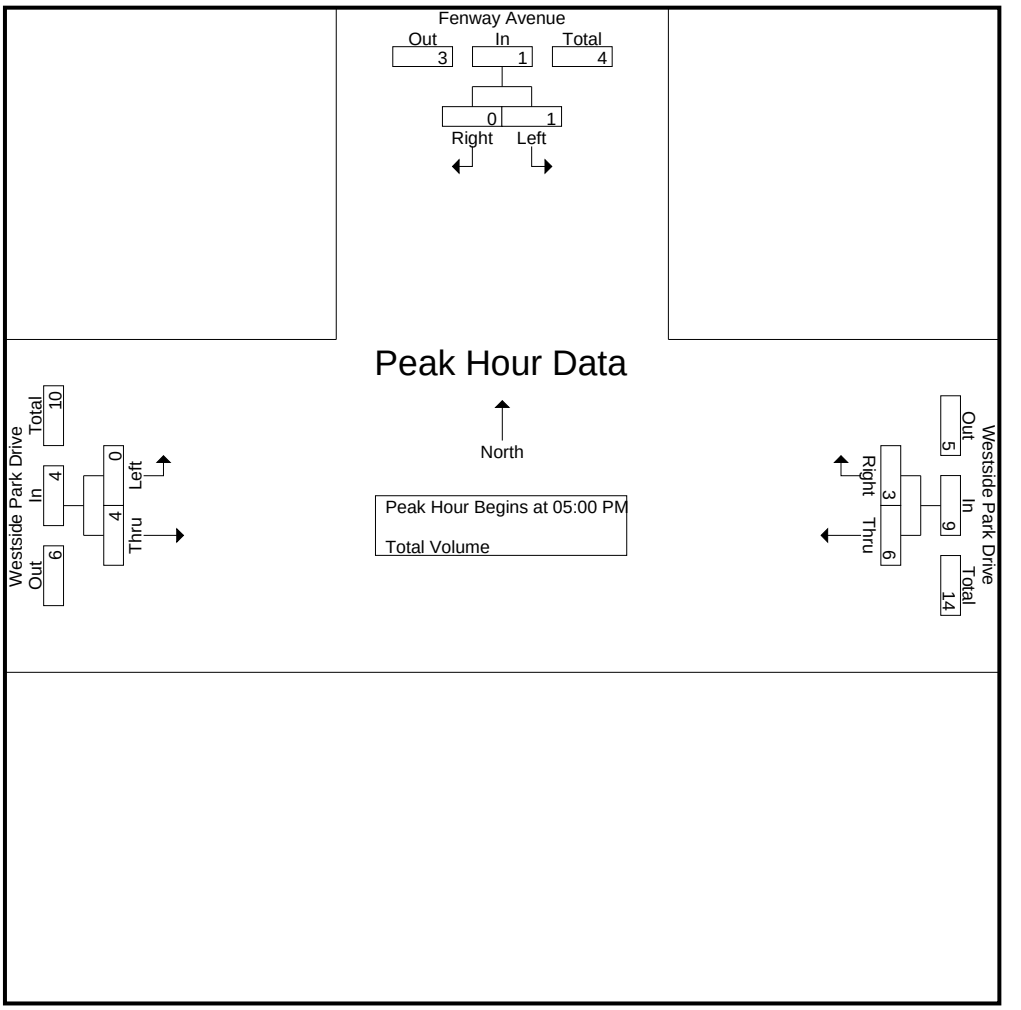
City of Lakeport
N/S: Fenway Avenue
E/W: Westside Park Drive
Weather: Clear

File Name : 01_LKT_Fenway_West PM
Site Code : 99922322
Start Date : 4/19/2022



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

	04:00 PM			04:45 PM			05:00 PM		
+0 mins.	0	0	0	0	1	1	0	**2**	**2**
+15 mins.	**1**	0	**1**	**3**	**2**	**5**	0	0	0
+30 mins.	0	0	0	2	1	3	0	1	1
+45 mins.	0	0	0	1	0	1	0	1	1
Total Volume	1	0	1	6	4	10	0	4	4
% App. Total	100	0		60	40		0	100	
PHF	.250	.000	.250	.500	.500	.500	.000	.500	.500

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City of Lakeport
N/S: Wrigley Street
E/W: Westside Park Drive
Weather: Clear

File Name : 02_LKT_Wrigley_West AM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 1

Groups Printed- Total Volume

	Wrigley Street Southbound			Westside Park Drive Westbound			Westside Park Drive Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	3	0	3	1	1	2	0	0	0	5
07:15 AM	4	0	4	0	0	0	0	1	1	5
07:30 AM	3	0	3	0	2	2	0	1	1	6
07:45 AM	4	0	4	1	0	1	0	1	1	6
Total	14	0	14	2	3	5	0	3	3	22
08:00 AM	3	0	3	1	0	1	0	1	1	5
08:15 AM	0	0	0	4	1	5	0	2	2	7
08:30 AM	0	0	0	0	0	0	0	2	2	2
08:45 AM	1	0	1	2	1	3	0	0	0	4
Total	4	0	4	7	2	9	0	5	5	18
Grand Total	18	0	18	9	5	14	0	8	8	40
Apprch %	100	0		64.3	35.7		0	100		
Total %	45	0	45	22.5	12.5	35	0	20	20	

	Wrigley Street Southbound			Westside Park Drive Westbound			Westside Park Drive Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	3	0	3	0	**2**	2	0	1	1	6
07:45 AM	**4**	0	**4**	1	0	1	0	1	1	6
08:00 AM	3	0	3	1	0	1	0	1	1	5
08:15 AM	0	0	0	**4**	1	**5**	0	**2**	**2**	**7**
Total Volume	10	0	10	6	3	9	0	5	5	24
% App. Total	100	0		66.7	33.3		0	100		
PHF	.625	.000	.625	.375	.375	.450	.000	.625	.625	.857

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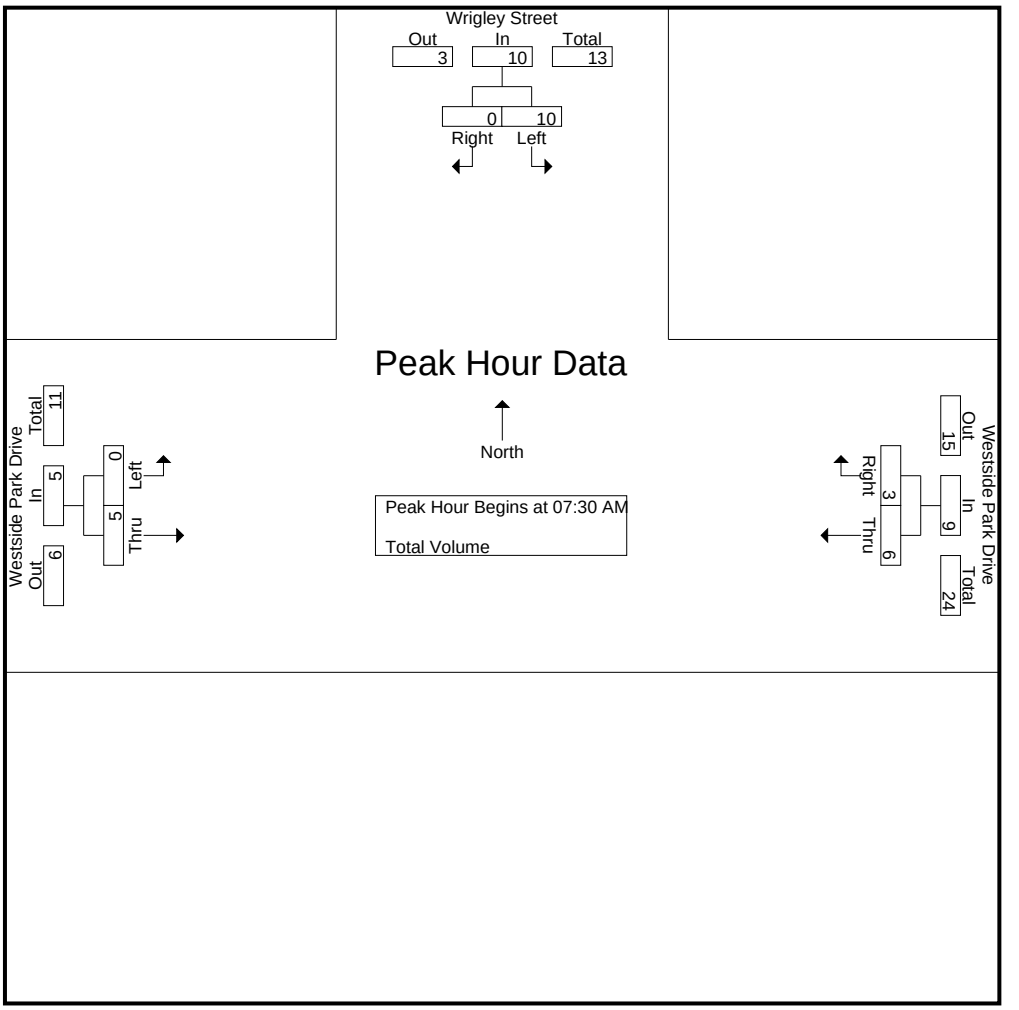
City of Lakeport
N/S: Wrigley Street
E/W: Westside Park Drive
Weather: Clear

File Name : 02_LKT_Wrigley_West AM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 2



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

	07:00 AM			07:30 AM			07:45 AM		
+0 mins.	3	0	3	0	**2**	2	0	1	1
+15 mins.	**4**	0	**4**	1	0	1	0	1	1
+30 mins.	3	0	3	1	0	1	0	**2**	**2**
+45 mins.	4	0	4	**4**	1	**5**	0	2	2
Total Volume	14	0	14	6	3	9	0	6	6
% App. Total	100	0		66.7	33.3		0	100	
PHF	.875	.000	.875	.375	.375	.450	.000	.750	.750

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City of Lakeport
N/S: Wrigley Street
E/W: Westside Park Drive
Weather: Clear

File Name : 02_LKT_Wrigley_West PM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 1

Groups Printed- Total Volume

	Wrigley Street Southbound			Westside Park Drive Westbound			Westside Park Drive Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	2	0	2	1	2	3	0	0	0	5
04:15 PM	0	0	0	3	1	4	0	3	3	7
04:30 PM	2	0	2	1	7	8	0	1	1	11
04:45 PM	5	1	6	8	3	11	0	1	1	18
Total	9	1	10	13	13	26	0	5	5	41
05:00 PM	4	0	4	23	4	27	0	5	5	36
05:15 PM	5	0	5	15	3	18	0	7	7	30
05:30 PM	0	0	0	25	3	28	0	4	4	32
05:45 PM	3	0	3	14	6	20	0	3	3	26
Total	12	0	12	77	16	93	0	19	19	124
Grand Total	21	1	22	90	29	119	0	24	24	165
Apprch %	95.5	4.5		75.6	24.4		0	100		
Total %	12.7	0.6	13.3	54.5	17.6	72.1	0	14.5	14.5	

	Wrigley Street Southbound			Westside Park Drive Westbound			Westside Park Drive Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	4	0	4	23	4	27	0	5	5	**36**
05:15 PM	**5**	0	**5**	15	3	18	0	**7**	**7**	30
05:30 PM	0	0	0	**25**	3	**28**	0	4	4	32
05:45 PM	3	0	3	14	**6**	20	0	3	3	26
Total Volume	12	0	12	77	16	93	0	19	19	124
% App. Total	100	0		82.8	17.2		0	100		
PHF	.600	.000	.600	.770	.667	.830	.000	.679	.679	.861

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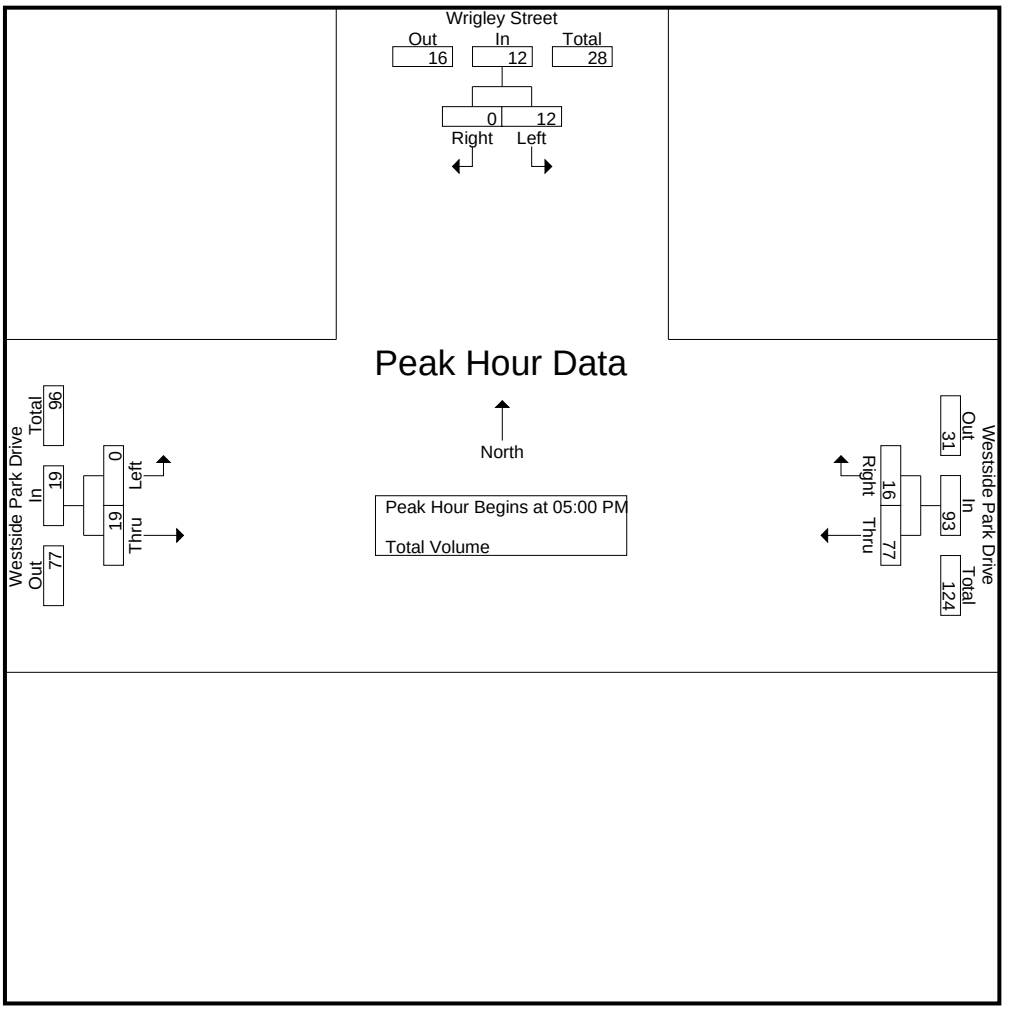
City of Lakeport
N/S: Wrigley Street
E/W: Westside Park Drive
Weather: Clear

File Name : 02_LKT_Wrigley_West PM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 2



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

	04:30 PM			05:00 PM			05:00 PM		
+0 mins.	2	0	2	23	4	27	0	5	5
+15 mins.	**5**	**1**	**6**	15	3	18	0	**7**	**7**
+30 mins.	4	0	4	**25**	3	**28**	0	4	4
+45 mins.	5	0	5	14	**6**	20	0	3	3
Total Volume	16	1	17	77	16	93	0	19	19
% App. Total	94.1	5.9		82.8	17.2		0	100	
PHF	.800	.250	.708	.770	.667	.830	.000	.679	.679

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City of Lakeport
N/S: Parallel Drive
E/W: Westside Park Drive
Weather: Clear

File Name : 03_LKT_Para_West AM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 1

Groups Printed- Total Volume

	Parallel Drive Southbound			Parallel Drive Northbound			Westside Park Drive Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
07:00 AM	7	0	7	1	10	11	0	3	3	21
07:15 AM	6	0	6	0	12	12	1	4	5	23
07:30 AM	4	0	4	2	25	27	0	3	3	34
07:45 AM	4	0	4	0	33	33	0	5	5	42
Total	21	0	21	3	80	83	1	15	16	120
08:00 AM	5	0	5	1	23	24	0	3	3	32
08:15 AM	11	0	11	6	25	31	0	3	3	45
08:30 AM	4	0	4	0	22	22	0	3	3	29
08:45 AM	15	0	15	4	22	26	1	2	3	44
Total	35	0	35	11	92	103	1	11	12	150
Grand Total	56	0	56	14	172	186	2	26	28	270
Apprch %	100	0		7.5	92.5		7.1	92.9		
Total %	20.7	0	20.7	5.2	63.7	68.9	0.7	9.6	10.4	

	Parallel Drive Southbound			Parallel Drive Northbound			Westside Park Drive Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	4	0	4	2	25	27	0	3	3	34
07:45 AM	4	0	4	0	**33**	**33**	0	**5**	**5**	42
08:00 AM	5	0	5	1	23	24	0	3	3	32
08:15 AM	**11**	0	**11**	**6**	25	31	0	3	3	**45**
Total Volume	24	0	24	9	106	115	0	14	14	153
% App. Total	100	0		7.8	92.2		0	100		
PHF	.545	.000	.545	.375	.803	.871	.000	.700	.700	.850

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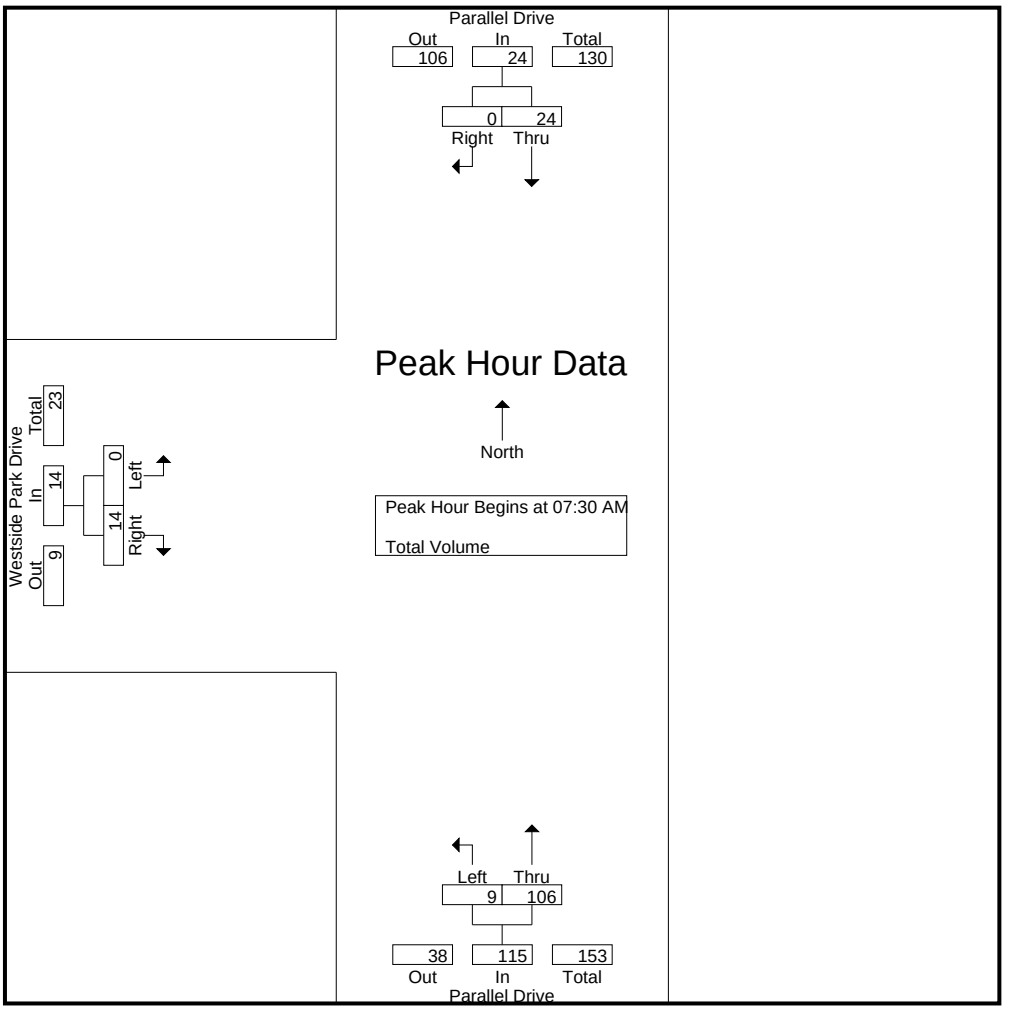
City of Lakeport
N/S: Parallel Drive
E/W: Westside Park Drive
Weather: Clear

File Name : 03_LKT_Para_West AM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 2



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

	08:00 AM			07:30 AM			07:00 AM		
+0 mins.	5	0	5	2	25	27	0	3	3
+15 mins.	11	0	11	0	**33**	**33**	**1**	4	**5**
+30 mins.	4	0	4	1	23	24	0	3	3
+45 mins.	**15**	0	**15**	**6**	25	31	0	**5**	5
Total Volume	35	0	35	9	106	115	1	15	16
% App. Total	100	0		7.8	92.2		6.2	93.8	
PHF	.583	.000	.583	.375	.803	.871	.250	.750	.800

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City of Lakeport
N/S: Parallel Drive
E/W: Westside Park Drive
Weather: Clear

File Name : 03_LKT_Para_West PM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 1

Groups Printed- Total Volume

	Parallel Drive Southbound			Parallel Drive Northbound			Westside Park Drive Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
04:00 PM	34	0	34	2	18	20	0	4	4	58
04:15 PM	27	0	27	6	16	22	0	2	2	51
04:30 PM	20	2	22	11	19	30	1	2	3	55
04:45 PM	25	0	25	20	18	38	0	10	10	73
Total	106	2	108	39	71	110	1	18	19	237
05:00 PM	42	0	42	35	18	53	0	13	13	108
05:15 PM	20	1	21	23	9	32	1	10	11	64
05:30 PM	22	2	24	27	15	42	0	9	9	75
05:45 PM	13	1	14	21	11	32	1	3	4	50
Total	97	4	101	106	53	159	2	35	37	297
Grand Total	203	6	209	145	124	269	3	53	56	534
Apprch %	97.1	2.9		53.9	46.1		5.4	94.6		
Total %	38	1.1	39.1	27.2	23.2	50.4	0.6	9.9	10.5	

	Parallel Drive Southbound			Parallel Drive Northbound			Westside Park Drive Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	25	0	25	20	**18**	38	0	10	10	73
05:00 PM	**42**	0	**42**	**35**	18	**53**	0	**13**	**13**	**108**
05:15 PM	20	1	21	23	9	32	**1**	10	11	64
05:30 PM	22	**2**	24	27	15	42	0	9	9	75
Total Volume	109	3	112	105	60	165	1	42	43	320
% App. Total	97.3	2.7		63.6	36.4		2.3	97.7		
PHF	.649	.375	.667	.750	.833	.778	.250	.808	.827	.741

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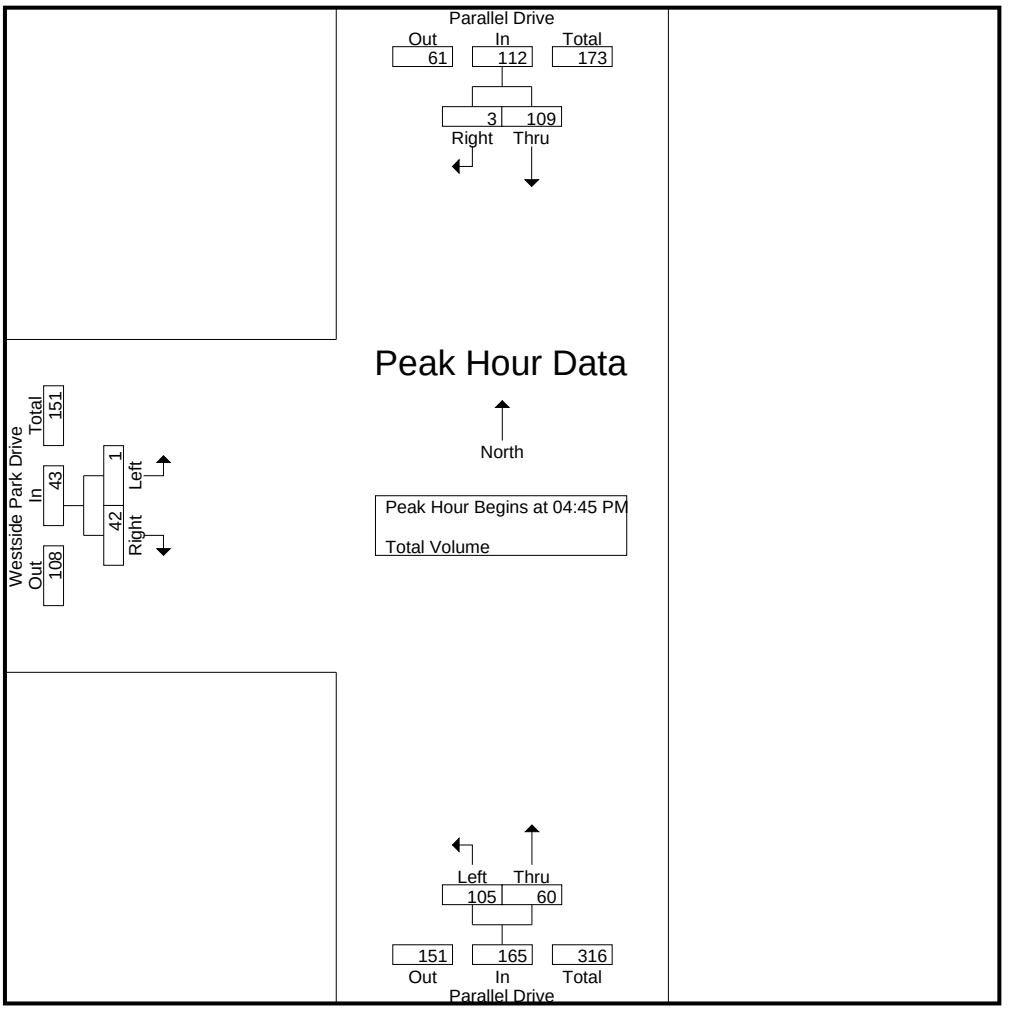
City of Lakeport
N/S: Parallel Drive
E/W: Westside Park Drive
Weather: Clear

File Name : 03_LKT_Para_West PM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 2



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

	04:15 PM			04:45 PM			04:45 PM		
+0 mins.	27	0	27	20	**18**	38	0	10	10
+15 mins.	20	**2**	22	**35**	18	**53**	0	**13**	**13**
+30 mins.	25	0	25	23	9	32	**1**	10	11
+45 mins.	**42**	0	**42**	27	15	42	0	9	9
Total Volume	114	2	116	105	60	165	1	42	43
% App. Total	98.3	1.7		63.6	36.4		2.3	97.7	
PHF	.679	.250	.690	.750	.833	.778	.250	.808	.827

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City of Lakeport
N/S: Parallel Drive
E/W: Todd Road/Lakeport Boulevard
Weather: Clear

File Name : 04_LKT_Para_Lake AM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 1

Groups Printed- Total Volume

	Parallel Drive Southbound				Lakeport Boulevard Westbound				Parallel Drive Northbound				Todd Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	10	2	0	12	3	0	13	16	0	1	2	3	0	2	0	2	33
07:15 AM	15	3	1	19	4	4	15	23	0	4	2	6	0	4	1	5	53
07:30 AM	15	4	1	20	9	5	27	41	1	8	10	19	0	6	0	6	86
07:45 AM	23	2	1	26	11	4	32	47	1	8	8	17	1	12	1	14	104
Total	63	11	3	77	27	13	87	127	2	21	22	45	1	24	2	27	276
08:00 AM	14	4	0	18	6	5	20	31	1	9	5	15	0	12	1	13	77
08:15 AM	15	6	1	22	11	4	24	39	3	4	4	11	2	9	1	12	84
08:30 AM	20	4	0	24	11	6	20	37	0	3	3	6	0	1	1	2	69
08:45 AM	27	2	1	30	6	5	23	34	1	4	6	11	1	10	0	11	86
Total	76	16	2	94	34	20	87	141	5	20	18	43	3	32	3	38	316
Grand Total	139	27	5	171	61	33	174	268	7	41	40	88	4	56	5	65	592
Apprch %	81.3	15.8	2.9		22.8	12.3	64.9		8	46.6	45.5		6.2	86.2	7.7		
Total %	23.5	4.6	0.8	28.9	10.3	5.6	29.4	45.3	1.2	6.9	6.8	14.9	0.7	9.5	0.8	11	

	Parallel Drive Southbound				Lakeport Boulevard Westbound				Parallel Drive Northbound				Todd Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	15	4	**1**	20	9	**5**	27	41	1	8	**10**	**19**	0	6	0	6	86
07:45 AM	**23**	2	1	**26**	**11**	4	**32**	**47**	1	8	8	17	1	**12**	**1**	**14**	**104**
08:00 AM	14	4	0	18	6	5	20	31	1	**9**	5	15	0	12	1	13	77
08:15 AM	15	**6**	1	22	11	4	24	39	**3**	4	4	11	**2**	9	1	12	84
Total Volume	67	16	3	86	37	18	103	158	6	29	27	62	3	39	3	45	351
% App. Total	77.9	18.6	3.5		23.4	11.4	65.2		9.7	46.8	43.5		6.7	86.7	6.7		
PHF	.728	.667	.750	.827	.841	.900	.805	.840	.500	.806	.675	.816	.375	.813	.750	.804	.844

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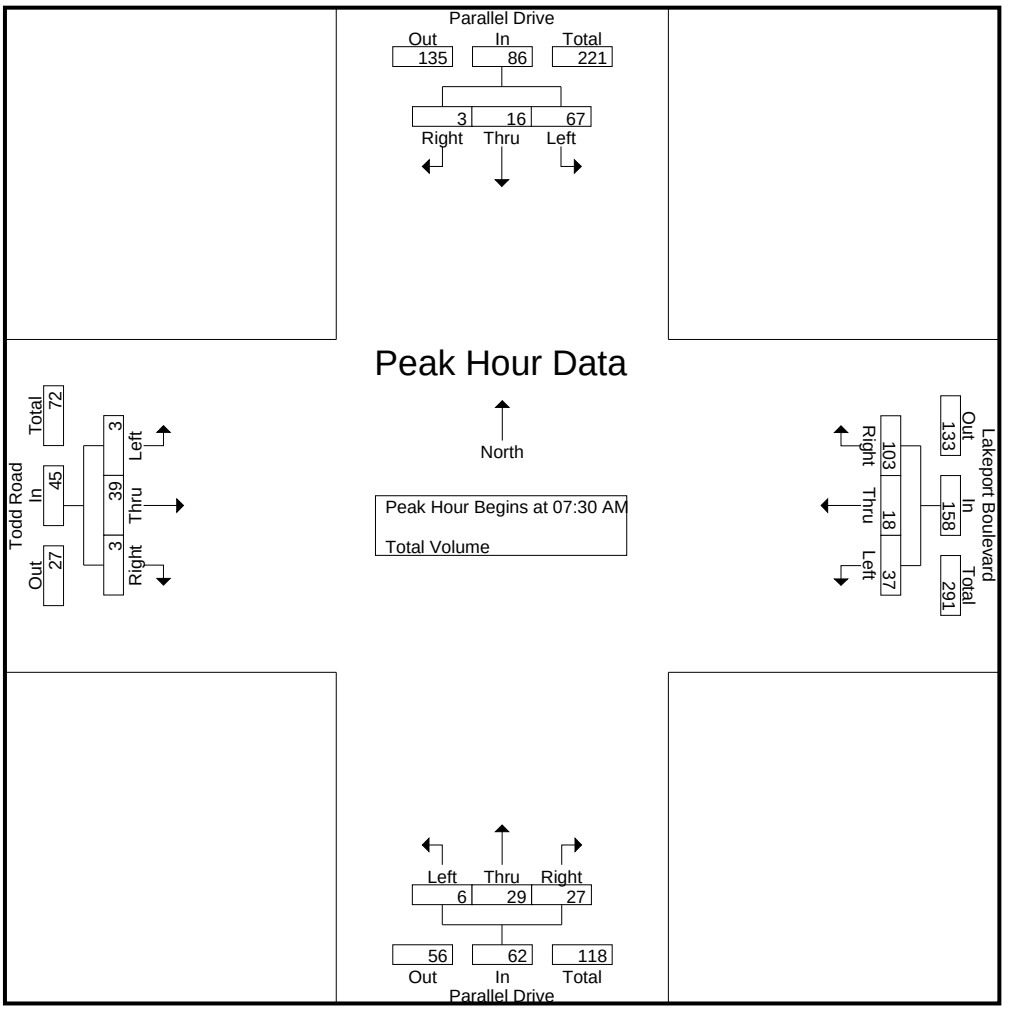
City of Lakeport
N/S: Parallel Drive
E/W: Todd Road/Lakeport Boulevard
Weather: Clear

File Name : 04_LKT_Para_Lake AM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 2



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

	08:00 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	14	4	0	18	9	**5**	27	41	1	8	**10**	**19**	0	6	0	6
+15 mins.	15	**6**	**1**	22	**11**	4	**32**	**47**	1	8	8	17	1	**12**	**1**	**14**
+30 mins.	20	4	0	24	6	5	20	31	1	**9**	5	15	0	12	1	13
+45 mins.	**27**	2	1	**30**	11	4	24	39	**3**	4	4	11	**2**	9	1	12
Total Volume	76	16	2	94	37	18	103	158	6	29	27	62	3	39	3	45
% App. Total	80.9	17	2.1		23.4	11.4	65.2		9.7	46.8	43.5		6.7	86.7	6.7	
PHF	.704	.667	.500	.783	.841	.900	.805	.840	.500	.806	.675	.816	.375	.813	.750	.804

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City of Lakeport
N/S: Parallel Drive
E/W: Todd Road/Lakeport Boulevard
Weather: Clear

File Name : 04_LKT_Para_Lake PM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 1

Groups Printed- Total Volume

	Parallel Drive Southbound				Lakeport Boulevard Westbound				Parallel Drive Northbound				Todd Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	51	11	0	62	14	9	18	41	0	6	12	18	0	9	6	15	136
04:15 PM	42	4	3	49	4	10	20	34	0	6	17	23	0	5	3	8	114
04:30 PM	30	9	6	45	6	14	33	53	3	6	14	23	0	7	3	10	131
04:45 PM	46	9	0	55	8	13	40	61	1	8	15	24	0	15	4	19	159
Total	169	33	9	211	32	46	111	189	4	26	58	88	0	36	16	52	540
05:00 PM	70	13	5	88	17	21	30	68	1	8	7	16	1	10	0	11	183
05:15 PM	54	10	2	66	10	17	24	51	1	7	11	19	1	8	3	12	148
05:30 PM	47	7	7	61	9	12	30	51	0	6	12	18	4	10	4	18	148
05:45 PM	28	4	5	37	4	10	21	35	0	4	14	18	3	8	1	12	102
Total	199	34	19	252	40	60	105	205	2	25	44	71	9	36	8	53	581
Grand Total	368	67	28	463	72	106	216	394	6	51	102	159	9	72	24	105	1121
Apprch %	79.5	14.5	6		18.3	26.9	54.8		3.8	32.1	64.2		8.6	68.6	22.9		
Total %	32.8	6	2.5	41.3	6.4	9.5	19.3	35.1	0.5	4.5	9.1	14.2	0.8	6.4	2.1	9.4	

	Parallel Drive Southbound				Lakeport Boulevard Westbound				Parallel Drive Northbound				Todd Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	46	9	0	55	8	13	**40**	61	**1**	**8**	**15**	**24**	0	**15**	**4**	**19**	159
05:00 PM	**70**	**13**	5	**88**	**17**	**21**	30	**68**	1	8	7	16	1	10	0	11	**183**
05:15 PM	54	10	2	66	10	17	24	51	1	7	11	19	1	8	3	12	148
05:30 PM	47	7	**7**	61	9	12	30	51	0	6	12	18	**4**	10	4	18	148
Total Volume	217	39	14	270	44	63	124	231	3	29	45	77	6	43	11	60	638
% App. Total	80.4	14.4	5.2		19	27.3	53.7		3.9	37.7	58.4		10	71.7	18.3		
PHF	.775	.750	.500	.767	.647	.750	.775	.849	.750	.906	.750	.802	.375	.717	.688	.789	.872

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City of Lakeport
N/S: Parallel Drive
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Weather: Clear

File Name : 04_LKT_Para_Lake PM
Site Code : 99922322
Start Date : 4/19/2022
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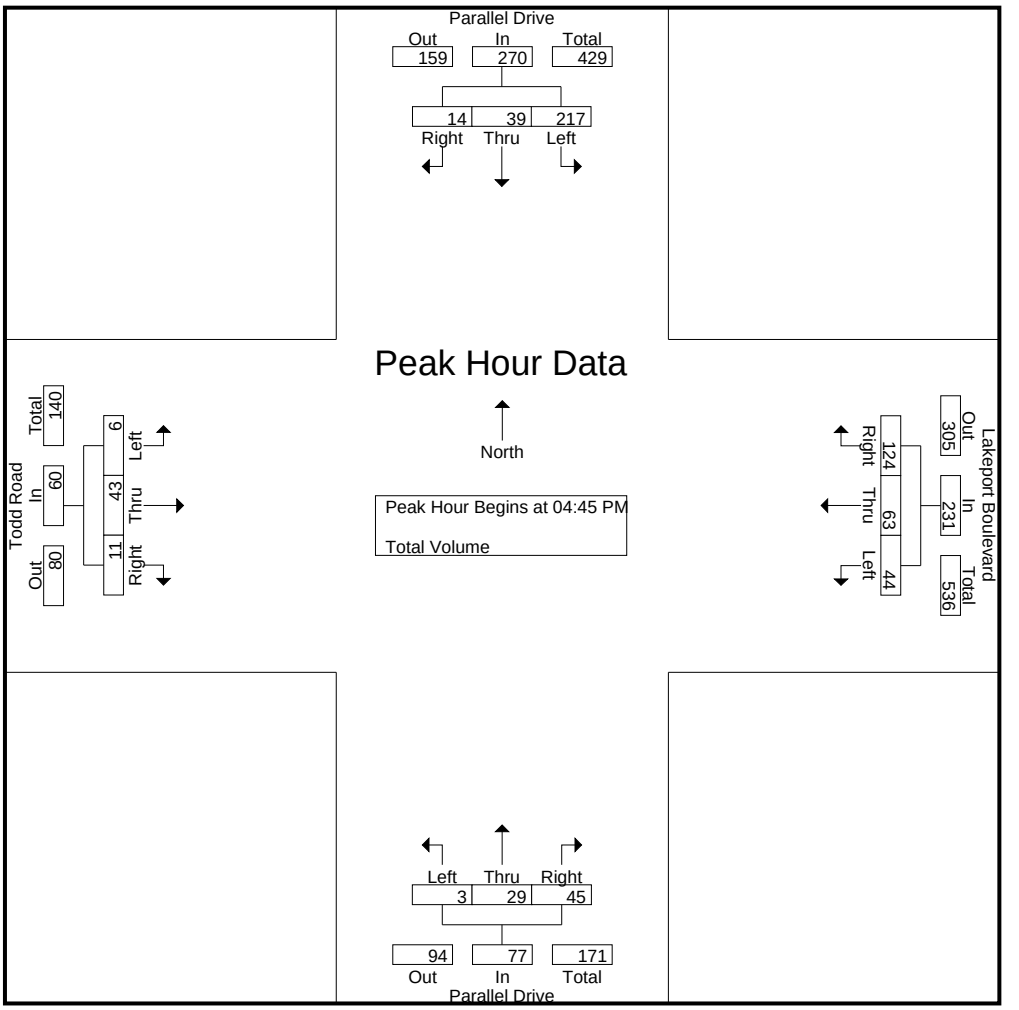

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM				04:30 PM				04:00 PM				04:45 PM			
+0 mins.	46	9	0	55	6	14	33	53	0	6	12	18	0	**15**	**4**	**19**
+15 mins.	**70**	**13**	5	**88**	8	13	**40**	61	0	6	**17**	23	1	10	0	11
+30 mins.	54	10	2	66	**17**	**21**	30	**68**	**3**	6	14	23	1	8	3	12
+45 mins.	47	7	**7**	61	10	17	24	51	1	**8**	15	**24**	**4**	10	4	18
Total Volume	217	39	14	270	41	65	127	233	4	26	58	88	6	43	11	60
% App. Total	80.4	14.4	5.2		17.6	27.9	54.5		4.5	29.5	65.9		10	71.7	18.3	
PHF	.775	.750	.500	.767	.603	.774	.794	.857	.333	.813	.853	.917	.375	.717	.688	.789

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City of Lakeport
N/S: SR-29 Southbound Ramps
E/W: Lakeport Boulevard
Weather: Clear

File Name : 05_LKT_29S_Lake AM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 1

Groups Printed- Total Volume

	SR-29 Southbound Off Ramp Southbound				Lakeport Boulevard Westbound				SR-29 Southbound On Ramp Northbound				Lakeport Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	14	0	15	29	13	11	0	24	0	0	0	0	0	10	6	16	69
07:15 AM	18	0	18	36	16	15	0	31	0	0	0	0	0	25	7	32	99
07:30 AM	19	0	23	42	20	40	0	60	0	0	0	0	0	34	4	38	140
07:45 AM	47	0	36	83	21	40	0	61	0	0	0	0	0	53	8	61	205
Total	98	0	92	190	70	106	0	176	0	0	0	0	0	122	25	147	513
08:00 AM	33	0	27	60	16	26	0	42	0	0	0	0	0	35	8	43	145
08:15 AM	39	0	30	69	29	31	0	60	0	0	0	0	0	30	8	38	167
08:30 AM	27	0	25	52	24	30	0	54	0	0	0	0	0	29	6	35	141
08:45 AM	39	0	21	60	33	37	0	70	0	0	0	0	0	46	11	57	187
Total	138	0	103	241	102	124	0	226	0	0	0	0	0	140	33	173	640
Grand Total	236	0	195	431	172	230	0	402	0	0	0	0	0	262	58	320	1153
Apprch %	54.8	0	45.2		42.8	57.2	0		0	0	0		0	81.9	18.1		
Total %	20.5	0	16.9	37.4	14.9	19.9	0	34.9	0	0	0	0	0	22.7	5	27.8	

	SR-29 Southbound Off Ramp Southbound				Lakeport Boulevard Westbound				SR-29 Southbound On Ramp Northbound				Lakeport Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	**47**	0	**36**	**83**	21	**40**	0	**61**	0	0	0	0	0	**53**	**8**	**61**	**205**
08:00 AM	33	0	27	60	16	26	0	42	0	0	0	0	0	35	8	43	145
08:15 AM	39	0	30	69	**29**	31	0	60	0	0	0	0	0	30	8	38	167
08:30 AM	27	0	25	52	24	30	0	54	0	0	0	0	0	29	6	35	141
Total Volume	146	0	118	264	90	127	0	217	0	0	0	0	0	147	30	177	658
% App. Total	55.3	0	44.7		41.5	58.5	0		0	0	0		0	83.1	16.9		
PHF	.777	.000	.819	.795	.776	.794	.000	.889	.000	.000	.000	.000	.000	.693	.938	.725	.802

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City of Lakeport
N/S: SR-29 Southbound Ramps
E/W: Lakeport Boulevard
Weather: Clear

File Name : 05_LKT_29S_Lake AM
Site Code : 99922322
Start Date : 4/19/2022
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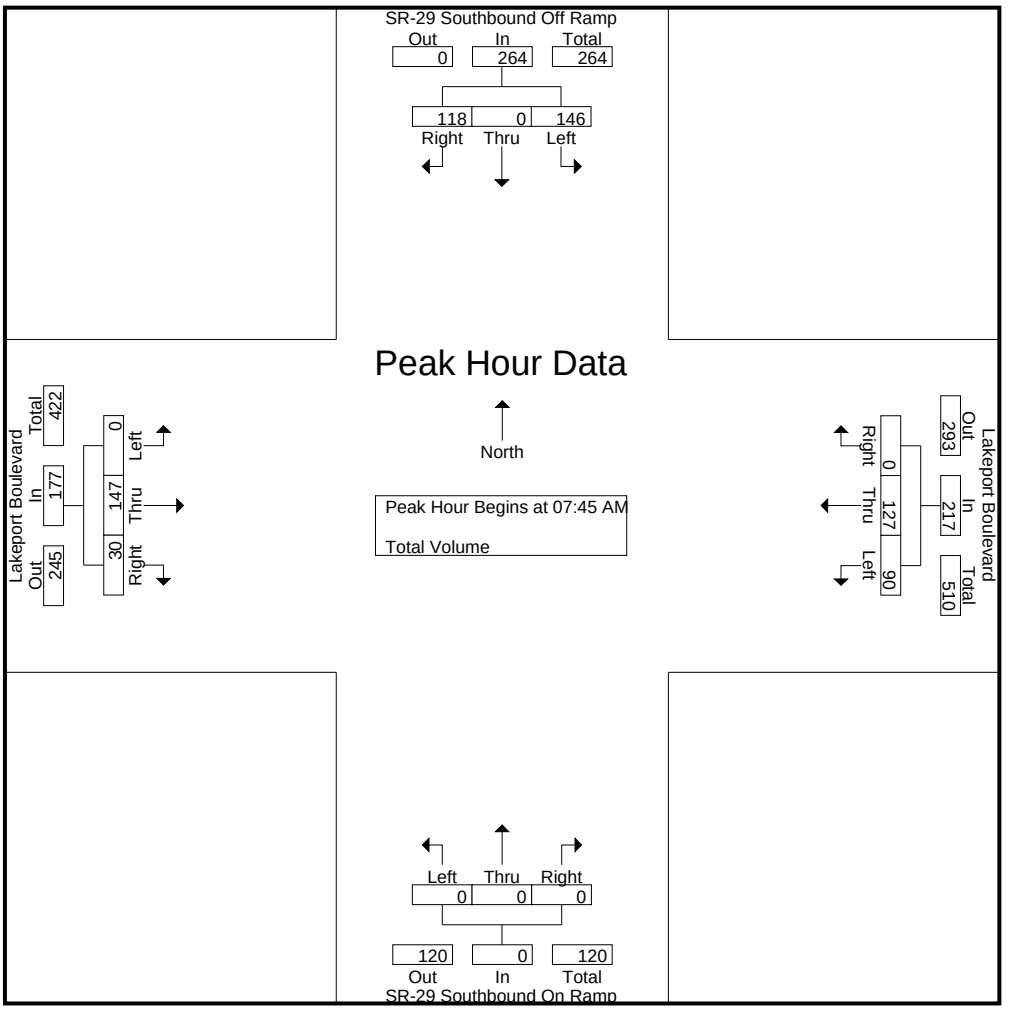

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				08:00 AM				07:00 AM				07:30 AM			
+0 mins.	**47**	0	**36**	**83**	16	26	0	42	0	0	0	0	0	34	4	38
+15 mins.	33	0	27	60	29	31	0	60	0	0	0	0	0	**53**	**8**	**61**
+30 mins.	39	0	30	69	24	30	0	54	0	0	0	0	0	35	8	43
+45 mins.	27	0	25	52	**33**	**37**	0	**70**	0	0	0	0	0	30	8	38
Total Volume	146	0	118	264	102	124	0	226	0	0	0	0	0	152	28	180
% App. Total	55.3	0	44.7		45.1	54.9	0		0	0	0		0	84.4	15.6	
PHF	.777	.000	.819	.795	.773	.838	.000	.807	.000	.000	.000	.000	.000	.717	.875	.738

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City of Lakeport
N/S: SR-29 Southbound Ramps
E/W: Lakeport Boulevard
Weather: Clear

File Name : 05_LKT_29S_Lake PM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 1

Groups Printed- Total Volume

	SR-29 Southbound Off Ramp Southbound				Lakeport Boulevard Westbound				SR-29 Southbound On Ramp Northbound				Lakeport Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	33	0	23	56	70	40	0	110	0	0	0	0	0	69	21	90	256
04:15 PM	39	0	16	55	40	37	0	77	0	0	0	0	0	56	20	76	208
04:30 PM	32	0	33	65	42	43	0	85	0	0	0	0	0	46	12	58	208
04:45 PM	22	0	27	49	57	54	0	111	0	0	0	0	0	69	20	89	249
Total	126	0	99	225	209	174	0	383	0	0	0	0	0	240	73	313	921
05:00 PM	25	0	44	69	84	62	0	146	0	0	0	0	0	79	22	101	316
05:15 PM	18	0	26	44	61	46	0	107	0	0	0	0	0	66	16	82	233
05:30 PM	35	0	30	65	52	54	0	106	0	0	0	0	0	63	15	78	249
05:45 PM	21	0	21	42	41	29	0	70	0	0	0	0	0	49	8	57	169
Total	99	0	121	220	238	191	0	429	0	0	0	0	0	257	61	318	967
Grand Total	225	0	220	445	447	365	0	812	0	0	0	0	0	497	134	631	1888
Apprch %	50.6	0	49.4		55	45	0		0	0	0		0	78.8	21.2		
Total %	11.9	0	11.7	23.6	23.7	19.3	0	43	0	0	0	0	0	26.3	7.1	33.4	

	SR-29 Southbound Off Ramp Southbound				Lakeport Boulevard Westbound				SR-29 Southbound On Ramp Northbound				Lakeport Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	22	0	27	49	57	54	0	111	0	0	0	0	0	69	20	89	249
05:00 PM	25	0	**44**	**69**	**84**	**62**	0	**146**	0	0	0	0	0	**79**	**22**	**101**	**316**
05:15 PM	18	0	26	44	61	46	0	107	0	0	0	0	0	66	16	82	233
05:30 PM	**35**	0	30	65	52	54	0	106	0	0	0	0	0	63	15	78	249
Total Volume	100	0	127	227	254	216	0	470	0	0	0	0	0	277	73	350	1047
% App. Total	44.1	0	55.9		54	46	0		0	0	0		0	79.1	20.9		
PHF	.714	.000	.722	.822	.756	.871	.000	.805	.000	.000	.000	.000	.000	.877	.830	.866	.828

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City of Lakeport
N/S: SR-29 Southbound Ramps
E/W: Lakeport Boulevard
Weather: Clear

File Name : 05_LKT_29S_Lake PM
Site Code : 99922322
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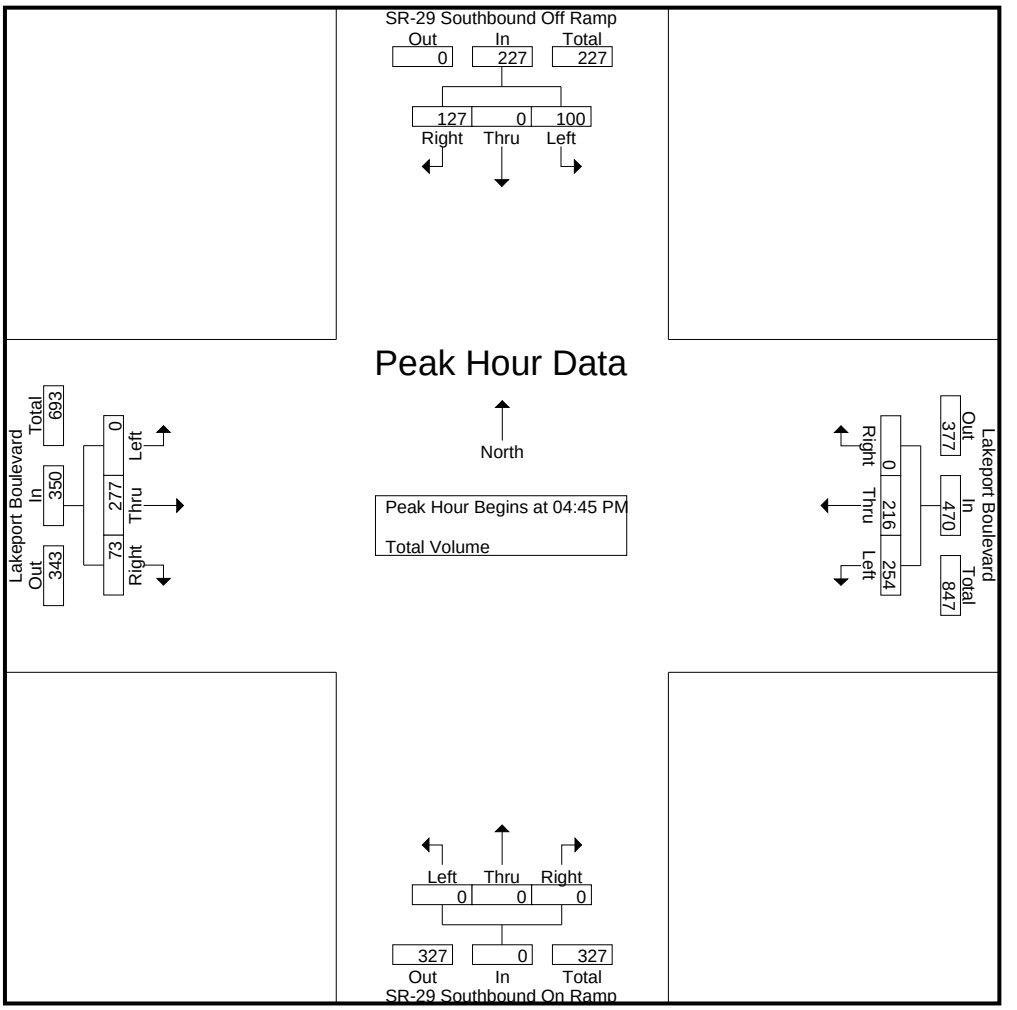

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:45 PM				04:00 PM				04:45 PM			
+0 mins.	**39**	0	16	55	57	54	0	111	0	0	0	0	0	69	20	89
+15 mins.	32	0	33	65	**84**	**62**	0	**146**	0	0	0	0	0	**79**	**22**	**101**
+30 mins.	22	0	27	49	61	46	0	107	0	0	0	0	0	66	16	82
+45 mins.	25	0	**44**	**69**	52	54	0	106	0	0	0	0	0	63	15	78
Total Volume	118	0	120	238	254	216	0	470	0	0	0	0	0	277	73	350
% App. Total	49.6	0	50.4		54	46	0		0	0	0		0	79.1	20.9	
PHF	.756	.000	.682	.862	.756	.871	.000	.805	.000	.000	.000	.000	.000	.877	.830	.866

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City of Lakeport
N/S: Bevins Street
E/W: Lakeport Boulevard
Weather: Clear

File Name : 07_LKT_Benins_Lake AM
Site Code : 99922322
Start Date : 4/19/2022

Groups Printed- Total Volume

	Bevins Street Southbound				Lakeport Boulevard Westbound				Bevins Street Northbound				Lakeport Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	1	14	17	1	20	2	23	0	0	1	1	26	19	0	45	86
07:15 AM	1	1	20	22	0	24	4	28	0	0	3	3	37	27	1	65	118
07:30 AM	3	0	28	31	1	30	6	37	0	0	1	1	47	52	1	100	169
07:45 AM	4	0	31	35	1	32	12	45	2	0	2	4	76	73	4	153	237
Total	10	2	93	105	3	106	24	133	2	0	7	9	186	171	6	363	610
08:00 AM	1	0	19	20	2	29	11	42	0	0	0	0	67	77	3	147	209
08:15 AM	6	0	34	40	0	36	12	48	1	0	0	1	46	67	1	114	203
08:30 AM	4	0	27	31	1	36	9	46	0	0	2	2	31	56	1	88	167
08:45 AM	3	0	42	45	1	44	8	53	1	0	1	2	41	68	0	109	209
Total	14	0	122	136	4	145	40	189	2	0	3	5	185	268	5	458	788
Grand Total	24	2	215	241	7	251	64	322	4	0	10	14	371	439	11	821	1398
Apprch %	10	0.8	89.2		2.2	78	19.9		28.6	0	71.4		45.2	53.5	1.3		
Total %	1.7	0.1	15.4	17.2	0.5	18	4.6	23	0.3	0	0.7	1	26.5	31.4	0.8	58.7	

	Bevins Street Southbound				Lakeport Boulevard Westbound				Bevins Street Northbound				Lakeport Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	3	0	28	31	1	30	6	37	0	0	1	1	47	52	1	100	169
07:45 AM	4	0	31	35	1	32	**12**	45	**2**	0	**2**	**4**	**76**	73	**4**	**153**	**237**
08:00 AM	1	0	19	20	**2**	29	11	42	0	0	0	0	67	**77**	3	147	209
08:15 AM	**6**	0	**34**	**40**	0	**36**	12	**48**	1	0	0	1	46	67	1	114	203
Total Volume	14	0	112	126	4	127	41	172	3	0	3	6	236	269	9	514	818
% App. Total	11.1	0	88.9		2.3	73.8	23.8		50	0	50		45.9	52.3	1.8		
PHF	.583	.000	.824	.788	.500	.882	.854	.896	.375	.000	.375	.375	.776	.873	.563	.840	.863

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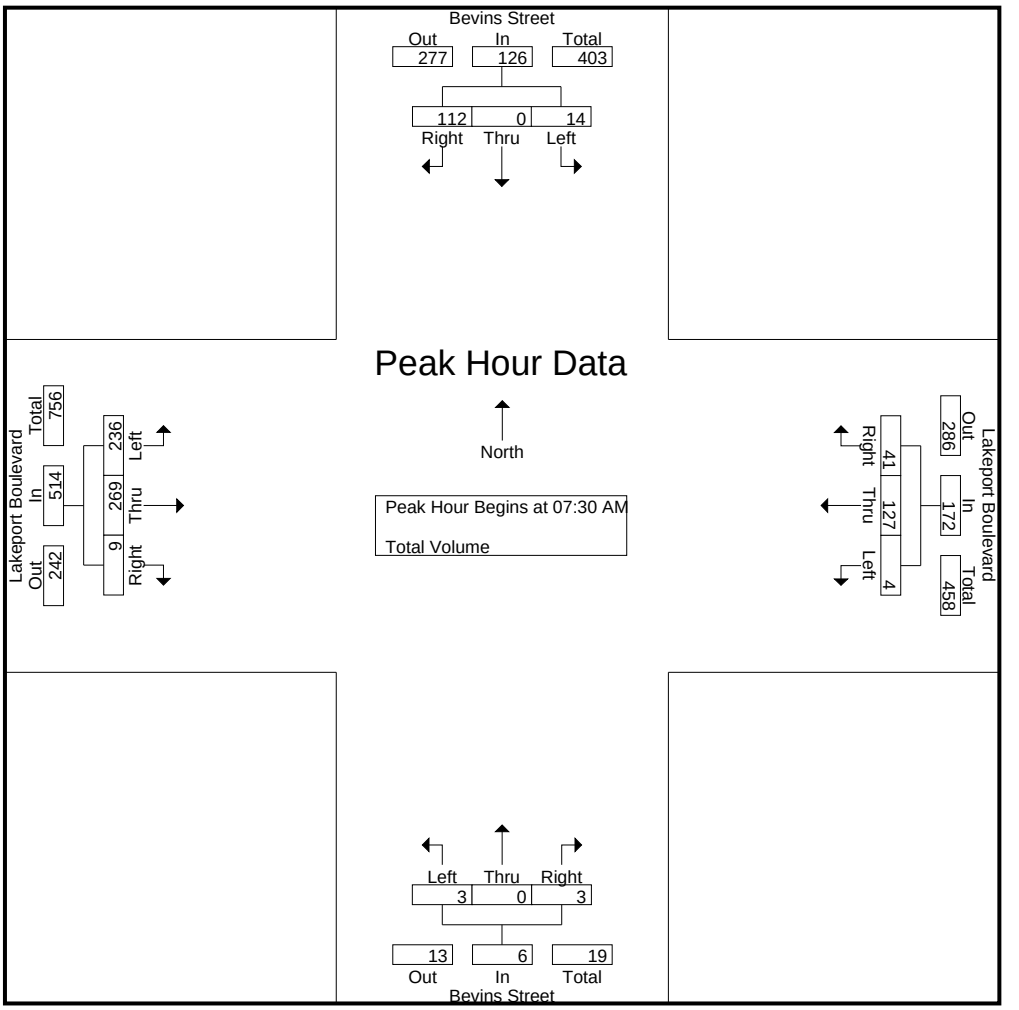
City of Lakeport
N/S: Bevins Street
E/W: Lakeport Boulevard
Weather: Clear

File Name : 07_LKT_Benins_Lake AM
Site Code : 99922322
Start Date : 4/19/2022



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

	08:00 AM				08:00 AM				07:00 AM				07:30 AM			
+0 mins.	1	0	19	20	**2**	29	11	42	0	0	1	1	47	52	1	100
+15 mins.	**6**	0	34	40	0	36	**12**	48	0	0	**3**	3	**76**	73	**4**	**153**
+30 mins.	4	0	27	31	1	36	9	46	0	0	1	1	67	**77**	3	147
+45 mins.	3	0	**42**	**45**	1	**44**	8	**53**	**2**	0	2	**4**	46	67	1	114
Total Volume	14	0	122	136	4	145	40	189	2	0	7	9	236	269	9	514
% App. Total	10.3	0	89.7		2.1	76.7	21.2		22.2	0	77.8		45.9	52.3	1.8	
PHF	.583	.000	.726	.756	.500	.824	.833	.892	.250	.000	.583	.563	.776	.873	.563	.840

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City of Lakeport
N/S: Bevins Street
E/W: Lakeport Boulevard
Weather: Clear

File Name : 07_LKT_Benins_Lake PM
Site Code : 99922322
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Groups Printed- Total Volume

	Bevins Street Southbound				Lakeport Boulevard Westbound				Bevins Street Northbound				Lakeport Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	7	0	44	51	2	105	12	119	1	1	3	5	18	88	3	109	284
04:15 PM	7	0	28	35	2	80	8	90	2	0	2	4	45	77	1	123	252
04:30 PM	12	1	41	54	1	75	6	82	1	0	0	1	31	64	2	97	234
04:45 PM	6	0	61	67	1	85	8	94	0	0	1	1	24	76	4	104	266
Total	32	1	174	207	6	345	34	385	4	1	6	11	118	305	10	433	1036
05:00 PM	20	0	83	103	0	117	7	124	5	1	14	20	37	70	3	110	357
05:15 PM	9	0	55	64	0	80	10	90	4	0	4	8	27	69	5	101	263
05:30 PM	6	1	47	54	0	82	2	84	2	0	2	4	30	64	3	97	239
05:45 PM	5	2	33	40	2	61	7	70	2	0	0	2	32	68	3	103	215
Total	40	3	218	261	2	340	26	368	13	1	20	34	126	271	14	411	1074
Grand Total	72	4	392	468	8	685	60	753	17	2	26	45	244	576	24	844	2110
Apprch %	15.4	0.9	83.8		1.1	91	8		37.8	4.4	57.8		28.9	68.2	2.8		
Total %	3.4	0.2	18.6	22.2	0.4	32.5	2.8	35.7	0.8	0.1	1.2	2.1	11.6	27.3	1.1	40	

	Bevins Street Southbound				Lakeport Boulevard Westbound				Bevins Street Northbound				Lakeport Boulevard Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	6	0	61	67	**1**	85	8	94	0	0	1	1	24	**76**	4	104	266
05:00 PM	**20**	0	**83**	**103**	0	**117**	7	**124**	**5**	**1**	**14**	**20**	**37**	70	3	**110**	**357**
05:15 PM	9	0	55	64	0	80	**10**	90	4	0	4	8	27	69	**5**	101	263
05:30 PM	6	**1**	47	54	0	82	2	84	2	0	2	4	30	64	3	97	239
Total Volume	41	1	246	288	1	364	27	392	11	1	21	33	118	279	15	412	1125
% App. Total	14.2	0.3	85.4		0.3	92.9	6.9		33.3	3	63.6		28.6	67.7	3.6		
PHF	.513	.250	.741	.699	.250	.778	.675	.790	.550	.250	.375	.413	.797	.918	.750	.936	.788

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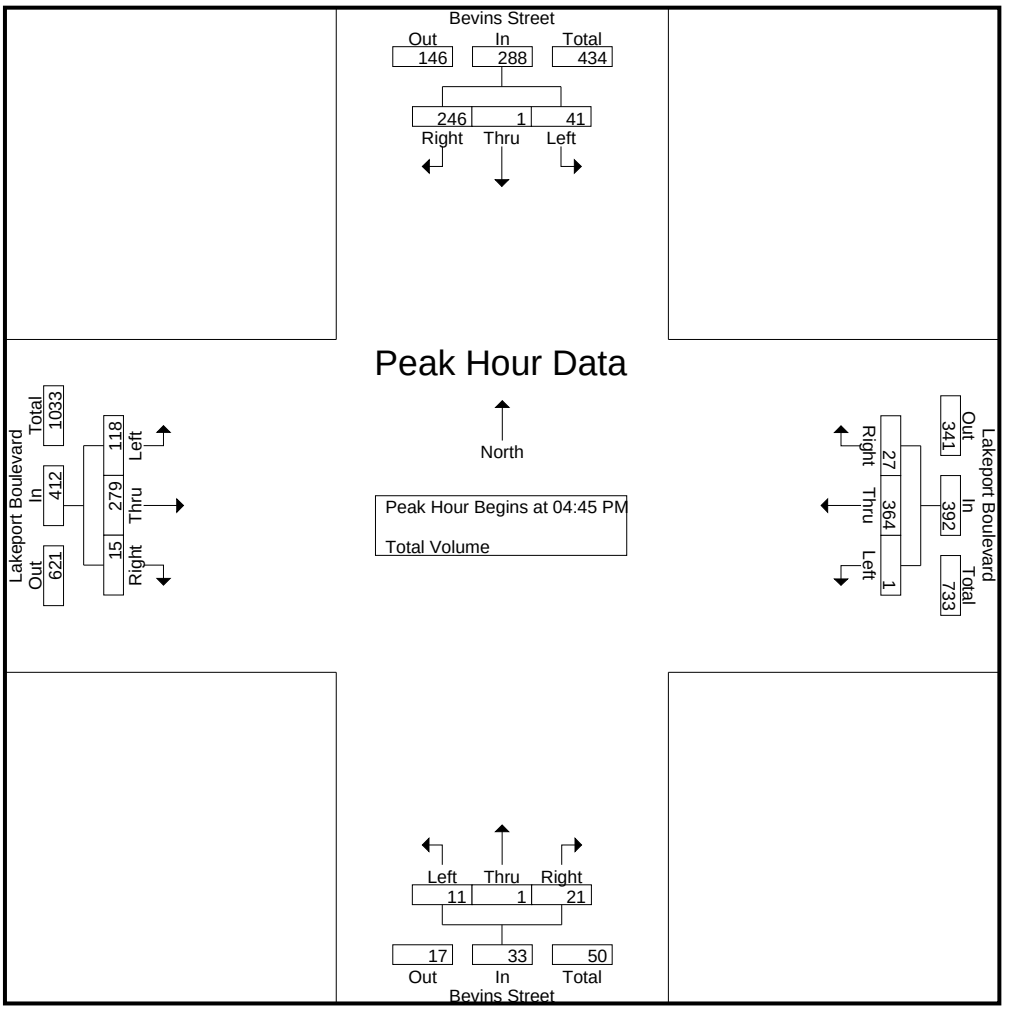
City of Lakeport
N/S: Bevins Street
E/W: Lakeport Boulevard
Weather: Clear

File Name : 07_LKT_Benins_Lake PM
Site Code : 99922322
Start Date : 4/19/2022



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

	04:30 PM				04:45 PM				05:00 PM				04:15 PM			
+0 mins.	12	**1**	41	54	**1**	85	8	94	**5**	**1**	**14**	**20**	**45**	**77**	1	**123**
+15 mins.	6	0	61	67	0	**117**	7	**124**	4	0	4	8	31	64	2	97
+30 mins.	**20**	0	**83**	**103**	0	80	**10**	90	2	0	2	4	24	76	**4**	104
+45 mins.	9	0	55	64	0	82	2	84	2	0	0	2	37	70	3	110
Total Volume	47	1	240	288	1	364	27	392	13	1	20	34	137	287	10	434
% App. Total	16.3	0.3	83.3		0.3	92.9	6.9		38.2	2.9	58.8		31.6	66.1	2.3	
PHF	.588	.250	.723	.699	.250	.778	.675	.790	.650	.250	.357	.425	.761	.932	.625	.882

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City of Lakeport
N/S: Main Street
E/W: Lakeport Boulevard
Weather: Clear

File Name : 08_LKT_Main_Lake AM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 1

Groups Printed- Total Volume

	Main Street Southbound			Main Street Northbound			Lakeport Boulevard Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
07:00 AM	27	14	41	11	15	26	13	4	17	84
07:15 AM	26	21	47	6	24	30	13	9	22	99
07:30 AM	28	22	50	10	42	52	30	14	44	146
07:45 AM	52	31	83	20	66	86	36	21	57	226
Total	133	88	221	47	147	194	92	48	140	555
08:00 AM	59	22	81	16	47	63	44	19	63	207
08:15 AM	65	35	100	11	40	51	32	22	54	205
08:30 AM	45	17	62	27	43	70	27	19	46	178
08:45 AM	40	26	66	26	30	56	28	21	49	171
Total	209	100	309	80	160	240	131	81	212	761
Grand Total	342	188	530	127	307	434	223	129	352	1316
Apprch %	64.5	35.5		29.3	70.7		63.4	36.6		
Total %	26	14.3	40.3	9.7	23.3	33	16.9	9.8	26.7	

	Main Street Southbound			Main Street Northbound			Lakeport Boulevard Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	52	31	83	20	**66**	**86**	36	21	57	**226**
08:00 AM	59	22	81	16	47	63	**44**	19	**63**	207
08:15 AM	**65**	**35**	**100**	11	40	51	32	**22**	54	205
08:30 AM	45	17	62	**27**	43	70	27	19	46	178
Total Volume	221	105	326	74	196	270	139	81	220	816
% App. Total	67.8	32.2		27.4	72.6		63.2	36.8		
PHF	.850	.750	.815	.685	.742	.785	.790	.920	.873	.903

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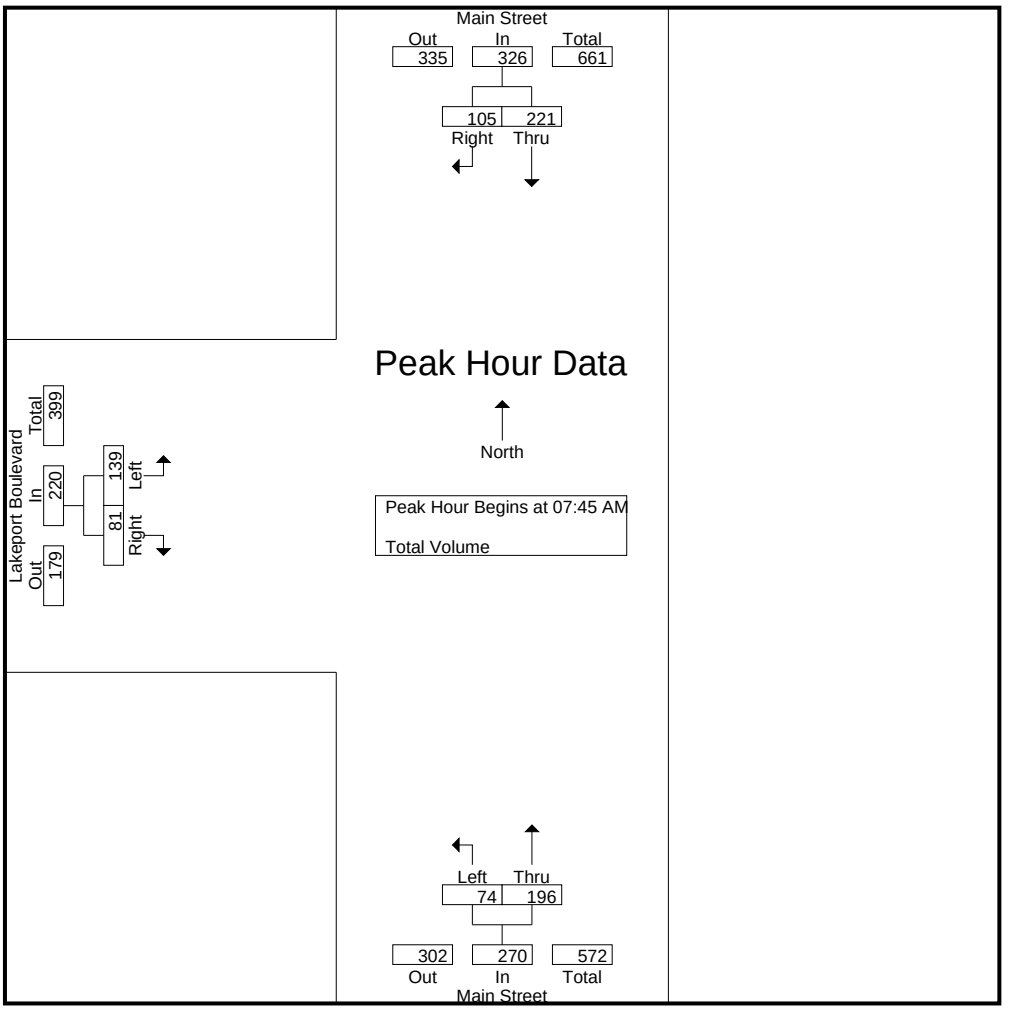
City of Lakeport
N/S: Main Street
E/W: Lakeport Boulevard
Weather: Clear

File Name : 08_LKT_Main_Lake AM
Site Code : 99922322
Start Date : 4/19/2022



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

	07:45 AM			07:45 AM			07:45 AM		
+0 mins.	52	31	83	20	**66**	**86**	36	21	57
+15 mins.	59	22	81	16	47	63	**44**	19	**63**
+30 mins.	**65**	**35**	**100**	11	40	51	32	**22**	54
+45 mins.	45	17	62	**27**	43	70	27	19	46
Total Volume	221	105	326	74	196	270	139	81	220
% App. Total	67.8	32.2		27.4	72.6		63.2	36.8	
PHF	.850	.750	.815	.685	.742	.785	.790	.920	.873

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City of Lakeport
N/S: Main Street
E/W: Lakeport Boulevard
Weather: Clear

File Name : 08_LKT_Main_Lake PM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 1

Groups Printed- Total Volume

	Main Street Southbound			Main Street Northbound			Lakeport Boulevard Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
04:00 PM	67	52	119	30	60	90	62	31	93	302
04:15 PM	59	42	101	25	50	75	43	22	65	241
04:30 PM	51	43	94	22	60	82	52	22	74	250
04:45 PM	54	42	96	20	71	91	50	23	73	260
Total	231	179	410	97	241	338	207	98	305	1053
05:00 PM	77	50	127	32	68	100	39	35	74	301
05:15 PM	58	47	105	24	64	88	44	23	67	260
05:30 PM	42	41	83	20	49	69	32	15	47	199
05:45 PM	38	28	66	9	52	61	44	13	57	184
Total	215	166	381	85	233	318	159	86	245	944
Grand Total	446	345	791	182	474	656	366	184	550	1997
Apprch %	56.4	43.6		27.7	72.3		66.5	33.5		
Total %	22.3	17.3	39.6	9.1	23.7	32.8	18.3	9.2	27.5	

	Main Street Southbound			Main Street Northbound			Lakeport Boulevard Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	51	43	94	22	60	82	**52**	22	**74**	250
04:45 PM	54	42	96	20	**71**	91	50	23	73	260
05:00 PM	**77**	**50**	**127**	**32**	68	**100**	39	**35**	74	**301**
05:15 PM	58	47	105	24	64	88	44	23	67	260
Total Volume	240	182	422	98	263	361	185	103	288	1071
% App. Total	56.9	43.1		27.1	72.9		64.2	35.8		
PHF	.779	.910	.831	.766	.926	.903	.889	.736	.973	.890

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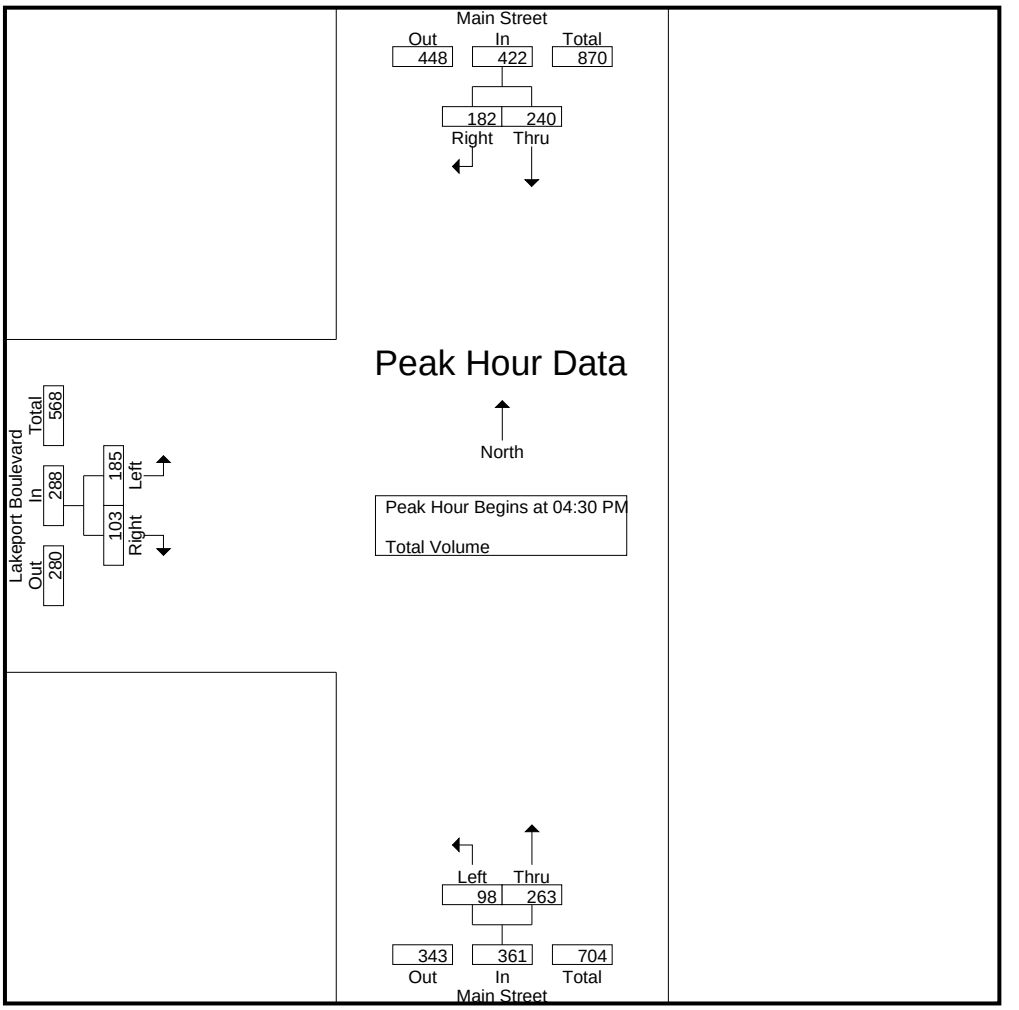
Weather: Clear

File Name : 08_LKT_Main_Lake PM
Site Code : 99922322
Start Date : 4/19/2022
Page No : 2



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

	04:30 PM			04:30 PM			04:00 PM		
+0 mins.	51	43	94	22	60	82	**62**	**31**	**93**
+15 mins.	54	42	96	20	**71**	91	43	22	65
+30 mins.	**77**	**50**	**127**	**32**	68	**100**	52	22	74
+45 mins.	58	47	105	24	64	88	50	23	73
Total Volume	240	182	422	98	263	361	207	98	305
% App. Total	56.9	43.1		27.1	72.9		67.9	32.1	
PHF	.779	.910	.831	.766	.926	.903	.835	.790	.820

FDOT HANDBOOK: TABLE 4

TABLE 4
(continued)

Generalized **Peak Hour Two-Way** Volumes for Florida's Urbanized Areas

January 2020

INPUT VALUE ASSUMPTIONS	Uninterrupted Flow Facilities				Interrupted Flow Facilities					
					State Arterials				Class I	
	Freeways	Core Freeways	Highways		Class I		Class II		Bicycle	Pedestrian
ROADWAY CHARACTERISTICS										
Area type (urban, rural)	urban	urban								
Number of through lanes (both dir.)	4-10	4-12	2	4-6	2	4-8	2	4-8	4	4
Posted speed (mph)	70	65	50	50	45	50	30	30	45	45
Free flow speed (mph)	75	70	55	55	50	55	35	35	50	50
Auxiliary Lanes (n,y)	n	n								
Median (d, twlt, n, nr, r)				d	n	r	n	r	r	r
Terrain (l,r)	l	l	l	l	l	l	l	l	l	l
% no passing zone			80							
Exclusive left turn lane impact (n, y)			[n]	y	y	y	y	y	y	y
Exclusive right turn lanes (n, y)					n	n	n	n	n	n
Facility length (mi)	3	3	5	5	2	2	1.9	1.8	2	2
TRAFFIC CHARACTERISTICS										
Planning analysis hour factor (K)	0.090	0.085	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
Directional distribution factor (D)	0.55	0.55	0.55	0.55	0.550	0.560	0.565	0.560	0.565	0.565
Peak hour factor (PHF)	0.95	0.95	0.95	0.95	1.000	1.000	1.000	1.000	1.000	1.000
Base saturation flow rate (pcphpl)	2,400	2,400	1,700	2,200	1,950	1,950	1,950	1,950	1,950	1,950
Heavy vehicle percent	4.0	4.0	2.0	2.0	1.0	1.0	1.0	1.0	2.5	2.0
Speed Adjustment Factor (SAF)	0.975	0.975		0.975						
Capacity Adjustment Factor (CAF)	0.968	0.968		0.968						
% left turns					12	12	12	12	12	12
% right turns					12	12	12	12	12	12
CONTROL CHARACTERISTICS										
Number of signals					4	4	10	10	4	6
Arrival type (1-6)					3	3	4	4	4	4
Signal type (a, c, p)					c	c	c	c	c	c
Cycle length (C)					120	150	120	120	120	120
Effective green ratio (g/C)					0.44	0.45	0.44	0.44	0.44	0.44
MULTIMODAL CHARACTERISTICS										
Paved shoulder/bicycle lane (n, y)									n, 50%, y	n
Outside lane width (n, t, w)									t	t
Pavement condition (d, t, u)									t	
On-street parking (n, y)										
Sidewalk (n, y)										n, 50%, y
Sidewalk/roadway separation(a, t, w)										t
Sidewalk protective barrier (n, y)										n

LEVEL OF SERVICE THRESHOLDS

Level of Service	Freeways	Highways		Arterials		Bicycle	Ped	Bus
	Density	Two-Lane %ffs	Multilane Density	Class I ats	Class II ats	Score	Score	Buses/hr.
B	≤ 17	> 83.3	≤ 17	> 31 mph	> 22 mph	≤ 2.75	≤ 2.75	≤ 6
C	≤ 24	> 75.0	≤ 24	> 23 mph	> 17 mph	≤ 3.50	≤ 3.50	≤ 4
D	≤ 31	> 66.7	≤ 31	> 18 mph	> 13 mph	≤ 4.25	≤ 4.25	< 3
E	≤ 39	> 58.3	≤ 35	> 15 mph	> 10 mph	≤ 5.00	≤ 5.00	< 2

% ffs = Percent free flow speed ats = Average travel speed