Draft Initial Study/Proposed Mitigated Negative Declaration

North County Sanitary Landfill and Recycling Center Solid Waste Facility Permit Revision Project

San Joaquin County, Lodi, California

Prepared for:

San Joaquin County Public Works
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Stockton, CA 95201

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April 2025

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WRA#26261-5

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List of Acronyms and Abbreviations

AB	Assembly Bill
ABAG	Association of Bay Area Governments
APE	Area of Potential Effect
APN	Assessor's Parcel Number
BAU	Business as Usual
BMPs	best management practices
BPS	Best Performance Standards
CAAQS	California ambient air quality standards
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
Cal/OSHA	California Division of Occupational Safety and Health
CAP	Clean Air Plan
CARB	California Air Resources Board
CCAP	Climate Change Action Plan
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CH_4	methane
CHRIS	California Historical Information System
CITY	City of Lodi
CMP	Congestion Management Plan
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
County	San Joaquin County
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent
CPA	California Power Authority
CRHR	California Register of Historic Resources
CWA	Clean Water Act
CY	cubic yards
dB	decibel
dBA	A-weighted sound level
DOE	Department of Energy
DOT	Department of Transportation
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EG	Emission Guidelines
ELGs	effluent limitation guidelines
EPA	Environmental Protection Agency
EPP	Environmentally Preferable Purchasing
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency

FHSZ	Fire Hazard Severity Zone
FIRM	Federal Insurance Rate Maps
FMMP	Farmland Mapping and Monitoring Program
FTA	Federal Transit Administration
GHG	greenhouse gas
IPac	Information for Planning and Consultation
kWh	kilowatt-hour
LandGEM	Landfill Gas Emission Model
L_{dn}	day-night average noise level
L_{eq}	energy-equivalent noise level
LFG	landfill gas
L_{max}	maximum noise level
LOS	Level of Service
LRA	Local Responsibility Area
LUST	leaking underground storage tank
MEIR	maximally exposed individual resident
MND	Mitigated Negative Declaration
mpg	miles per gallon
MSW	Municipal Solid Waste
MT	metric tons
NAAQS	National Ambient Air Quality Standard
NAHC	Native American Heritage Commission
NFHL	National Flood Hazard Layer
NMOC	non-methane organic compound
NO_x	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NSPS	New Source Performance Standards
OEHHA	Office of Environmental Health Hazard Assessment
O_3	ozone
PG&E	Pacific Gas and Electric Company
PM	particulate matter
$PM_{2.5}$	fine particulate matter
PM_{10}	respirable particulate matter
PPV	peak particle velocity
Project	North County Sanitary Landfill and Recycling Center Solid Waste Facility Permit Amendment Project
RCRA	Resource Conservation and Recovery Act
ROG	reactive organic gas
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SIC	Standard Industrial Classification
SJCOG	San Joaquin Council of Governments
SJVAB	San Joaquin Valley Air Basin
SLCP	Short-Lived Climate Pollutant
SO_x	sulfur oxide
SRA	State Responsibility Area
SWFP	Solid Waste Facility Permit
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board

TAC	toxic air containment
Valley Air District	San Joaquin Valley Air Pollution Control District
VdB	vibration decibels
VMT	vehicle miles traveled
VOC	volatile organic compound
WRA	WRA, Inc.
ZEVs	zero-emission vehicles

1.0 INTRODUCTION AND PURPOSE

This Initial Study of environmental impacts is being prepared to conform to the requirements of the California Environmental Quality Act (CEQA), the CEQA Guidelines (California Code of Regulations 15000 et. seq.), and the regulations and policies of the San Joaquin County. This Initial Study evaluates the potential environmental impacts which might reasonably be anticipated to result from implementation of the *North County Sanitary Landfill and Recycling Center Solid Waste Facility Permit Amendment Project* (project).

San Joaquin County (County) is the Lead Agency under CEQA and has prepared this Initial Study to address the impacts of implementing the proposed project. The purpose of the project is to revise the provisions of Solid Waste Facilities Permit (SWFP) SWIS 39-AA-0022 issued by the San Joaquin County Environmental Health Department. This permit allows a maximum tonnage of 1,200 tons of solid waste intake per day and a traffic volume of 850 vehicles per day. The projected closure year is 2048. However, to improve financial efficiency, the County plans to consolidate waste disposal services. Therefore, the County is proposing those limits be increased to 4,000 tons and 1,200 vehicles per day. As no site changes are proposed, the project will enable the County to consolidate solid waste disposal services.

2.0 PROJECT INFORMATION

2.1 Project Title

North County Sanitary Landfill and Recycling Center Solid Waste Facility Permit Revision Project

2.2 Lead Agency Name and Address

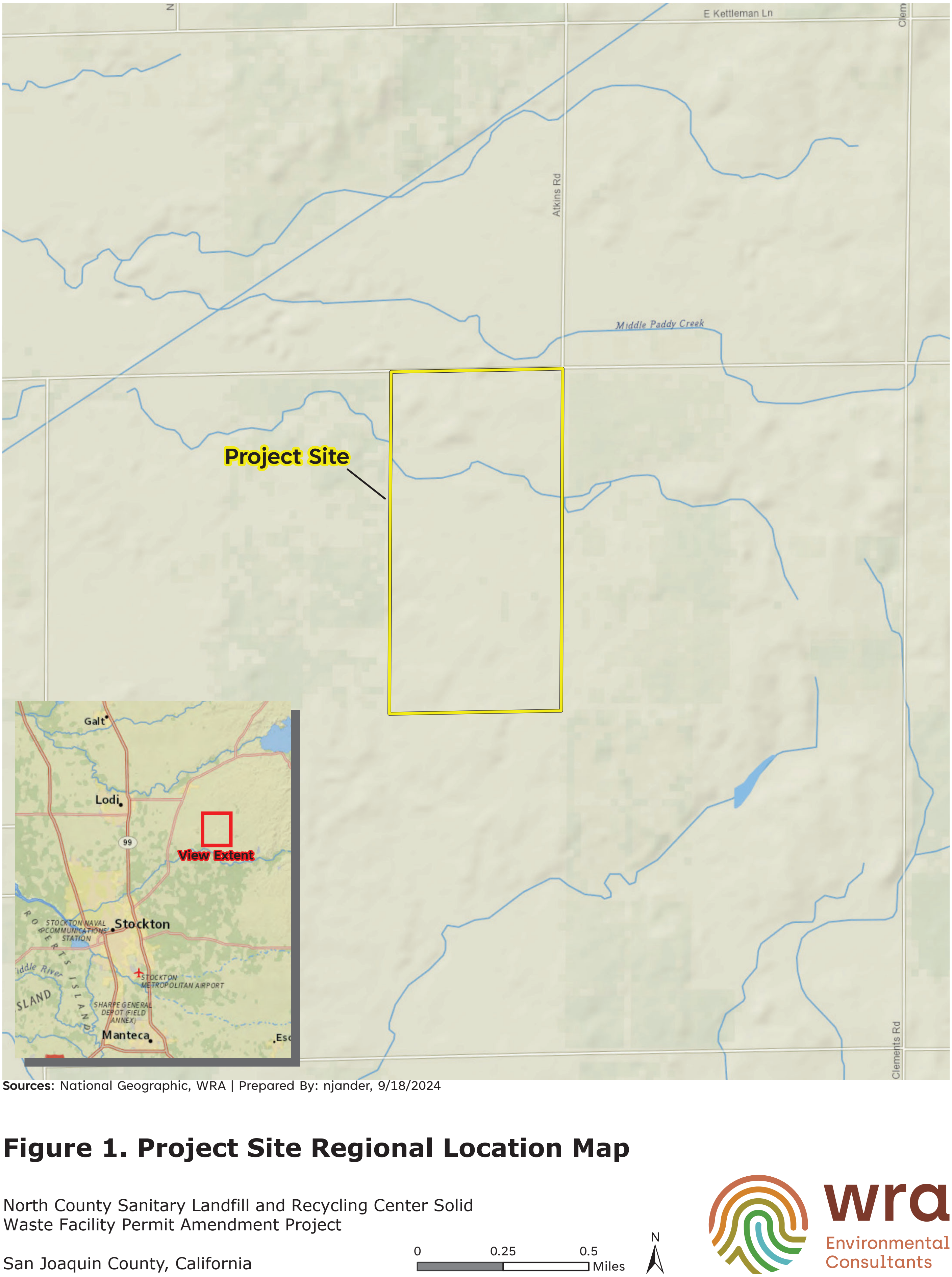
San Joaquin County
44 North San Joaquin Street
Stockton, CA 95202

2.3 Contact Person and Phone Number

Mark Houghton
PO Box 1810
1810 E Hazelton Avenue
Stockton, CA 95201
(209) 468-3066

2.4 Project Location

The project site is located within San Joaquin County on a relatively flat parcel (Assessor's Parcel Number [APN] 065-12-004) (Figure 1); it is owned and operated by the County. The project site is bounded by undeveloped agricultural land to the north, south, east, and west. The landfill is approximately 320 acres, 185 of which is used for the disposal of various types of non-hazardous solid waste.



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Sources: National Geographic, WRA | Prepared By: njander, 9/18/2024

Figure 1. Project Site Regional Location Map

North County Sanitary Landfill and Recycling Center Solid Waste Facility Permit Amendment Project

San Joaquin County, California

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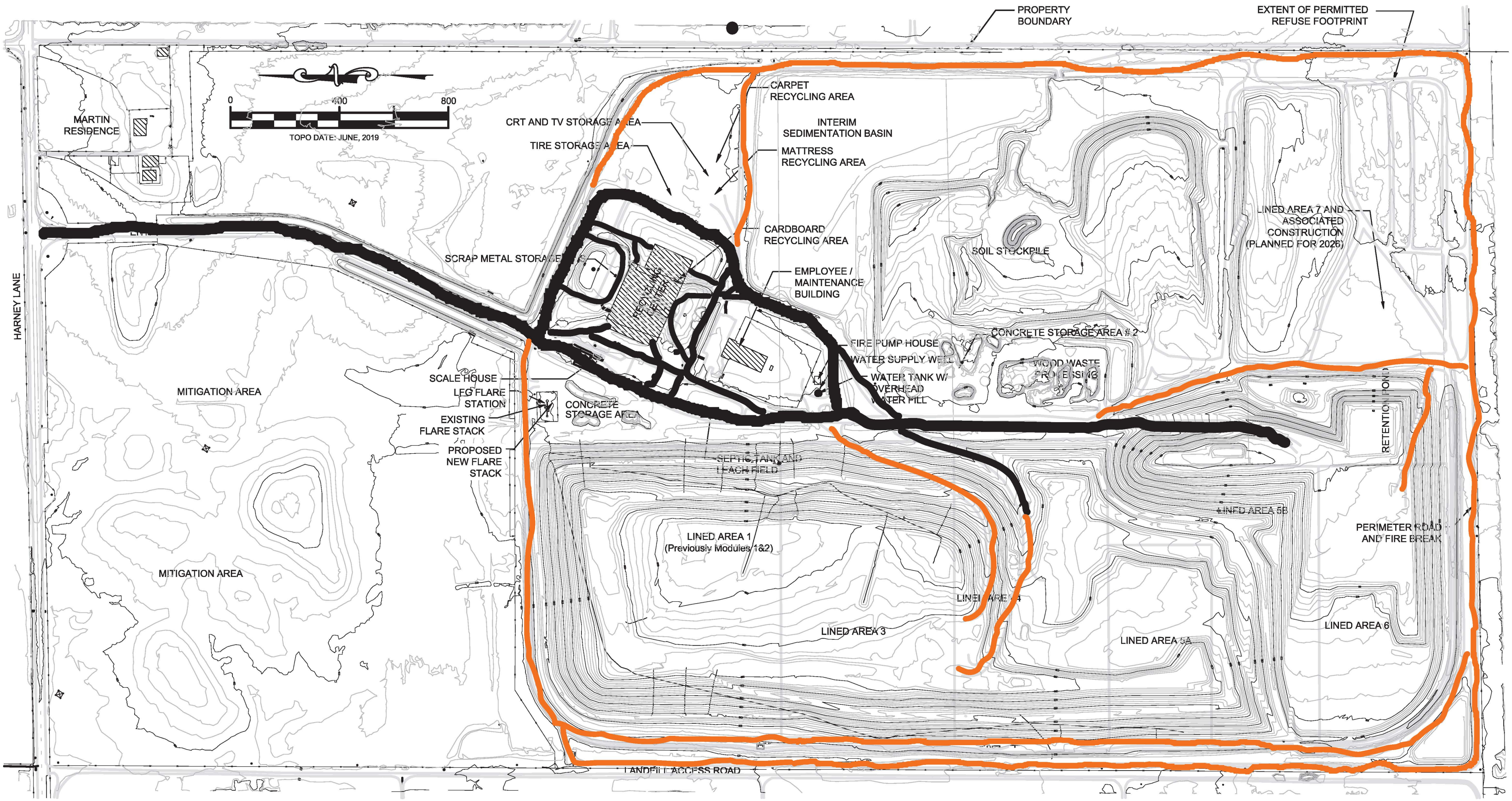
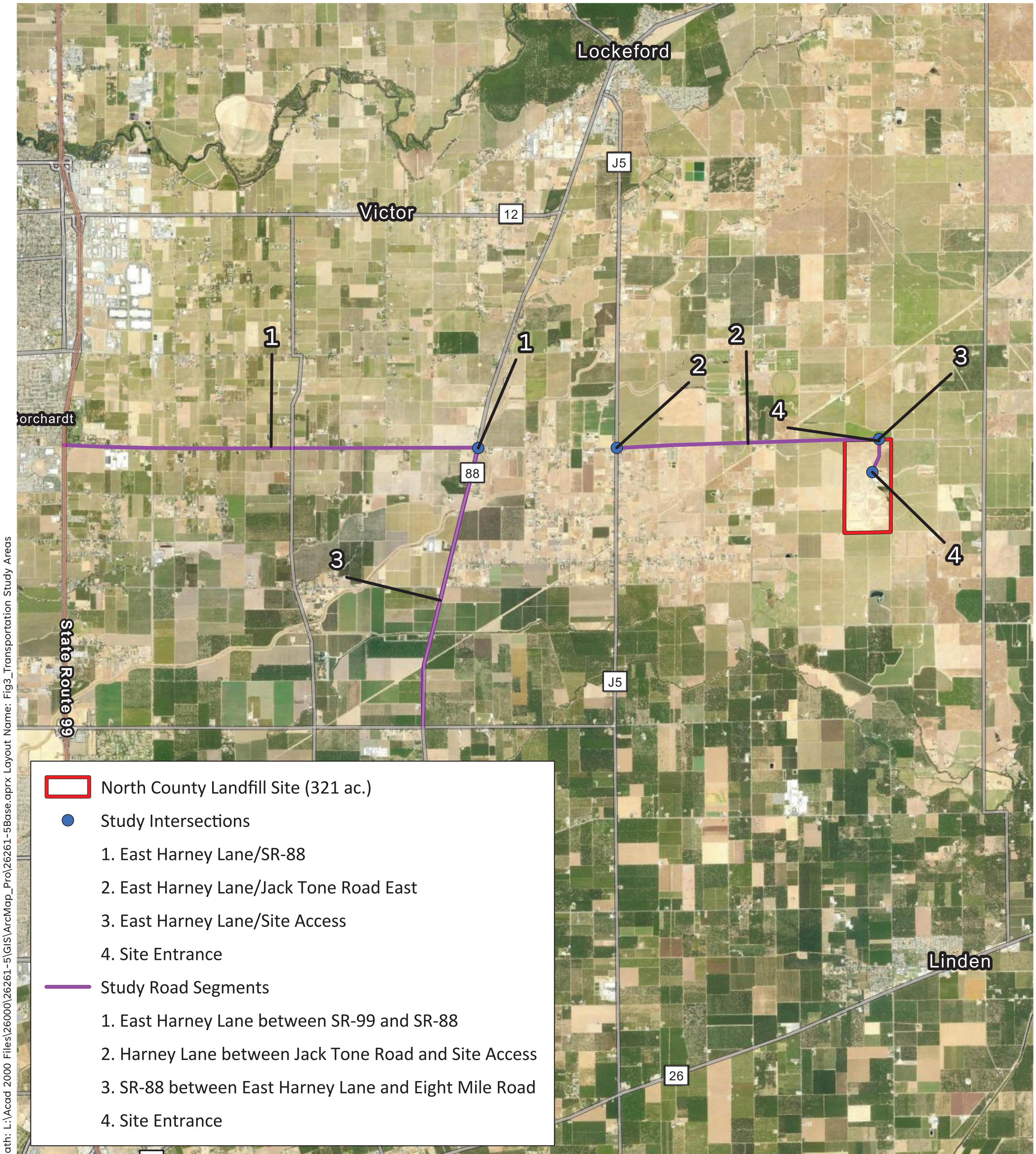


COUNTY OF SAN JOAQUIN	SCALE: AS SHOWN	JOINT TECHNICAL DOCUMENT REVISION - 2024 NORTH COUNTY RECYCLING CENTER AND SANITARY LANDFILL	SITE PLAN	PLATE 2



Sources: USDA NAIP Imagery 2022, WRA | Prepared By: njander, 11/15/2024

Figure 3. Transportation Study Areas

North County Sanitary Landfill and Recycling Center Solid Waste Facility Permit Amendment Project

San Joaquin County, California

0 1 2 Miles

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2.5 Existing General Plan Designation and Zoning District

General Plan Designation: General Agriculture (A/G)
Zoning District: General Agriculture (AG-40)

2.6 Surrounding Land Uses and Setting

The project site is immediately adjacent to East Harney Lane to the north, connected to the facility's access road. Surrounding land uses also include undeveloped agricultural parcels to the south, east, north, and west of the project. Scattered structures, including residences, are also within a mile of the project site.

3.0 PROJECT DESCRIPTION

3.1 Existing Setting

The project site is located at 17720 East Harney Lane, east of the City of Lodi. The site is located less than a half mile south of East Harney Lane, connected via an access road that is the only direct route to the facility. State Route 88 is approximately four miles to the west, and the center of Lodi is approximately eight miles to the west. The project site has operated as a solid waste disposal and transfer/processing facility since 1991. It currently operates from 7:00 am to 5:00 pm, seven days per week. The overall topography of the project site is flat with elevations ranging from approximately 110 to 120 feet above sea level. Adjacent land uses within 1,000 feet of the facility consist primarily of agricultural land, including vineyards, pastures, field crops, and fruit and nut orchards. There are also several structures, including residences, built on properties which are within a half mile or more from the landfill.

According to the Storm Water Pollution Prevention Plan (SWPP), the facility operates under the Standard Industrial Classification (SIC) code 4953 for "landfills, land application sites, and open dumps". It is a permitted Class III non-hazardous municipal solid waste landfill. The surface drainage system consists of ditches, culverts, and drains designed to convey surface water runoff and control erosion by reducing water velocities. The North County Landfill facility has two storm water discharge points. An on-site sedimentation basin receives the majority of surface water runoff from the landfill areas. Generally, water in the basin is retained for use on site, but when filled, the basin will discharge water into a grassy swale that drains to the mitigation area in the northern portion of the property. The sedimentation basin allows sediment and other pollutants to settle before water is discharged to the mitigation area. The mitigation area was contoured when the landfill was first constructed in 1992 to preserve wetlands in the landfill's footprint. Outside of the landfill, South Paddy Creek was an intermittent stream that crosses the mitigation area north of the recycling center. The mitigation area holds most of the spill over from the sedimentation basin and other on-site drainage and only discharges to Paddy Creek in extreme events. Paddy Creek discharges into Bear Creek (approximately 2.8 miles southwest of the facility) and is part of the Bear Creek watershed. Bear Creek ultimately discharges into Disappointment Slough, which is tributary to the San Joaquin River and the California Delta. Due to a culvert pipe which connects the eastern adjacent parcel and North County Landfill, there is potential for run-on to enter the property from the east. However, grading of the east property has reduced or eliminated the historic channel to the point that there is minimal potential for run on from the east.

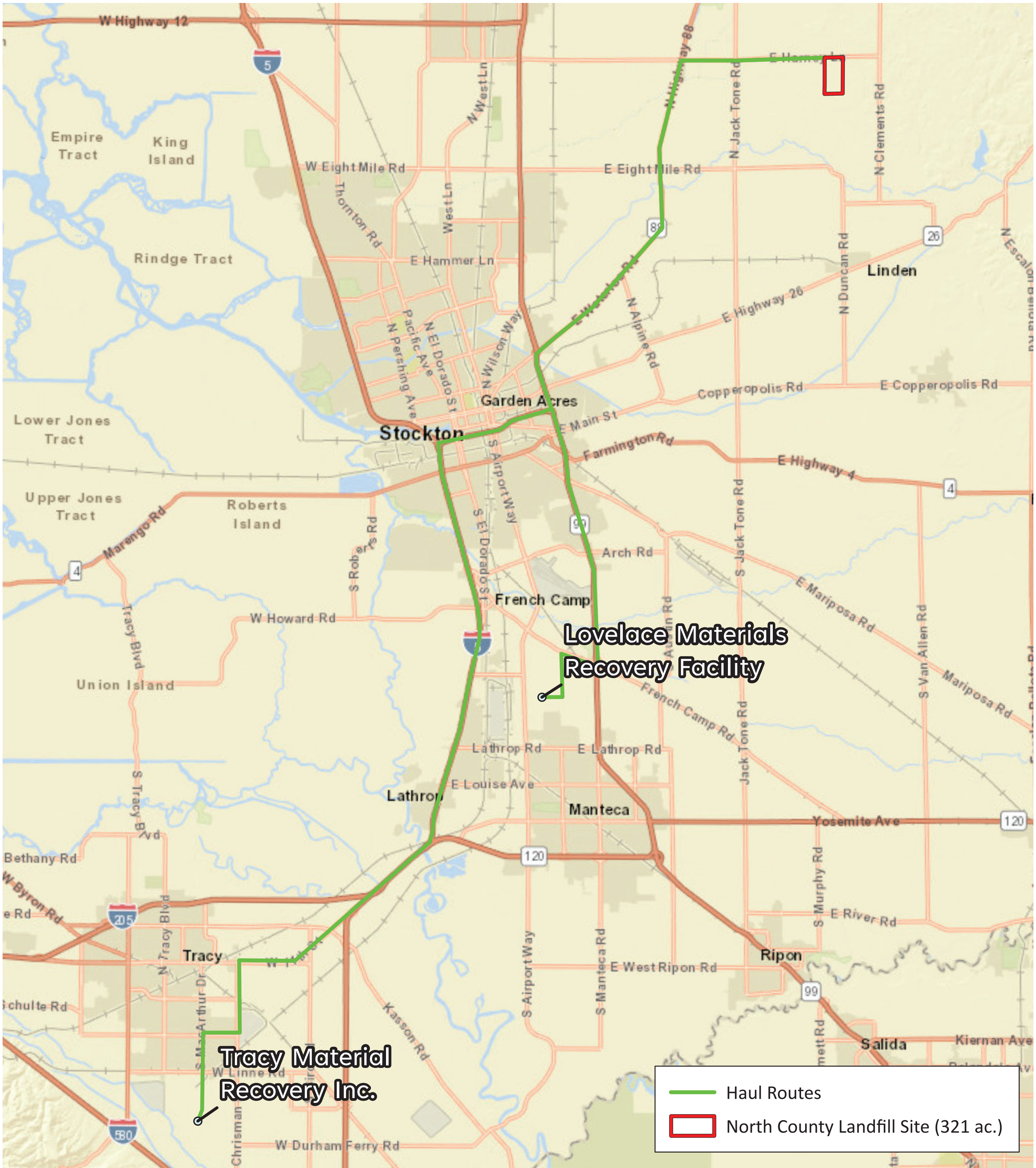
The total permitted area for all facility operations is 320 acres and the landfilling area is 185 acres. The designated landfilling area is divided into 11 modules. Modules are excavated for refuse fill as needed, generally in numerical order. When filling each module, refuse is placed in lifts, ranging from 6 to 10 feet thick, then spread and compacted in layers two feet thick on a sloped working face. Waste is covered at the end of each day to control fires, odor, windblown litter, and other hazards. All earthwork is done in accordance with the Valley Air District regulations. Other industrial activities at the facility include fueling, parts replacement, changing of vehicle fluids, vehicle and equipment washing, equipment storage, and repair. In addition to the waste disposal area, the four main buildings on site are a recycling center, office/maintenance building, water pump house building, and scale house. Accessory structures on site include a gate house, truck weigh scale, parking for landfill personnel and visitors, and a covered recycling center with a tipping area. There is a permanent berm, set back 100 feet from the property line, surrounding the project site's perimeter. Temporary berms are used to divert surface runoff water away from the working face as needed.

The current Solid Waste Facility Permit allows 1,200 tons of solid waste intake per day; at current operational levels, the projected closure year of the landfill is 2046. The landfill accepts residential refuse, commercial/industrial waste, green waste, wood waste, metals, paper products, glass, tires, plastic, agricultural waste, construction/demolition waste, household hazardous waste, dead animals, inert waste, and treated waste. The amount of solid waste accepted has increased steadily since the landfill opened, 2015, 2021, and 2023 were the only years the landfill exceeded 200,000 tons accepted. In 2023, the landfill accepted approximately 267,154 tons of solid waste. Currently, the landfill averages 37,648 garbage truck, transfer truck, and miscellaneous commercial vehicle roundtrips annually.

3.2 Detailed Description of Proposed Project

The project consists of a proposed revision to the Solid Waste Facility Permit to increase the maximum allowed daily refuse disposal and the number of daily incoming refuse vehicles from 1,200 tons per day and 850 vehicles per day to 4,000 tons and 1,200 vehicles per day. This increase would involve a change in refuse truck routing; approximately 50 transfer trucks that currently go to the Foothill Landfill would be re-routed to the North County Landfill. The projected annual intake would increase from 250,000 tons in 2024 to 660,000 tons in 2026, then increase 3 percent annually thereafter. The operating hours would also be altered, allowing the acceptance of commercial waste at 6:00 am and remaining open until 5:00 pm seven days per week. Up to six new employees would be needed for the increase in waste disposal and truck trip-related activity.

No new construction is proposed, and the landfill's capacity would not change. The existing site is depicted in Figure 2. Thus, because of the permit modifications without expanding current capacity, the projected closure date would move from 2048 to 2043. The rate of additional cell and module construction on the project site would increase to accommodate the amount of waste accepted. Existing temporary and permanent waste cover methods would remain unchanged, and the haul routes would remain the same. However, total vehicle round trips per year are projected to increase to 38,334 annually, primarily by diverting trucks originating from Tracy Material Recovery and the Lovelace Transfer Station that currently disposes of waste at Foothill Landfill. Though the number of truck trips would increase, partially due to routing changes, the total vehicle round trip miles expected to be generated by landfill operation would be projected to decrease from 1,678,144 annually to 1,582,797.



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Sources: ESRI Streets, WRA | Prepared By: njander, 2/26/2025

Figure 4. Haul Route

North County Sanitary Landfill and Recycling Center Solid Waste Facility Permit Amendment Project

San Joaquin County, California

0 1 2 Miles

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3.3 Project-Related Approvals, Agreements, and Permits

This IS/MND has been prepared by the County to evaluate the proposed project, which consists of a revision of the existing solid waste facility permit to allow an increase to the maximum permitted daily tonnage and traffic volume. In order to assess the likely environmental consequences of the project, this IS/MND evaluates the increase in truck volume, employee trips, and maximum tonnage. In the future, if additional modifications to the permit are proposed, the County would review additional activities not discussed in this document and render a determination as to whether additional CEQA analysis is necessary.

3.3.1 San Joaquin County Environmental Health Department

- Solid Waste Facility Permit Revision

Additional approvals by the County and, potentially, other agencies, would be required for future SWFP amendments or revisions associated with the project site. Such approvals may include an updated stormwater control plan.

4.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is potentially significant unless mitigation is incorporated, as indicated by the checklist on the following pages.

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

4.1 Determination

On the basis of this initial evaluation:

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

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

☐ I find that the 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 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.

Signature **Date**

Name and Title: Mark Houghton, P.E.

4.2 Initial Study Checklist

This section describes the existing environmental conditions in and near the Project Area and evaluates environmental impacts associated with the proposed project. The environmental checklist, as recommended in the CEQA Guidelines (Appendix G), was used to identify environmental impacts that could occur if the proposed project is implemented. The right-hand column in the checklist lists the source(s) for the answer to each question. The cited sources are identified at the end of this section.

Each of the environmental categories was fully evaluated, and one of the following four determinations was made for each checklist question:

> **"No Impact"** means that no impact to the resource would occur as a result of implementing the project.
>
> **"Less-than-Significant Impact"** means that implementation of the project would not result in a substantial and/or adverse change to the resource, and no mitigation measures are required.
>
> **"Less-than-Significant Impact with Mitigation Incorporated"** means that the incorporation of one or more mitigation measures is necessary to reduce the impact from potentially significant to .
>
> **"Potentially Significant Impact"** means that there is either substantial evidence that a project-related effect may be significant, or, due to a lack of existing information, could have the potential to be significant.

4.2.1 Aesthetics

	Would the project:	Potentially Significant Impact	Less-than-Significant Impact 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?	☐	☐	☒	☐

ENVIRONMENTAL SETTING

The project site is adjacent to agricultural land in all directions with sparse residences and agricultural development throughout the surrounding area; agricultural uses include vineyards, orchards, grazing pastures and associated infrastructure. The site is visible from other properties in the vicinity, as well as public roads in the area, specifically along East Harney Lane, Clements Road. Within areas where active project operations are occurring, the visual character within the landfill includes exposed dirt, scattered equipment, haul trucks, bulldozers, and compactors. No scenic resources are present on-site.

DISCUSSION OF IMPACTS

a, b) 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?

No Impact

The proposed project is limited to operational activities within the landfill and no site modifications would occur. Therefore, landfill slopes would continue to blend in with the natural topography of the surrounding area. The project's proposed operational activities and increase in waste acceptance would not affect the existing visual character or quality of public views of the site. Furthermore, State Route 88, which is approximately four miles away from the project site, is the nearest eligible state scenic highway (Caltrans 2025). Thus, ***no impact*** would occur.

a) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

No Impact

The project site is located in a non-urbanized area; it is primarily surrounded by agricultural land, agricultural facilities, and scattered residences. Project activities are solely operational and no site modifications are proposed. Therefore, there would be ***no impact*** to the existing visual character or quality of public views of the site or its surroundings.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less-than-Significant Impact

The project would expand landfill operating hours and would be open to the acceptance of commercial waste starting at 6:00 a.m.; the landfill would still stop commercial waste acceptance at 5:00 pm. Thus, operational activities would extend one hour into the nighttime. However, no project activities would require additional lighting; lighting fixtures are currently mounted to the exterior of buildings at the project site and no new lighting is proposed. Therefore, the project would not create additional light or glare during the day and a minimal amount of new light or glare at night. Thus, impacts relating to light or glare which could adversely affect views in the area would be ***less than significant***.

4.2.2 Agricultural and Forestry Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact 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 Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The project site is located in an unincorporated area of San Joaquin County, surrounded by properties designated for agricultural use, active agricultural operations, and scattered residences. The project site itself is an existing landfill on a parcel designated for agricultural use and has operated since 1991.

DISCUSSION OF IMPACTS

a-e) 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?

No Impact

The project is limited to the expansion of landfill operations, no site expansion would occur. There is no existing agricultural land within the landfill site. Therefore, the project would not convert farmland, forest land, or timber land to non-agricultural use, or conflict with an existing zoning for agricultural use or a Williamson Act contract. ***No impact*** would occur.

4.2.3 Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Would the project:	Potentially Significant Impact	Less-than-Significant Impact 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 in 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) affecting a substantial number of people?	☐	☐	☒	☐

An Air Quality Technical Study for the project was prepared by Baseline Environmental Consulting. The results of the study were documented in an Air Quality Technical Study Memorandum prepared in March 2025 (Appendix A). The information in this section is based on and adapted from the findings of the Air Quality Technical Study.

ENVIRONMENTAL SETTING

Regional Climate, Meteorology, and Topography

The project site is located within the San Joaquin Valley Air Basin (SJVAB), which encompasses eight counties, including Fresno, Kern (western and central), Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. Air basins have characteristics that limit the ability of natural processes to either dilute or transport air pollutants. The major determinants of air pollution transport and dilution are climatic and topographic factors such as wind, atmospheric stability, terrain that influences air movement, and sunshine.

The San Joaquin Valley is bordered by the Sierra Nevada Mountains in the east, the Coast Ranges in the west, and the Tehachapi mountains in the south. The surrounding mountains create a bowl-shaped topography, limiting movement of pollutants out of the Valley. The Valley has a mediterranean climate characterized by wet winters with sparse rainfall, and hot and dry summers. In addition, persistent temperature inversions occur in the Valley, preventing vertical dilution of pollutants and increases in the concentrations of pollutants at or near the ground.

Criteria Air Pollutants

The California Air Resources Board (CARB) and United States Environmental Protection Agency (EPA) focus on the following air pollutants as regional indicators of ambient air quality:

- Ozone
- Coarse particulate matter (PM_{10})
- Fine particulate matter ($PM_{2.5}$)
- Nitrogen dioxide (NO_x)
- Carbon monoxide (CO)
- Sulfur dioxide (SO_x)
- Lead

These are referred to as "criteria air pollutants" because they are the most prevalent air pollutants known to be harmful to human health based on extensive criteria documents. In accordance with the Federal Clean Air Act and California Clean Air Act (described in the Regulatory Setting section below), areas in California are classified as either in attainment, maintenance, or nonattainment of the National Ambient Air Quality Standards (NAAQS) and California ambient air quality standards (CAAQS) for each criteria air pollutant.

At the Federal level, SJVAB is currently designated as extreme nonattainment for the 8-hour ozone standard and is designated nonattainment for the $PM_{2.5}$ standard. At the State level, the SJVAB is designated as nonattainment for the 8-hour ozone, PM_{10}, and $PM_{2.5}$ standards (CARB 2023). The SJVAB is designated as an attainment or unclassified area for all other pollutants at the Federal and State level. Therefore, the primary criteria air pollutants of concern in the SJVAB are ground-level ozone formed through reactions of NO_x and reactive organic gases (ROG), PM_{10}, and $PM_{2.5}$ due to the nonattainment designations.

Toxic Air Contaminants

In addition to criteria air pollutants, individual projects may emit toxic air contaminants (TACs). TACs include a diverse group of air pollutants that can adversely affect human health and include diesel particulate matter (DPM)s, lead, benzene, formaldehyde, and hexavalent chromium, among others. In addition, substances which have been listed as federal hazardous air pollutants are TACs under the state's air toxics program. TACs are not subject to ambient air quality standards but are regulated through state and local risk management programs.

Unlike criteria air pollutants, which generally affect regional air quality, TAC emissions are evaluated based on estimations of localized concentrations and risk assessments. The adverse health effects a person may experience following exposure to any chemical depend on several factors, including the amount (dose), duration, chemical form, and any simultaneous exposure to other chemicals.

Landfill Gas

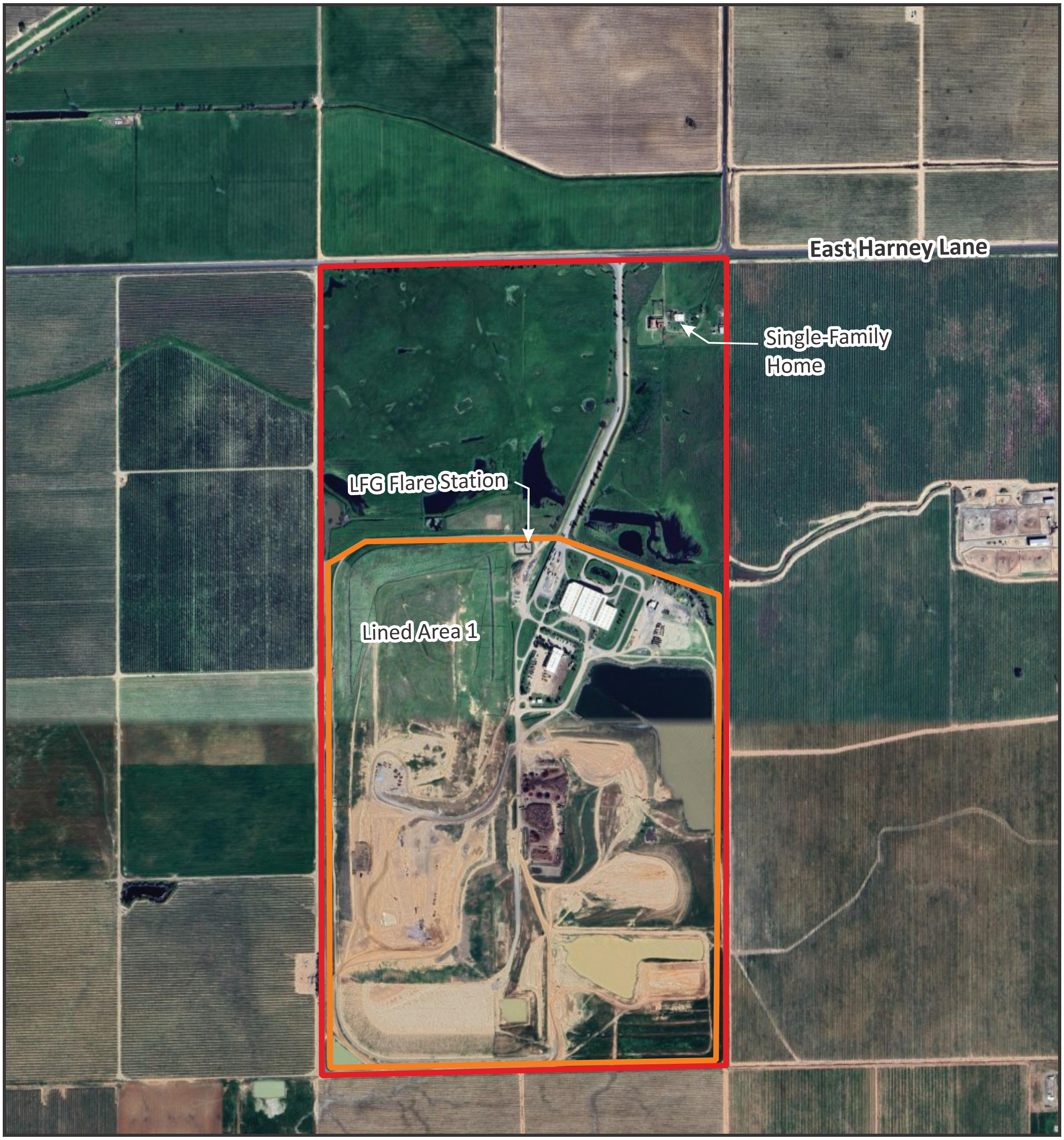
Landfill gas (LFG) is primarily made up of methane (CH_4) and carbon dioxide (CO_2), which are produced by the natural process of bacterial decomposition of organic material within the landfill under anaerobic conditions. In addition to these main components, LFG contains small amounts of nitrogen, oxygen, and hydrogen, less than 1 percent non-methane organic compounds (NMOCs), and trace amounts of inorganic compounds, some of which have strong, pungent odors.

Exposure to uncontrolled LFG can lead to adverse health effects due to the presence of volatile organic compounds (VOCs). Existing regulations under the Federal Clean Air Act require landfills of a certain size to install and operate a gas collection and control system, which is mainly targeted at municipal solid waste landfill emissions.

Existing Sensitive Receptors

Sensitive receptors are areas where individuals are more susceptible to the adverse effects of poor air quality. Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. Residential areas are also considered sensitive receptors because people are often at home for extended periods, thereby increasing the duration of exposure to potential air contaminants.

The surrounding land uses are primarily agricultural with scattered single-family residences within a one-mile radius. The closest sensitive receptor is a residence located on-site about 460 feet southeast of the intersection of East Harney Lane and the North County Landfill access road (Figure 5). In addition, sensitive receptors are located along the truck haul route as close as approximately 65 feet to the centerline of East Harney Lane. Schools including Harmony Grove Elementary School and the Adelita Montessori School are also located as close as approximately 70 feet to the centerline of East Harney Lane.



Legend

Project Site Boundary

Planned Fill Area

0 1,250 Feet

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Figure 5
Project Site and Sensitive Receptor Locations

BASELINE ENVIRONMENTAL CONSULTING

21202-23 Figures 02/13/25

North County Sanitary Landfill and Recycling Center
Solid Waste Facility Permit Amendment Project

REGULATORY SETTING

Federal and State Regulations

The Clean Air Act was laid out by Congress in 1970, and major revisions were made in 1977 and again in 1990. The Clean Air Act is implemented by the United States EPA, who is responsible for establishing and reviewing the NAAQS and judging the adequacy of State Implementation Plans to attain the NAAQS. A State Implementation Plan must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs.

In 1988, California passed the California Clean Air Act (California Health and Safety Code sections 39600 et seq.), which is implemented by CARB. CARB is responsible for establishing and reviewing the CAAQS, developing and managing the State Implementation Plan, identifying TACs, and overseeing the activities of regional air quality management districts. To achieve the CAAQS, criteria air pollutant emissions are managed through control measures that are described in regional air quality plans as well as by emission limitations placed on permitted stationary sources. In California, mobile emissions sources (e.g., construction equipment, trucks, automobiles) are regulated by CARB, and stationary emissions sources (e.g., industrial facilities) are regulated by the regional air quality management districts.

In 2016, the EPA established two regulations — the New Source Performance Standards (NSPS) for new landfills and the Emission Guidelines for existing landfills — aimed at reducing methane emissions from landfill gas. The Emissions Guidelines require the installation of an LFG collection and control system at municipal solid waste landfills that exceed a specified design capacity and NMOC emission threshold. These federal requirements are regulated under local air district rules. Similarly, at the State level, CARB adopted the Landfill Methane Regulation in 2010, which requires municipal solid waste landfills to reduce methane and other air pollutant emissions through emissions monitoring and capturing fugitive methane emissions.

Regional Regulations

The project is located in the SJVAB, which is under the jurisdiction of the Valley Air District. The Valley Air District has adopted several air quality attainment plans for particulate matter and ozone over the years that identify measures needed in the SJVAB to attain NAAQS. The Valley Air District has implemented these plans and adopted nearly 650 rules that have resulted in significant emissions reductions. Specific rules applicable to the proposed project include the following:

- **Rule 2201 (New and Modified Stationary Source Review Rule)**. This rule, also known as New Source Review, applies to all new stationary sources and all modifications to existing stationary sources which are subject to the Valley Air District permit requirements and after construction emit or may emit one or more regulated pollutants (e.g. criteria air pollutants and precursors). This rule requires new and modified stationary sources to mitigate emissions using Best Available Control Technology and to offset emissions when estimated emissions are above specified thresholds. Valley Air District implementation of New Source Review ensures that there is no net increase in emissions above specified thresholds from new and modified Stationary Sources for all nonattainment pollutants and their precursors.

- **Rule 4102 (Nuisance).** This rule prohibits discharge of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such person or the public or which cause or have a natural tendency to cause injury or damage to business or property.
- **Rule 4642 (Solid Waste Disposal Sites).** This rule limits volatile organic compound emissions from solid waste disposal sites.
- **Regulation VIII (Fugitive PM10 Prohibitions)**. This regulation consists of a series of rules requiring the implementation of dust control measures to reduce fugitive dust emissions generated by human activity.

ASSESSMENT METHODOLOGY

Regional Air Quality

Consistent with Appendix G of the CEQA Guidelines, the Valley Air District has adopted thresholds of significance to assist lead agencies in the evaluation and mitigation of air quality impacts under CEQA (Valley Air District 2015). The District's thresholds establish levels at which emissions of ozone precursors (ROG and NO_x), PM_{10}, $PM_{2.5}$, carbon monoxide, sulfur oxides (SO_x), TACs, and odors could cause significant air quality impacts. The Valley Air District's thresholds of significance that are used in this analysis are summarized below in Table 1.

Table 1. Air Quality Thresholds of Significance

IMPACT ANALYSIS	POLLUTANT	THRESHOLD OF SIGNIFICANCE
Criteria Air Pollutants (Construction and Operation[1])	CO	100 tons per year
	NO_x	10 tons per year
	ROG	10 tons per year
	SO_x	27 tons per year
	PM_{10}	15 tons per year
	$PM_{2.5}$	15 tons per year
Health Risks and Hazards (Combined)	Toxic Air Contaminant	For the Maximally Exposed Individual: Cancer risk increase > 20.0 in one million Chronic hazard index > 1.0 Acute hazard index > 1.0

[1] Construction emissions, operational emission from permitted equipment and activities, and operational emissions from non-permitted equipment and activities are evaluated separately.
Source: Valley Air District 2015

Carbon Monoxide Hotspots

In addition, the Valley Air District has established that preliminary screening can be used to determine with a fair level of certainty that the effect a project has on any given intersection would not result in a carbon monoxide hotspot. According to the Valley Air District, a project would result in a less-than-significant impact related to localized carbon monoxide concentrations if neither of the following screening criteria are met at all intersections affected by the development project:

- A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; nor
- A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at one or more intersections in the project vicinity.

Toxic Air Contaminants

For risk assessment purposes, TACs are separated into carcinogens and non-carcinogens. Carcinogens are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per 1 million exposed individuals over a lifetime of exposure. Non-carcinogenic substances are generally assumed to have a safe threshold below which health impacts would not occur. Acute and chronic exposure to non-carcinogens is expressed as a hazard index, which is the sum of expected exposure levels divided by the corresponding acceptable exposure levels.

Odors

The Valley Air District has identified some common types of facilities that have been known to produce odors, including sanitary landfills, and has established screening levels for potential odor sources, in the form of screening distances, to semi-quantitatively assess a project's potential to adversely affect area receptors. For projects that would result in sensitive receptors being located closer than the screening level distances, the Valley Air District has established the following significance threshold for odor problems:

- More than one confirmed complaint per year averaged over a three-year period, or
- Three or more unconfirmed complaints per year averaged over a three-year period.

DISCUSSION OF IMPACTS

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

Less-than-Significant Impact

As discussed in the Regulatory Setting section above, the Valley Air District has adopted several air quality attainment plans for particulate matter and ozone that identify measures needed in the SJVAB to attain NAAQS. Since the Valley Air District's CEQA thresholds of significance were developed to be consistent with other air quality attainment plans and regulations, projects with emissions below the thresholds of significance for criteria pollutants would be determined to not conflict with or obstruct implementation of the Valley Air District's air quality plans. As discussed in Impact b) below, the project's emissions of criteria air pollutants from permitted and non-permitted equipment and activities would be below the thresholds of significance. In addition, the project would be required to comply with applicable rules and regulations of the Valley Air District, such as Regulation VIII, which requires dust control measures to control the release of fugitive PM_{10} emissions. Therefore, the project would not conflict with or obstruct any applicable air quality plan. The impact would be ***less than significant.***

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?*

Less-than-Significant Impact

The project would not change the capacity of the North County Landfill and would not involve the construction of any new facilities. The project would increase the maximum amount of allowed daily refuse disposal and number of daily incoming refuse trucks from 1,200 tons per day and 850 trucks per day to 4,000 tons and 1,200 trucks per day. This increase would require a change in refuse truck routing; that is, approximately 50 transfer trucks that currently go to the Foothill Landfill would be re-routed to the North County Landfill. The increase in daily refuse disposal would also increase the use of off-road equipment associated with landfill operations. Up to six new employees would be needed for the increase in waste disposal and truck trip-related activity.

These changes in operational activities at the North County Landfill would generate criteria pollutant emissions that could potentially impact regional air quality. The primary pollutant emissions of concern during project operation would be ozone precursors (ROG and NOx), PM_{10}, $PM_{2.5,}$ and emissions of LFG. Implementation of the project would result in net increases in off-road equipment usage on the project site, and project-generated vehicle trips along the haul route. Although the project would not change the North County Landfill design capacity, the rate of additional cell and module construction on the project site would increase to accommodate the amount of waste accepted with the proposed increase in maximum allowed daily refuse disposal. Compared to the current operation conditions, the project could increase fugitive emissions from the landfill surface, and exhaust emissions from LFG control devices (e.g., flare) due to the increase in LFG generated and collected. An analysis of estimated emissions that are expected to occur from implementation of the project is provided below.

Off-Road Equipment and On-Road Mobile Sources

Criteria air pollutant emissions from off-road equipment for the current operation condition (2024) of the landfill and project condition were calculated using the California Emissions Estimator Model (CalEEMod) version 2022.1.

Emissions associated with off-road equipment and refuse vehicles are characterized as mobile sources. The project would increase the allowed number of daily incoming refuse vehicles from 850 to 1,200 vehicles per day, and it was assumed that the project would generate 12 one-way worker commute trips per day for the six new employees.

The project would also generate fugitive PM_{10} and $PM_{2.5}$ emissions from on-site earthwork activities, on-road vehicle brake wear and tire wear, resuspended road dust on paved and unpaved roads, and windblown landfill sediment and cover. Earthwork at the North County Landfill is conducted in accordance with the Valley Air District's Regulation VIII, using water trucks and sweepers for dust control. It was assumed that the exposed areas will be watered twice per day.

The primary data used to estimate criteria air pollutant emissions associated with operation of the project were provided by the project applicant and included information about the current operation condition and project off-road construction equipment inventory and usage, off-site haul truck trips, on-site water trucks trips, other on-site service truck trips, and travel distances for each trip category.

As shown below in Table 2, the project's estimated net change in ROG, NO_x, PM_{10}, $PM_{2.5}$, CO, and SO_x emissions during operation are below the Valley Air District's threshold of significance and would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment; therefore, the project's impact on regional air quality would be ***less than significant***.

Table 2. Estimated Annual Criteria Air Pollutant and Precursor Emissions from Non-Permitted Equipment and Activities (tons per year)

EMISSION SCENARIOS	ROG	NO_x	PM_{10}	$PM_{2.5}$	CO	SO_x
OFF-ROAD EQUIPMENT						
Baseline Condition	0.24	6.79	1.06	0.63	7.60	0.01
Project Condition	0.35	7.82	1.87	1.07	12.73	0.02
Net Difference	**0.11**	**1.04**	**0.81**	**0.44**	**5.13**	**0.01**
ON-ROAD MOBILE SOURCES						
Baseline Condition	0.13	3.70	1.40	0.31	0.18	0.03
Project Condition	0.13	3.54	1.48	0.31	0.18	0.04
Net Difference	**0.01**	**-0.16**	**0.08**	**0.00**	**0.002**	**0.004**
Total Net Difference	**0.11**	**0.88**	**0.90**	**0.45**	**5.13**	**0.01**
Valley Air District Thresholds	10	10	15	15	100	27
Threshold Exceeded?	No	No	No	No	No	No

Source: Attachment A.

Landfill Gas

Operation of the project would increase criteria air pollutant emissions attributable to the potential increases in exhaust emissions from the flare. The reported emission inventory for the North County Landfill in 2023 was provided by the applicant and is summarized in Table 3 as a representation of the baseline condition.

As shown in Table 3, under the baseline condition, emissions of ROG, NO_x, PM_{10}, CO, and SO_x from the flare are relatively low – approximately two orders of magnitudes lower than the applicable Valley Air District operation thresholds for permitted sources. For the project condition, the maximum criteria air pollutant emissions from the flare were conservatively estimated using emission limits obtained from the project's current Title V permit and the heat input to flare obtained from the 2023 inventory. For the project condition, the conservatively estimated maximum emissions from the flare are below the Valley Air District's thresholds of significance. Therefore, the project's impact from LFG-related criteria air pollutant emissions would be ***less than significant***.

Table 3. Estimated Annual Criteria Air Pollutant and Precursor Emissions from Permitted LFG Collection System (tons per year)

EMISSION SCENARIO	EMISSIONS (TONS PER YEAR)				
	ROG[2]	NO_x	PM_{10}	CO	SO_x
Baseline Condition[1]	<0.01	0.04	0.09	<0.01	0.02
Project Condition	1.41	6.41	3.63	9.62	3.21
Net Difference	1.41	6.37	3.54	9.62	3.19
Valley Air District Thresholds	10	10	15	100	27
Threshold Exceeded?	No	No	No	No	No

[1] Based on 2023 inventory for the North County Landfill.
[2] ROG emissions based on total VOC emissions.
Source: Appendix A, Attachments B and C.

Therefore, the project would not result in a cumulatively considerable net increase in any criteria air pollutant for which the region is in nonattainment, or for LFG. The impact would be less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact

Exposure to Toxic Air Contaminants

Operation of the project would generate LFG-related emissions and DPM emissions from the exhaust of on-road heavy-duty diesel haul trucks and on-site off-road diesel construction equipment. As discussed in the Environmental Setting section above, the closest sensitive receptor to the landfill is a residence located on-site approximately 2,100 feet northeast from the top of Lined Area 1, and approximately 1,800 feet northeast from the existing LFG flare station (Figure 5). Because the closest sensitive receptor is not located within 1,000 feet of the fill area and flare station, exposure to on-site TACs during project operation was not evaluated. Although LFG may contain trace amount of TACs, the health risk from flare emissions is typically very low as the combustion process would destroy most toxic substances contained in the flared gas. Per the project's Title V permit, VOC destruction efficiency for the flare shall be at least 98 percent by weight.

For sensitive receptors along the truck haul route, a health risk assessment was conducted to estimate the incremental increase in cancer risk and chronic hazard index from exposure to DPM emissions from trucks. This assessment followed guidance outlined by the Valley Air District and the Office of Environmental Health Hazard Assessment (OEHHA) (Valley Air District 2015, OEHHA 2015).

The on-road DPM emissions from trucks travelling by sensitive receptors along the haul route were estimated based on the net increase in average daily truck trips in the project vicinity. Emission data was taken from CARB's database, and air quality models were used to estimate DPM concentrations along the route. Based on the annual average concentrations of DPM estimated using air dispersion modeling, potential health risks were evaluated for the maximally exposed individual resident (MEIR), which represents the most sensitive individual who could be exposed to adverse air quality conditions in the vicinity of the haul route.

The estimated health risks at the MEIR due to DPM emissions from project operation are summarized and compared to the Valley Air District's thresholds of significance in Table 4. The estimated cancer risk and chronic hazard index for DPM at the MEIR were below the Valley Air District's thresholds of significance. Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations. The impact would be less than significant.

Table 4. Health Risks During Project Operation

EMISSIONS SCENARIO	RECEPTOR	DIESEL PARTICULATE MATTER	
		Cancer Risk (per million)	Chronic Hazard Index
Baseline Condition	Haul Route MEIR	0.8	<0.01
Project Condition		1.5	<0.01
	Net Difference	0.7	<0.01
	Thresholds of Significance	10	1.0
	Exceed Threshold?	No	No

Source: Appendix A, Attachment C

Exposure to Carbon Monoxide Emissions

Heavy traffic congestion at intersections can be local hotspots of carbon monoxide emissions. Although the project would increase truck trips associated with operation of the landfill, as discussed in Section 4.2.17, Transportation, the project would not cause any intersection to operate at LOS E or F. Therefore, the project would not conflict with the Valley Air District's thresholds of significance related to carbon monoxide hotspots, nor would it result in a net increase in the potential exposure of existing sensitive receptors to carbon monoxide concentrations from project-generated truck trips. The impact would be less than significant.

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

Less-than-Significant Impact

Landfills are known to produce odors that could adversely affect area receptors. Odors are currently generated at the landfill working face due to tipping and dumping putrescible waste. The main method for controlling odor at the landfill working face is by applying cover material. In addition, fugitive LFG that escape through the LFG collection and control system can contribute to odors.

As explained in the Methodology section above, the Valley Air District has identified that a project would have a significant impact related to odors if it would generate more than one confirmed complaint per year averaged over a three-year period, or three or more unconfirmed complaints per year averaged over a three-year period. According to the applicant, no complaints have been received for the North County Landfill over the past three years. Since the project would not change the odor control method or the LFG collection and control system, the increase in maximum allowed daily refuse disposal is not expected to substantially increase odor generation. Therefore, the project's odor impact would be ***less than significant***.

4.2.4 Biological Resources

Would the project:	Potentially Significant Impact	Less-than-Significant Impact 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, or 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?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

There are no special-status species or habitats within the project area. The project area is developed with existing buildings, modules for refuse disposal, and other accessory structures. No wetlands are in the project area. An on-site sedimentation basin is present along the eastern boundary of the project area, which receives stormwater runoff from the landfill modules. Generally, water in the storm basin is retained for use on site, but the County may elect to discharge water to the mitigation area in the northern portion of the property. The storm basin enables pollutants to settle before the water is discharged to the mitigation area. The mitigation area is north of the project area and associated with South Paddy Creek. South Paddy Creek is a stream located to the north of the recycling center and discharges to Bear Creek. Bear Creek discharges into Disappointment Slough, a tributary to both the San Joaquin River and the California Delta. A narrow band of riparian habitat is present along the northern and western perimeter of the sedimentation basin.

REGULATORY SETTING

San Joaquin Multi-Species Habitat Conservation Plan

The San Joaquin County Multi-Species Habitat Conservation and Open Space Plan provides a framework to manage open space preservation with the need to convert open space uses while protecting special status species and habitats. It covers the entirety of San Joaquin County and guides the management of plant, fish, and wildlife species, specifically those that are currently listed or may be listed in the future under the Federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA).

DISCUSSION OF IMPACTS

a, b) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS)? 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?

No Impact

The project is limited to operational changes and is located within an existing developed area. No special status plants or animals are present on the project site, nor does the site contain suitable habitat for special-status plants. While there may be areas outside of the project area that could support special status species, project activities are operational and will not expand the landfill's footprint into these areas. Consequently, the project would not conflict with the County's Multi-Species Habitat Conservation and Open Space Plan or the mitigation area north of the landfill. There would be ***no impact*** to any special status species, protected habitats, or conflicts with the County's Habitat Conservation Plan.

c, d) 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? 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?

No Impact

The project does not include any site modifications. Project activities are limited to an increase in solid waste acceptance within the landfill's existing footprint. No wetlands or migratory corridors have been identified on the project site. The sedimentation basin on the project site and mitigation area outside of the landfill would not be affected by the project's operational activities, as there will be no site expansion or construction activities. Therefore, there would be ***no impact*** related to wetlands or migratory corridors.

d, e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact

Local policies and ordinances protecting biological resources are primarily contained within the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. As discussed in Impacts a) and b), due to the project being strictly limited to operational changes, the landfill's footprint would not expand and there would be no change to current conditions, and the proposed project activities are in compliance with the County's Habitat Conservation and Open Space Plan General Plan. The project would not conflict with any County policies or ordinances protecting biological resources, and there would be ***no impact***.

4.2.5 Cultural Resources

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

ENVIRONMENTAL SETTING

The project site is located in a primarily agricultural area. Land uses in the area include agricultural operations and scattered residences. The landfill was constructed in the early 1990s and operated within the same area, thus the footprint of the project site has not expanded since then. Though the project site itself has been disturbed by landfill activities, no historic or cultural resources have been identified within the project site.

DISCUSSION OF IMPACTS

a) Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines Section 15064.5?

Less-than-Significant Impact

The proposed project is limited to the expansion of operational activities within the footprint of an existing landfill and no additional development or physical expansion is proposed. No previously identified historical resources have been documented within the project area. Therefore, ***no impact*** on the significance of a historical resource would result from project implementation.

b, c) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5? Disturb any human remains, including those interred outside of dedicated cemeteries?

Ground disturbing activities on the project site may impact unknown cultural resources. The likelihood is low given the excavation activities that already occur as part of the landfill's existing operations. However, It is possible that previously disturbed areas may still contain undiscovered archeological resources, cultural resources, or human remains. The implementation of CUL-1 would reduce potential impacts to undiscovered archeological and cultural resources to ***less than significant***.

MITIGATION MEASURES

Mitigation Measure CUL-1: Accidental Discovery of Archeological Resources or Human Remains

If suspected archaeological materials or paleontological resources are uncovered, work at the place of discovery shall be halted immediately until a qualified archaeologist or paleontologist can evaluate the finds as required by the CEQA Guidelines §15064.5(f). Prehistoric archaeological site indicators include the following: obsidian and chert flakes and chipped stone tools, grinding and mashing implements (e.g., slabs and hand stones, and mortars and pestles), bedrock outcrops and boulders with mortar cups, and locally darkened midden soils. Midden soils may contain a combination of any previously listed items with the possible addition of bone and shell remains, and fire-affected stones. Historic period site indicators generally include the following: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits.

If human remains are encountered, excavation or disturbance of the location shall be halted in the vicinity of the find, and the county coroner shall be contacted. If the coroner determines the remains are Native American, the coroner shall contact the Native American Heritage Commission (NAHC). The NAHC shall identify the person or persons believed to be most likely descended from the deceased Native American. The most likely descendant shall make recommendations regarding the treatment of the remains with appropriate dignity.

4.2.6 Energy

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

ENVIRONMENTAL SETTING

Pacific Gas and Electric (PG&E) is the primary utilities provider for residents and businesses in San Joaquin County. Currently, the County does not have a specific plan relating to energy usage. However, the General Plan does include multiple energy resource policies that encourage projects to incorporate sustainable energy technology when feasible. Efforts to promote sustainability in County operations include using Environmentally Preferable Purchasing (EPP) in procurement, reducing waste and increasing recycling, increasing energy efficiency, generating renewable energy, conserving water, and the use of fuel-efficient vehicles into County facilities, operations, and activities (General Plan 2016).

DISCUSSION OF IMPACTS

a, b) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less-than-Significant Impact

The project consists of a modification of landfill operations, which consists of expanded operating hours, increased truck trips, and the addition of approximately six new employees. Within the General Plan, there are policies related to the project to ensure that energy usage related to landfill operations incorporates energy efficient measures when possible. Specifically, Policy IS-3.5, which mandates the County purchase lower-emission and/or electric efficient equipment when purchasing new fleet vehicles and maintenance/construction equipment; Policy IS-3.6, which requires the County to use available clean energy and fuel sources where feasible to operate its buildings, vehicles, and maintenance/construction equipment; and Policy IS-3.7, which encourages employees to reduce vehicle idling and trips, and encourages efficient routing and the use of public transportation. Due to the incorporation of these policies into continued operation of the landfill, impacts related to energy consumption would be minimized. The project would not alter the operational characteristics of the landfill in such a manner as to result in wasteful, inefficient, or unnecessary consumption of energy resources. The project would not conflict with or obstruct implementation of a state or local plan for renewable energy or energy efficiency. Therefore, project impacts would be ***less than significant***.

4.2.7 Geology and Soils

Would the project:	*Potentially Significant Impact*	*Less-than-Significant Impact 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?	☐	☐	☐	☒
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, 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 wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

ENVIRONMENTAL SETTING

The project site is located in an unincorporated area of San Joaquin County, east of Lodi. Like other areas located in seismically active California, the project area is susceptible to strong ground shaking during an earthquake. However, the project site is not located within an earthquake fault zone (California Department of Conservation 2024). Also, slopes within the landfill are maintained at a 3:1 horizontal to vertical ratio to lower the probability of landslides induced by seismic events. When the landfill was originally constructed, the native soil was extensively disturbed or replaced with imported material. However, solid waste facilities are subject to Title 27 of the California Code of Regulations, which sets the parameters for the siting, design, and construction of landfills. These standards are meant to ensure that the facilities can withstand seismic events without damage to the structures which control surface drainage and erosion.

DISCUSSION OF IMPACTS

a-i) 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?

No Impact

No active faults have been identified in the immediate vicinity of the project site. The project site is not within any Earthquake Fault Zone designated by the state under the Alquist-Priolo Earthquake Fault Zoning Act (California Department of Conservation 2024). Operation of the proposed project would be similar to existing conditions and would not cause substantial effects associated with rupture of a known earthquake fault. Therefore, the project would not cause substantial effects including the risk of loss, injury, or death associated with rupture of a known earthquake fault. There would be ***no impact*** related to adverse effects from the rupture of a known earthquake fault.

a-ii) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Strong seismic ground shaking?

No Impact

Project operation would not result in any substantial effects related to strong seismic ground shaking because project activities are limited to an increase in waste accepted by the landfill; no site modifications are proposed. Therefore, the proposed project would not result in substantial effects associated with strong seismic ground shaking and ***no impact*** would occur.

a-iii, a-iv) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Seismic-related ground failure, including liquefaction? **Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Landslides?**

No Impact

The project site is not located within a known earthquake fault zone or designated landslide zone. Project activities are operational and do not involve site expansion. Furthermore, as mentioned in the environmental setting, existing slopes within the landfill are maintained at a 3:1 ratio, lowering the potential of landslide damage. Also, the project site is not located in a liquefaction zone identified by the CGS (CGS 2024). Therefore, project activities would have ***no impact*** related to landslides or liquefication due to seismic events.

b) Result in substantial soil erosion or the loss of topsoil?

No Impact

The project would not involve any construction activities, as it is limited to the expansion of existing landfill operations. Surface soils within the project site have previously been disturbed during previous construction and landfill operations. No additional grading or unplanned excavation would occur, and existing erosion control methods will remain unchanged. Therefore, the project would not result in substantial erosion or the loss of topsoil in relation to current conditions, thus there would be ***no impact*** related to 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?

No Impact

Various soil units are present within the project area. The project would not expand the landfill's current footprint; the project is limited to operational activities within the landfill. No construction or expansion activities would occur as a result of the project. Thus, there would be ***no impact*** related to unstable soils.

d) Be located on expansive soil, as defined in Table 18 1 B of the Uniform Building Code, creating substantial direct or indirect risks to life or property?

No Impact

The proposed project does not entail construction or the expansion of existing facilities and would not expand the landfill footprint. Furthermore, compliance with Title 27 of the California Code of Regulations regarding landfill siting and operations has previously established the project site as being suitable for landfill operations. Consequently, there would ***no impact*** related to risk of damage as a result of expansive soils.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact

The project would not include the construction of septic tanks or alternative wastewater disposal systems. ***No impact*** would occur.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less-than-Significant with Mitigation Incorporated

The project site is an existing landfill and previous studies have not identified any paleontological resources or unique geologic features. However unlikely, the potential for paleontological resources to occur on the project site cannot be precluded, as the expansion of the landfill's operations will entail the excavation of modules within the project site. The project will implement Mitigation Measure CUL-1, which pertains to the accidental discovery of buried archaeological or paleontological resources. With implementation of this measure, the project would not destroy a unique paleontological resource or site or unique geological feature. The impact would be ***less-than-significant with mitigation incorporated***.

4.2.8 Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

A Greenhouse Gas Emissions Technical Study for the project was prepared by Baseline Environmental Consulting. The results of the study were documented in a Greenhouse Gas Technical Study Memorandum prepared in March 2025 (Appendix D). The information in this section is based on and adapted from the findings of the Greenhouse Gas Emissions Technical Study.

ENVIRONMENTAL SETTING

Landfill gas (LFG) is a natural byproduct of the decomposition of organic material in landfills. Methane and carbon dioxide are the primary constituents of LFG and are produced by the decomposition of organic material within the landfill under anaerobic conditions. By volume, LFG is typically comprised of about 50 percent methane and 50 percent carbon dioxide and water vapor. In addition to these main components, LFG contains small amounts of nitrogen, oxygen, and hydrogen, less than 1 percent non-methane organic compounds (NMOCs), and trace amounts of inorganic compounds. The rate of methane generation is influenced by the amount of bioavailable carbon, the characteristics of the waste (e.g., composition and age), and the environmental conditions that support anaerobic bacterial activity. As waste is continuously deposited in the landfill, methane production gradually increases throughout the landfill's operational life, typically reaching its highest level within several years after the final year of waste disposal, often referred to as the landfill closure year. After closure and capping the landfill, the rate of methane generation typically declines due to reduced moisture infiltration.

According to the Title V Permit (N-119-1-12) for the North County Landfill, the flare for the LFG collection system must attain a methane destruction efficiency of at least 99 percent by weight. In other words, flare combustion must convert at least 99 percent of the methane in LFG to carbon dioxide (a less potent GHG) and other compounds.

REGULATORY SETTING

Clean Air Act

On April 2, 2007, the U.S. Supreme Court ruled that CO_2 is an air pollutant as defined under the Clean Air Act, and that the Environmental Protection Agency (EPA) has the authority to regulate emissions of GHGs (U.S. Supreme Court, 2007). The EPA made two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act, as follows:

- Endangerment Finding: The current and projected concentrations of the six key well-mixed GHGs (CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur Hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations. The EPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that endangers public health and welfare under Clean Air Act Section 202(a).
- Endangerment Finding: The current and projected concentrations of the six key well-mixed GHGs (CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur Hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations. The EPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that endangers public health and welfare under Clean Air Act Section 202(a).

In 2016, the EPA established two regulations — the New Source Performance Standards (NSPS) for new landfills and the Emission Guidelines (EG) for existing landfills — aimed at reducing methane emissions from landfill gas. The EG requires the installation of an LFG collection and control system at municipal solid waste (MSW) landfills that exceed a specified design capacity and NMOC emission threshold.

State Regulations

Assembly Bill (AB) 32, Senate Bill (SB) 32, AB 1279

The State has established the following GHG reduction goals:

- AB 32: Reduce GHG emissions to 1990 levels by 2020.
- SB 32: Reduce GHG emissions to 40 percent below 1990 levels by 2030.
- AB 1279: Achieve carbon neutrality as soon as possible, but no later than 2045 and maintain net negative GHG emissions thereafter; and reduce GHG emissions to 85 percent below 1990 levels by 2045.

Landfill Methane Regulation

The California Air Resources Board (CARB) adopted the Landfill Methane Regulation in 2010, which requires MSW landfills to reduce methane and other air pollutant emissions through emissions monitoring and capturing fugitive methane emissions. Municipal solid waste (MSW) landfills are regulated under local air district rules that implement the federal requirements of the New Source Performance Standards (NSPS) and EG, 40 Code of Federal Regulations Part 60 Subparts WWW and Cc, for MSW landfills. CARB and 22 air districts, including the San Joaquin Valley Air Pollution Control District (Valley Air District), entered into memoranda of understanding to enable the districts to implement and enforce the Landfill Methane Regulation.

The Short-Lived Climate Pollutant (SLCP) Reduction Strategy and SB 1383

Promulgated in 2016, SB 1383 set a statewide target to reduce organic waste disposed of in landfills of 50 percent by 2020 and 75 percent by 2025. In addition, SB 1383 requires recovering at least 20 percent of disposed edible food for human consumption by 2025. As organic waste is a primary substance that generates LFG, diverting organic waste from landfills can reduce LFG emissions.

The Short-Lived Climate Pollutant (SLCP) Reduction Strategy, adopted by CARB in 2017, is California’s plan for reducing emissions of high global-warming potential gases with short atmospheric lifetimes. SLCPs include methane, hydrofluorocarbons, and anthropogenic black carbon. In accordance with SB 1383, the SLCP Reduction Strategy has set the following targets for statewide reductions in SLCP emissions:

- 40 percent below 2013 levels by 2030 for methane and hydrofluorocarbons; and
- 50 percent below 2013 levels by 2030 for anthropogenic black carbon.

The SLCP Reduction Strategy also provides specific direction for reductions from dairy and livestock operations and from landfills by diverting organic materials.

California On-Road Vehicle Emission Regulations

The State of California has established statewide emission and fuel economy regulations for vehicles that align with or supersede the national standards. The key state regulations related to vehicles emissions are as follows:

- The Pavley Regulations (AB 1493), as amended in 2009, required a 30 percent reduction in state GHG emissions from new passenger vehicles from 2009 through 2016.
- The Advanced Clean Cars Program extends the Pavley Regulations beyond 2016 and established a technology mandate for zero-emission vehicles (ZEVs).
- The Advanced Clean Cars II Program requires all new passenger cars, trucks, and sport utility vehicles sold in California to be ZEVs by 2035.
- Executive Order N-79-20 established a goal that 100 percent of in-state sales of new passenger cars and light-duty trucks will be zero-emission by 2035, which is supported by the Advanced Clean Cars II Regulations.
- The Advanced Clean Trucks regulation requires between 40 and 75 percent of new medium- and heavy-duty vehicles sold in California to be ZEVs or near-zero-emissions vehicles by 2035.
- The Low-Carbon Fuel Standard (Executive Order S-1-07), as amended in 2019, requires a 20 percent reduction in the carbon intensity of California's transportation fuels by 2030.
- SB 375 establishes regional GHG emissions reduction targets from passenger vehicles for 2020 and 2035 by requiring metropolitan planning organizations to develop and implement Sustainable Communities Strategies that align regional transportation planning efforts with regional housing allocation needs.
- The Truck and Bus Regulation, as amended in 2014, requires heavy-duty diesel vehicles that operate in California to reduce toxic air containment (TAC) emissions from their exhaust. As of January 1, 2023, nearly all trucks and buses are required to have 2010 or newer model year engines, to reduce particulate matter and oxides of nitrogen emissions.
- The Tractor-Trailer GHG Regulation (13 CCR 1956), adopted by CARB in 2008, requires tractors and trailers to use aerodynamic technologies and low rolling resistance tires, to reduce fuel use and emissions.

California's Climate Change Scoping Plan

In December 2008, CARB adopted the Climate Change Scoping Plan to identify how the state can achieve its 2020 climate action goal under AB 32. In 2017, CARB updated the Scoping Plan to identify how the state can achieve its 2030 climate action goal under SB 32 and substantially advance toward its 2050 climate action goal under Executive Order S-3-05. The 2017 Scoping Plan includes the regulatory programs identified above, such as the Advanced Clean Cars

Program, Low-Carbon Fuel Standard, Renewable Portfolio Standard Program, energy efficiency standards, SLCP Reduction Strategy, and Cap-and-Trade Program (CARB 2017).

In December 2022, CARB adopted the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan), which outlines a roadmap to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045. Building on the 2017 Scoping Plan, the 2022 Scoping Plan evaluates the progress made toward meeting the 2030 GHG reduction target established in SB 32 and identifies a technologically feasible, cost-effective, and equity-focused path to achieve carbon neutrality by 2045. The 2022 Scoping Plan presents an approach for an aggressive reduction of fossil fuels and a rapid transition to renewable energy resources and zero-emission vehicles; it identifies key sectors such as transportation sustainability, clean electricity grid, sustainable manufacturing and buildings, carbon dioxide removal and capture, short-lived climate pollutants, and natural and working lands. The 2022 Scoping Plan identifies actions and outcomes such as rapidly moving to zero-emission transportation; electrifying cars, buses, trains, and trucks; phasing out the use of fossil gas used for heating homes and buildings; clamping down on chemicals and refrigerants; providing communities with sustainable options for walking, biking, and public transit; building out clean, renewable energy resources (such as solar arrays and wind turbine capacity) to displace fossil-fuel fired electrical generation; and scaling up new options such as renewable hydrogen and biomethane.

The 2022 Scoping Plan outlines several strategies to reduce methane emissions from landfills, with a focus on organic waste diversion, composting and anerobic digestion capacity expansion, and existing landfill operational practice improvement.

Regional Regulations

The project is located in the San Joaquin Valley Air Basin, which is under the jurisdiction of the Valley Air District. The Valley Air District has implemented these plans and adopted nearly 650 rules that have resulted in significant emissions reductions. Rule 4642 (Solid Waste Disposal Sites) limits volatile organic compound emissions from solid waste disposal sites.

Climate change is not caused by any individual emissions source but by a large number of sources around the world emitting GHGs that collectively create a significant cumulative impact. CEQA requires agencies in California to analyze such impacts by evaluating whether a proposed project would make a "cumulatively considerable" contribution to the significant cumulative impact on climate change.

In 2008, Valley Air District adopted the Climate Change Action Plan (CCAP). The CCAP directed the District Air Pollution Control Officer to develop guidance to assist Lead Agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project specific GHG emissions on global climate change. In 2009, the Valley Air District adopted the Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA and a policy entitled *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency* (Policy). In 2015, the Valley Air District adopted thresholds of significance to assist lead agencies in the evaluation and mitigation of air quality impacts under CEQA (CEQA Guidance). The Valley Air District has not established a numerical GHG emissions threshold in the absence of supporting scientific evidence. Instead, the Valley Air

District recommends assessing project-specific GHG emission impacts on global climate change based on the tiered approach specified in the Policy:

- Projects complying with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less than significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the Lead Agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review document adopted by the Lead Agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement Best Performance Standards (BPS).
- Projects implementing BPS would not require quantification of project specific GHG emissions. Consistent with the CEQA Guidelines, such projects would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.
- Projects not implementing BPS would require quantification of project specific GHG emissions and demonstration that project-specific GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period, consistent with GHG emission reduction targets established in CARB's 2008 Scoping Plan. Projects achieving at least a 29 percent GHG emission reduction compared to BAU would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.

The Valley Air District has not approved BPS for landfills but does require compliance with the CARB regulations related to the reduction of methane emissions from MSWs.

DISCUSSION OF IMPACTS

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-than-Significant Impact

The project would not change the North County Landfill's design capacity of 41.2 million cubic yards of disposal and would not involve construction of new facilities. The amount of waste-in-place when the landfill reaches its design capacity would remain the same. The project would increase the maximum amount of allowed daily refuse disposal and the number of daily incoming refuse trucks from 1,200 tons per day and 850 trucks per day to 4,000 tons and 1,200 trucks per day. This increase would involve a change in refuse truck routing; approximately 51 transfer trucks that currently go to the Foothill Landfill would be re-routed to the North County Landfill. The average trip distance for the re-routed trucks is expected to decrease due to the location of the North County Landfill. Although the number of truck trips to North County Landfill would increase, partially due to routing changes, the total vehicle miles travelled by refuse trucks would decrease by approximately 5.7 percent from 1,678,144 miles to 1,582,797 miles in 2026. The increase in daily refuse disposal would increase the use of off-road equipment associated with landfill operations. However, this would be offset due to the reduction of off-road equipment at Foothill Landfill.

Implementation of the project would result in net increases in off-road equipment usage on the project site, and project-generated vehicle trips along the haul route. Although the project would not change the North County Landfill design capacity, the rate of additional cell and module construction on the project site would increase to accommodate the amount of waste accepted with the proposed increase in maximum allowed daily refuse disposal. Compared to the current operation conditions, the project could increase the rate of LFG generated and collected but is not expected to substantially change the total amount of LFG generated over the lifetime of the landfill since the total waste-in-place would remain the same once landfill capacity is reached.

The long-term LFG emissions of methane for the North County Landfill were estimated using the EPA Landfill Gas Emission Model (LandGEM) version 3.1 and AP-42 default inputs. Information about historical waste acceptance rates (1991 to 2023), closure year (project condition), and predicted annual increases in waste intake were provided by the applicant. For the baseline condition, it was assumed that 250,000 tons of waste was accepted in 2024, and a three percent increase in waste disposal rate per year thereafter. Under this scenario, the North County Landfill would reach the 20.6 million tons design capacity by 2059. For the project condition, it was assumed that the waste disposal rate would increase from 250,000 tons in 2024 to 660,000 tons in 2026, then a three percent increase in waste disposal rate per year thereafter. Under this scenario, the North County Landfill would reach the 20.6 million tons design capacity by 2043.

As described above, LFG-derived CO_2 emissions (including CO_2 from combustion of methane at the flare) are considered biogenic, part of the natural carbon cycle and are not considered an anthropogenic contributor to climate change; therefore, the biogenic CO_2 emissions from LFG are not included in the evaluation of the project's potential impacts on climate change from GHG emissions.

Methane content in the LFG was assumed to be 50 percent. Although the North County Landfill has a landfill gas collection system, those systems are not 100 percent efficient in collecting LFG and hence fugitive emissions of methane would still occur. With the absence of site-specific data, LFG collection system collection efficiencies, which are subject to landfill cover type, were obtained from 40 CFR Part 98 subpart HH. The North County Landfill is only partially built and as such all cover on the site is either daily or intermediate cover. Construction of final covers is planned to be done in conjunction with the excavation and construction of future modules.

According to the North County Landfill Joint Technical Document revised in 2024, a final cover for a portion of the landfill is proposed by 2029. Therefore, it was assumed that most of the landfill areas are covered by intermediate cover between 2024 and 2029 (collection efficiency 65 percent), then 50 percent of the landfill areas will be covered by a final cover between 2030 and the closure year (weighted average collection efficiency 75 percent). After the closure year, it was assumed that all landfill areas will be covered by a final cover (collection efficiency 85 percent). In addition, it was assumed that 10 percent of the fugitive methane emissions are oxidized to CO_2 as the gas passes through the landfill soil cover. The collected LFG would be combusted in a temperature-controlled flare. During combustion, gaseous hydrocarbons react with atmospheric oxygen to form CO_2 and water. The destruction efficiency is defined as the percentage of a specific pollutant in the flare vent gas that is converted to a different compound (such as CO_2). Methane destruction efficiency for the flare was assumed to be 99 percent based on the Title V Permit.

The project's estimated net increase in average annual GHG emissions from operation would total approximately 2,537 metric tons CO_2e in 2026. GHG emissions from off-road equipment and landfill methane emissions would increase with the implementation of the project due to the increase in waste intake and associated landfill operations. However, GHG emissions from on-road mobile sources would decrease by 230 metric tons CO_2e per year, mainly attributable to the shorter truck trip distance of the re-routed trucks. It is to be noted that GHG emissions from off-road and on-road mobile sources in later years would be lower due to the increasingly stringent emissions standards and fleet turnover (including off-road equipment, trucks, and on-road passenger vehicles).

Methane emissions from LFG for 2026 were estimated to represent the project year (2026) impact. As waste is continuously deposited in the landfill, methane production will gradually increase throughout the landfill's operational life. After landfill closure, methane generation typically declines due to reduced moisture infiltration. The overall methane generation rates for the baseline and project conditions were estimated using LandGEM. After the closure year, methane emissions under both conditions decline, and the project condition shows a lower long-term emission rate compared to the baseline condition.

To represent the overall impact of the project, total LFG-derived methane emissions over 50 years past the project year (2026 to 2076) were estimated for the baseline condition and the project condition and then averaged to obtained representative average annual GHG emissions rates. Over 50 years, the LFG generated under baseline and project conditions would result in total CO_2e emissions of 2,831,406 metric tons (56,628 metric tons per year). On average, the project would increase annual CO_2e emissions by 1,295 metric tons per year.

The Valley Air District has not established a numerical GHG emissions threshold and recommends evaluating project-level GHG emissions impacts based on compliance with an approved GHG emission reduction plan or GHG mitigation program or implementation of BPS. The North County Landfill is required to comply with the CARB Landfill Methane Regulation, which requires MSW landfills to reduce methane and other air pollutant emissions through emissions monitoring and capturing of methane emissions. Since the project will comply with a statewide plan for GHG reductions, the project would have a ***less-than-significant impact*** related to GHG emissions.

b) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

No Impact

The 2022 Scoping Plan outlines a roadmap for the state to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045. The 2022 Scoping Plan identifies actions and outcomes such as rapidly moving to zero-emission transportation; electrifying cars, buses, trains, and trucks; phasing out the use of fossil gas used for heating homes and buildings; reducing down on chemicals and refrigerants; providing communities with sustainable options for walking, biking, and public transit; building out clean, renewable energy resources to displace fossil-fuel fired electrical generation; and scaling up new options such as renewable hydrogen and biomethane. In addition, the 2022 Scoping Plan outlines several strategies to reduce methane emissions from landfills, with a focus on organic waste diversion, composting and anerobic digestion capacity expansion, and existing landfill operational improvements.

As discussed above, the project would result in a net decrease in daily haul truck VMT. For medium and heavy-duty trucks, California has the following regulations, strategies, and plans to reduce GHG emissions: Advanced Clean Truck Regulation, Tractor-Trailer Greenhouse Gas

Regulation, and Truck and Bus Regulation. The trucks visiting the project site would be subject to these regulations, strategies, and plans; therefore, the project would comply with the state GHG emissions reduction strategies for trucks. In addition, if the project is not implemented, it is reasonable to assume that the growing demand for waste disposal in the region may need to be addressed by landfills that are located further away (as demonstrated by the current condition), which would result in higher GHG emissions from haul truck travel. Therefore, the project is in alignment with the 2022 Scoping Plan.

As mentioned above, the North County Landfill is required to comply with the CARB Landfill Methane Regulation. The North County Landfill has implemented an LFG collection system, including a flare, vertical wells, and connecting piping. As landfill operations continue, additional LFG collectors, primarily horizontal collection trenches, will be installed and integrated into the existing system. Furthermore, the majority of incoming waste is either source-separated municipal waste or sorted on-site at the recycling center, ensuring that most green waste is removed from the waste stream. Thus, the project would not conflict with the 2022 Scoping Plan and the Landfill Methane Regulation. There would be ***no impact*** related to conflict with policies or plans adopted for the reduction of GHG emissions.

4.2.9 Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less-than-Significant Impact 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 compiled 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 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?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The project site is classified as a Class III Waste Management Unit and designated for "non-hazardous solid waste." The landfill accepts agricultural, residential, commercial, industrial, construction and demolition debris, yard waste, tires, and wood waste. Recyclable material is also accepted. The County maintains a load check program at the facility's entrance to ensure all materials brought to the landfill comply with State and local regulations. Furthermore, the County has a separate landfill that accepts hazardous waste which operates independently from North County Landfill.

REGULATORY SETTING

California Code of Regulations Title 27 § 20260

Class III landfills shall be located where site characteristics provide adequate separation between nonhazardous solid waste and waters of the state. Class III landfills are subject to State waste containment requirements and SWRCB requirements. New Class III and existing Class II-2 landfills shall be sited where soil characteristics, distance from waste to ground water, and other factors will ensure no impairment of beneficial uses of surface water or of ground water beneath or adjacent to the landfill.

California Code of Regulations Title 27 § 20220

Non-hazardous solid waste are defined as "all putrescible and non-putrescible solid, semi-solid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts, discarded home and industrial appliances, manure, vegetable or animal solid and semi-solid wastes and other discarded waste (whether of solid or semi-solid consistency); provided that such wastes do not contain wastes which must be managed as hazardous wastes, or wastes which contain soluble pollutants in concentrations which exceed applicable water quality objectives, or could cause degradation of waters of the state (i.e., designated waste)."

Nonhazardous solid waste may be discharged at any classified landfill which is authorized to accept such waste, provided that (1) the co-disposal of nonhazardous solid waste with other waste shall not create conditions which could impair the facility's containment features and shall not render designated waste hazardous, and (2) the facility shall ensure to the maximum extent feasible, that only those wastes that are approved for being discharged at that facility.

San Joaquin County General Plan – Hazardous Materials and Wastes

Policy PHS-7.3 Control Hazardous Materials: The County shall require the use, storage, and disposal of hazardous materials and wastes to comply with local, State, and Federal safety standards.

Policy PHS-7.5 Locate Hazardous Materials Away from Populated Areas: To the extent feasible, the County shall require proposed activities and land uses that use, store, or dispose of hazardous materials or wastes to be located away from existing and planned populated areas.

Policy PHS-7.7 County Hazardous Materials Area Plan: The County shall maintain and implement the County Hazardous Materials Area Plan for emergency response to a release or threatened release of hazardous material within the unincorporated County.

DISCUSSION OF IMPACTS

a) ***Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?***

Less-than-Significant Impact

The SWFP modifications proposed do not include the acceptance or use of hazardous waste. Furthermore, the project does not include any site modifications, thus there would be no construction activities that may necessitate the transport of hazardous waste originating from the project site. As a Class III waste management unit, North County Landfill is not permitted to accept hazardous waste. However, due to the acceptance of commercial waste, it is possible residents may occasionally transport hazardous waste to the landfill, though it would not be accepted. Thus, the transport of hazardous waste would not be a routine part of project operations. The impact would be ***less than significant***.

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?***

No Impact

As a Class III facility, the project site is not permitted to accept hazardous waste. The project's SWFP modification would not change the project site's designation as a Class III facility. Additionally, the North County Landfill checks waste entering the landfill for disposal to ensure it complies with State and local regulations. Therefore, with adherence to CCR Title 27 § 20220, there would be no reasonably foreseeable scenario in which the expansion of landfill operations would create a significant hazard to the public. There would be ***no impact***.

c) ***Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?***

No Impact

No schools are located within one-quarter mile of the project sites. Therefore, there would be ***no impact*** related to schools related to hazardous waste or materials.

d) ***Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?***

No Impact

A search of the GeoTracker and EnviroStor databases compiled by the State Water Resources Control Board (SWRCB) and Department of Toxic Substances Control (DTSC) indicated that the project site is not included on a list of hazardous materials sites compiled to Government Code Section 65962.5 (DTSC 2024, SWRCB 2024). Therefore, ***no impact*** would occur.

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

No Impact

The nearest airport to the project site is in Lodi, and approximately 11 miles away, and the North County Landfill is not located within the airport land use plan. The project is limited to operational landfill activities and would not result in a safety hazard for people residing or working in the project area. Therefore, ***no impact*** would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact

The project is limited to the modification of landfill operational activities. Project operation would be similar to existing conditions and would not physically interfere with any designated evacuation route or public right-of-way. Therefore, the project would not interfere with any emergency response plan or emergency evacuation plan. There would be ***no impact***.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact

The project is operational only and project activities are limited to an existing landfill. Project operation would be similar to existing conditions and would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. physically interfere with any designated evacuation route or public right-of-way. Therefore, there would be ***no impact***.

4.2.10 Hydrology and Water Quality

Would the project:		Potentially Significant Impact	Less-than-Significant Impact 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 that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
	iv) impede or redirect flood flows?	☐	☐	☒	☐
d)	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

As discussed above in *Biological Resources,* no wetlands are located in the project area, although there is a sedimentation basin on the eastern boundary of the project area, which receives stormwater runoff from the project site. There is also a mitigation area north of the landfill connecting to South Paddy Creek, which ultimately flows to Bear Creek then both the San Joaquin River and the California Delta.

REGULATORY SETTING

Stormwater Pollution Prevention Plan

The San Joaquin County facility operates under the Standard Industrial Classification (SIC) code 4953 for "landfills, land application sites, and open dumps". Landfills are listed under Category #5 of Attachment A of the General Permit requiring permit coverage. Furthermore, operators of landfills are required to comply with Part 445 of 40 CFR Chapter I, Subchapter N, which specifies effluent limitation guidelines (ELGs) for specific categories of industrial storm water discharges. County staff is responsible for the monitoring and reporting requirements contained within the facility's Stormwater Pollution Prevention Plan (SWPP), as required by Section X of the NPDES, General Industrial Storm Water Permit issued by the State of California SWRCB Water Quality Order 2014-0057-DWQ amended by Order 2015-0122-DWQ and Order 2018-0028-DWQ (General Permit). One of the core components of the SWPP is the identification and evaluation of pollutants that may affect the quality of storm water discharges and authorized non-storm water discharges from the facility. Furthermore, staff must also identify and describe best management practices (BMPs) to reduce or prevent pollutants in industrial storm water discharges.

California Code of Regulations Title 27 § 20260

Class III landfills shall be located where site characteristics provide adequate separation between nonhazardous solid waste and waters of the state. Class III landfills are subject to State waste containment requirements and SWRCB requirements. New Class III and existing Class II-2 landfills shall be sited where soil characteristics, distance from waste to ground water, and other factors will ensure no impairment of beneficial uses of surface water or of ground water beneath or adjacent to the landfill.

California Code of Regulations Title 27 § 20220

Non-hazardous solid waste are defined as "all putrescible and non-putrescible solid, semi-solid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts, discarded home and industrial appliances, manure, vegetable or animal solid and semi-solid wastes and other discarded waste (whether of solid or semi-solid consistency); provided that such wastes do not contain wastes which must be managed as hazardous wastes, or wastes which contain soluble pollutants in concentrations which exceed applicable water quality objectives, or could cause degradation of waters of the state (i.e., designated waste)."

Nonhazardous solid waste may be discharged at any classified landfill which is authorized to accept such waste, provided that (1) the co-disposal of nonhazardous solid waste with other waste shall not create conditions which could impair the facility's containment features and shall not render designated waste hazardous, and (2) the facility shall ensure to the maximum extent feasible, that only those wastes that are approved for being discharged at that facility.

Eastern San Joaquin Groundwater Basin Groundwater Management Plan

The purpose of the Groundwater Management Plan is to review, enhance, assess, and coordinate existing groundwater management policies and programs in Eastern San Joaquin County and to develop new policies and programs to ensure the long-term sustainability of groundwater resources in Eastern San Joaquin County (Eastern San Joaquin Groundwater Management Plan 2014).

DISCUSSION OF IMPACTS

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

No Impact

The project is limited to landfill operations and will remain subject to the SWPP discussed above, CCR 27 Section 20260, and CCR 27 Section 20220. Class III landfills, such as the North County Landfill, are not allowed to accept hazardous waste materials. Furthermore, per CCR 27 Section 20260, "new Class III and existing Class II-2 landfills shall be sited where soil characteristics, distance from waste to ground water, and other factors will ensure no impairment of beneficial uses of surface water or of ground water beneath or adjacent to the landfill." The landfill will remain subject to the SWPPP and the BMPs contained during project operation. Due to continued compliance with the current SWPPPP and state regulations, there would be ***no impact*** related to 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?

Less-than-Significant Impact

Project activities are limited to operational modifications and will not require any construction activity; thus, no new impervious surfaces will be introduced to the project site. Operation of the project would require use of water for irrigation and landfill activities utilizing existing water lines within the project area, however this would not be a substantial increase over what is currently being used. Therefore, the project would result in a ***less-than-significant impact*** on groundwater supplies.

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 that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows?

Less-than-Significant Impact

The project would not involve any construction work or site modifications and therefore would not cause substantial erosion or siltation. In addition, as described in Impact a), the project has an existing SWPPP to prevent excessive runoff and erosion and siltation during project operation. Project operation would not result in a substantial increase in impervious surface area which would cause an increase in surface runoff. The impact would be ***less than significant***.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact

The project site is not located within a flood hazard zone (FEMA 2024). Furthermore, the project area is an existing landfill, and pollutant generation as a result of project operations compared to current conditions would be minimal. Therefore, the project would not substantially increase the risk of pollutant release in event of a flood.

The project area is not within a tsunami hazard zone and would not be subject to inundation by tsunami (Department of Conservation 2024). In addition, the project area is not located near a large inland body of water that could generate a seiche during seismic ground shaking.

Within the project site and immediately surrounding areas, the existing hydrology would not be altered thus runoff will not increase. Therefore, the project would result in ***no impact*** related to flood hazard, tsunami, or seiche zones.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact

The project is limited to the modification of landfill operations, no new construction is proposed. Additionally, as discussed in response (a), the landfill is subject to the operating parameters within the landfill's SWPPP and is also subject to State regulations related to landfills and water quality. Therefore, ***no impact*** related to the implementation of any water quality control plans or sustainable groundwater management plans would occur.

4.2.11 Land Use and Planning

Would the project:	Potentially Significant Impact	Less-than-Significant Impact 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?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The project site is located in unincorporated San Joaquin County, east of Lodi, in a primarily agricultural area; active agricultural operations and scattered residences are also within the general vicinity of the project site (Figure 1).

DISCUSSION OF IMPACTS

a) Physically divide an established community?

No Impact

The project would increase the amount of waste accepted on a daily basis, expand operating hours, and provide for additional employees at an existing landfill. Project operations would be relatively similar to existing conditions. Therefore, the project would not physically divide an established community. ***No impact*** would occur.

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?

No Impact

The project would not conflict with any land use plan, policy, or regulation adopted for the purpose of mitigating an environmental effect. The project would not conflict with any zoning acceptable uses or require a zoning or general plan amendment. ***No impact*** would occur.

4.2.12 Mineral Resources

Would the project:		Potentially Significant Impact	Less-than-Significant Impact 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?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Mineral resources within San Joaquin County consist primarily of sand and gravel aggregate, with limited mining of peat, gold, and silver. In the past, placer gold deposits have been found in many San Joaquin County rivers and creeks (General Plan 2016). Most peat soil removal occurred during the 1970s and 1980s. Mining operations existing within the County are primarily related to sand and gravel aggregate operations (General Plan 2016).

DISCUSSION OF IMPACTS

a, b) 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? 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?

No Impact

There are no known mineral resources or mines located in the project vicinity (CDC 2016a, CDC 2016b). The project is limited to the minor expansion of landfill operations and no site modifications are planned. The project would not result in a substantial loss of availability of a known mineral resource that would be of value to the region and residents of the State, thus there would be ***no impact*** from project activities.

4.2.13 Noise

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

A Noise and Vibration Technical Study was conducted for the project by Baseline Environmental Consulting. The results of the study were documented in a Noise and Vibration Technical Study prepared in February 2025 (Appendix B). The information in this section is based on and adapted from the findings of the Noise and Vibration Technical Study.

ENVIRONMENTAL SETTING

The project site is located in a rural area and the primary source of noise in the immediate vicinity is vehicle traffic on East Harney Lane. Surrounding land uses are primarily agricultural; however, there are scattered single-family residences within 2,000 feet of the project site. However, while no construction activities are proposed, to accommodate an increase in waste acceptance and additional equipment on the project site, there will be an increase in vehicular traffic along the main project haul routes will generate noise and vibration compared to existing conditions.

REGULATORY SETTING

Federal Transit Administration

The Federal Transit Administration (FTA) has developed vibration thresholds to prevent disturbances to building occupants based on the frequency of a vibration event. The FTA thresholds of 80 vibration decibels (VdB) and 83 VdB for infrequent events were used in the Noise Study to evaluate disturbance to residences and buildings where people normally sleep and to institutional land uses with primarily daytime use (such as schools and library). Furthermore, the FTA has developed vibration thresholds based on PPV values to evaluate the potential impact of construction vibration on structures. The FTA threshold of 0.2 in/sec peak particle velocity (PPV) for non-engineered timber and masonry buildings is used to represent the building types near the project site and along the haul route.

San Joaquin Noise Ordinance

Chapter 9-404.040 establishes standards for noise from transportation sources and stationary sources. For transportation sources, the maximum allowable noise exposure in outdoor areas is 65 dBA. The maximum allowable noise exposure from stationary sources in outdoor activity areas of noise sensitive land uses is 75 dBA during the daytime (7 a.m. to 10 p.m.) and 65 dBA during the nighttime (10 p.m. to 7 a.m.).

San Joquin County General Plan

The Noise Element in the County's 2035 General Plan states that the County shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby vibration-sensitive uses based on FTA criteria.

DISCUSSION OF IMPACTS

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?

Less-than-Significant Impact

The project does not propose any new construction, thus the primary source of noise during project operation would be generated by the increase of equipment on the project site and project-generated vehicle trips. According to the Transportation Impact Analysis prepared for the project, the project will generate an average of 461 new trips per day, including 359 visitor and worker commute trips and 102 haul truck trips.

Traffic noise levels along the haul route would increase with the additional vehicle trips contributed by project operations. The project would generate a total of 9 truck trips and 31 visitor/worker commute trips during the AM peak hours and 8 visitor/worker commute trips during the PM peak hours. The project-generated traffic noise levels were calculated during the AM peak hour to represent the highest traffic noise increase during project operation.

Based on the estimates contained within the Noise Analysis prepared for the project, project related traffic noise would increase by up to 2.0 dBA along the haul route, which is below the County's threshold. Where the project noise levels exceed the County's noise standard, existing and cumulative noise levels have already exceeded the 65-dBA Ldn threshold. Therefore, impacts related to traffic noise increase along the haul route compared to current conditions would be ***less than significant***.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Less-than-Significant Impact

The off-road equipment currently used at North County Landfill will continue to be used with the implementation of the project. Landfill operation would not involve equipment or activities that would generate excessive groundborne vibration or groundborne noise levels. While the project would increase the hours of operation and increase the amount of off-road equipment used on site, both the type of equipment used and the manner of operation will remain the same.

According to the Noise Analysis, typical vibration levels generated by a large bulldozer and loaded trucks at 25 feet would be 0.089 inch per second (87 VdB) and 0.076 inch per second (86 VdB). For potential building damage, vibration levels generated by a large bulldozer and loaded trucks at 25 feet are both below the applicable criteria of 0.2 inch per second recommended by the FTA to prevent damage to structures to non-engineered timber and masonry buildings. Therefore, as the nearest vibration sensitive receptor to the project site is located approximately 2,750 feet from the equipment activity area, and the nearest vibration-sensitive receptor along haul routes is located about 65 feet from the centerline of the road, project operation activities related to vibration levels would be ***less than significant***.

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

No Impact

The nearest airport is Wallom Field Airport, approximately six miles southwest of the project site. Therefore, the project would have ***no impact*** related to the exposure of people to excess noise levels from aircraft.

4.2.14 Population and Housing

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

DISCUSSION OF IMPACTS

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact

The proposed project is limited to the landfill's operational activities and would not induce substantial unplanned population growth either directly or indirectly. The project would not create new homes or expand the capacity of other infrastructure to accommodate increased population. ***No impact*** would occur.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact

The proposed project would not displace any people or existing housing and therefore would not necessitate the construction of replacement housing elsewhere. ***No impact*** would occur.

4.2.15 Public Services

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

ENVIRONMENTAL SETTING

Fire Protection

The project area is located within the Clements Rural Fire Protection District. Clements Fire District provides fire protection, suppression, prevention, inspection, water rescue, and emergency medical services (San Joaquin LAFCO 2024). The service area covers approximately 115 square miles in unincorporated San Joaquin County.

Police Protection

The project area is serviced by the San Joaquin County Sheriff's Office which has an office in French Camp, CA and operates the San Joaquin County Jail in French Camp. The California Highway Patrol also has an office in San Joaquin County, located in Stockton, CA, and provides traffic enforcement and emergency management on state and major roadways.

Schools

There are two schools within five miles of the project site. Harmony Grove Elementary is approximately five miles west and Tokay Colony Elementary is approximately three miles southwest of the project site.

Parks

The parks closest to the landfill are Orchard Lane Park and Salas Park, both of which are approximately nine miles away from the project area.

Other Public Facilities

The project site is a County-operated landfill and recycling center in an unincorporated area of San Joaquin County. The County also operates Lovelace Materials Recycling Facility and Transfer Station, the Foothill Sanitary Landfill, and a Household Hazardous Waste Facility.

DISCUSSION OF IMPACTS

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

- Fire Protection?
- Police Protection?
- Schools?
- Parks?
- Other Public Facilities?

Less-than-Significant Impact

The proposed project would not provide any new governmental facilities. The project would not induce population growth or increase the use of any existing public facilities such that new facilities would be required. Therefore, the project would not result in substantial adverse impacts associated with the provision or physical alteration of governmental facilities, including fire and police protection services, schools, parks, or other public facilities. On the other hand, the project would re-route trucks from the other County operated sanitary landfill to the existing North County Landfill, which may minimally increase truck traffic on specific haul routes, increase the number of employees by up to six, and modify operating hours. However, impacts related to these factors would not be significant (see Section 4.2.17, Transportation). Furthermore, the project is limited to operational changes related to waste pick-up and disposal at a single landfill and no site expansion or additional waste facilities are proposed. Therefore, the impact would be ***less than significant***.

4.2.16 Recreation

Would the project:	*Potentially Significant Impact*	*Less-than-Significant Impact 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?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

Eight regional parks, one recreational facility, and Micke Grove Zoo are located in San Joaquin County. There are two parks within ten miles of the project site, in addition to other recreational facilities located throughout San Joaquin County. However, none are within the immediate vicinity of the project site.

DISCUSSION OF IMPACTS

a, b) 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? Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact

The proposed project would not restrict the use of any regional parks or other recreational facilities. The project would not induce population growth by creating new homes or expanding the capacity of other infrastructure and thus would not require the construction or expansion of recreational facilities. ***No impact*** would occur.

4.2.17 Transportation

	Would the project:	Potentially Significant Impact	Less-than-Significant Impact 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?	☐	☐	☒	☐

A Transportation Impact Study for the project was completed by W-Trans in January 2025 (Appendix C). The results of the study were documented in a Transportation Analysis Technical Study Memorandum prepared in January 2025 (Appendix A). The information in this section is based on and adapted from the findings of the Transportation Technical Study.

ENVIRONMENTAL SETTING

As part of the project, the North County Landfill would expand its daily intake by 51 haul trucks per day, which would result in a new total of 109 haul trucks per day to the North County Landfill. The project would increase the permitted usage of the North County Landfill from 1,200 tons and 850 vehicles per day to 4,000 tons and 1,200 vehicles per day. Currently, the landfill serves approximately 450 vehicles daily. Up to six new full-time employee positions would be added to accommodate the increase in truck trips and waste acceptance, in addition to the 35 full-time and 13 part-time employee positions that are currently employed at the landfill.

The study area (Figure 3) consists of the project site frontage and access, and the following intersections and roadway segments:

Study Intersections

- East Harney Lane/State Route 88
- East Harney Lane/Jack Tone Access Road
- East Harney Lane Site Access

Road Study Segments

- East Harney Lane between State Route 99 and State Route 88
- East Harney Lane between Jack Tone Road and Site Access Road
- State Route 88 between East Harney Lane and Eight Mile Road

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 a.m. and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 p.m. and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute. Peak hour counts were obtained for the study intersections, and 24-hour counts were obtained for the study segments and site access road on Tuesday, November 19, 2024.

The anticipated trip generation for the proposed project was estimated based on existing vehicle counts into and out of the project site, as well as the projected increase in permitted visitors (i.e., landfill customers including private citizens and contractors), full-time employees and haul trucks. The permitted number of visitors would increase from 850 to 1,200, an increase of 41 percent. For employees, the current 35 full-time employees would increase to 41, or 17 percent. For haul trucks, the count would increase from 58 movements per day to 109, or an 88 percent increase. Because the site is currently occupied by the existing North County Landfill, trip generation of the existing landfill was considered.

During the 24-hour data collection period, there were 872 visitor vehicle entries and exits from the site, including 76 during the a.m. peak hour and 20 during the p.m. peak hour. As site traffic activity is predominantly associated with visitors, increasing the overall site traffic by 41 percent (the permitted increase in visitors) would net an additional 361 daily trips, including 31 trips during the a.m. peak hour and 8 trips during the p.m. peak hour. For employees, given that the proposed increase of 17 percent is lower than the visitor increase of 41 percent and the existing site traffic includes employees as well, a conservative approach was taken to consider the 41 percent increase in site activity as including employees.

Haul trucks were considered separately even though some haul truck trips would be captured in the 41 percent site activity increase. There would be 51 added haul trucks per day, for 102 new daily trips (one trip in and one trip out per haul truck). The ratio of a.m. peak hour trips to daily trips is 9 percent, which would translate to nine new haul truck trips during the a.m. peak hour with five trips in and four trips out assuming an approximately even split between inbound and outbound. During the p.m. peak hour, there were 20 outbound movements and zero inbound. Given this is only 2 percent of the daily total volume with no inbound traffic, zero added haul trucks were assumed during the p.m. peak hour.

The project is expected to generate an average of 461 new trips per day (359 visitor and employee trips and 102 haul truck trips), including 40 trips during the a.m. peak hour (31 visitor and employee trips and nine haul truck trips) and eight visitor and employee trips during the p.m. peak hour (no haul truck trips).

REGULATORY SETTING

San Joaquin County General Plan

The County's General Plan (December 2016) states that the County's standard is Level of Service (LOS) C in general, or LOS D for minor arterials or roadways designated in the *Congestion Management Plan* (CMP), San Joaquin Council of Governments (SJCOG), as well as for Caltrans facilities such as SR-88. East Harney Lane, Jack Tone Road and Clements Road are classified as major collectors per the *General Plan* Figure TM-1. SR-88 is classified as a major arterial and both SR-88 and Jack Tone Road are designated CMP roadways. Therefore, the standard of LOS D was applied to East Harney Lane/SR-88 and East Harney Lane/Jack Tone Road, while a standard of LOS C was applied to the remaining study intersections. Additionally, LOS D is considered acceptable for the study segment of SR-88 between East Harney Lane and Eight Mile Road, while LOS C is considered acceptable for the two East Harney Lane study segments.

DISCUSSION OF IMPACTS

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

No Impact

There are no pedestrian, bicycle, or transit facilities within the study area, and no pedestrian or bicycle movements were recorded during the Transportation Impact Analysis peak period traffic volume collection. East Harney Lane in the vicinity of the project site is not planned for future bicycle facilities per the *San Joaquin County Bicycle Master Plan Update*, 2010, or the *Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan*, San Joaquin Council of Governments, 2012. The nearest transit route is Grape Line Route 5 in the City of Lodi, over nine miles away. Furthermore, the project does not include modifications to the site or frontage; it would only increase the permitted traffic at the site and thus have ***no impact*** on adopted policies regarding pedestrian bicycle, or transit facilities.

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less-than-Significant Impact

Data provided by the County of San Joaquin Department of Public Works indicates that the current split in operations between the Foothill Landfill and North County Landfill results in an average vehicle miles traveled (VMT) of 5,690 vehicle-miles per weekday for the haul trucks. The consolidation of haul routes to the more centrally located North County Landfill would result in a decrease in VMT of 297 vehicle miles per day, for a daily average of 5,393 vehicle miles. Furthermore, the North County Landfill is more centrally located to its customers than the Foothill Landfill, and the consolidation of activity among the two landfills to just the North County location would reduce VMT. Therefore, the project would have a ***less-than-significant*** impact on VMT.

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

Less-than-Significant Impact

The potential for the project to impact safety was evaluated in terms of the adequacy of sight distance as well as the adequacy of stacking space at the study intersections to accommodate additional queuing due to adding project-generated trips.

Speed data was collected on East Harney Lane in the vicinity of the North County Landfill during traffic counts during November 2024, and the 85th percentile speed was measured as 66 mph, which was rounded up to 70 mph for the purpose of this analysis. During a field visit conducted in January 2025, sight lines were established to be in excess of 1,000 feet in all directions. Furthermore, according to the Transportation Analysis, with or without project traffic under either existing or future volumes, the queues on each intersection approach would be within 200 feet, well within the distance to the next upstream intersection. Likewise, the maximum queue distances for the two left-turn pockets at East Harney Lane/SR-88 would be shorter than the available storage for each lane under all scenarios assessed. Therefore, the addition of traffic associated with the project would result in a ***less-than-significant*** impact on safety in the form of queuing and sight distance.

d) Result in inadequate emergency access?

Less-than-Significant Impact

As shown by the operational analysis, the addition of project traffic to the study area would increase intersection delays by less than one second per scenario and study intersection, with most increases below one-half second. Furthermore, since all roadway users must yield the right-of-way to emergency vehicles when using their sirens and lights, the added project-generated traffic is expected to have a less-than-significant impact on emergency response. Thus, project impacts would result in a ***less-than-significant*** impact on emergency access.

4.2.18 Tribal Cultural Resources

Would the project:		Potentially Significant Impact	Less-than-Significant Impact with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a)	Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i)	*Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?*	☐	☒	☐	☐
ii)	*A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.*	☐	☒	☐	☐

ENVIRONMENTAL SETTING

The area of potential effect (APE) of the project would be limited to the North County Landfill, a waste disposal facility which has been previously disturbed, and no construction activities are proposed. However, it remains possible that future ground disturbing activities on the project site may uncover tribal cultural resources. On January 9, 2025, the County consulted Native American tribes who may have knowledge of cultural resources in the project area. Notification letters were issued to the Amah Mutsun Tribal Band, Buena Vista Rancheria of Me-Wuk Indians, Calaveras Baned of Mi-Wuk Indians, Chicken Ranch Rancheria of Me-Wuk Indians, Confederated Villages of Lisjan Nation, Ione Band of Miwok Indians, Jackson Rancheria Band of Miwuk Indians, Muwekma Ohlone Tribe of the SF Bay Area, Nashville Enterprise Miwok-Maidu-Nishinam Tribe, Northern Balley Yokut/Ohlone Tribe, Pakan'yani Maidu of Strawberry Balley Rancheria, Tule River Indian Tribe, United Auburn Indian Community of the Auburn Rancheria, and Wilson Rancheria. None of these tribal organizations requested formal consultation with the County regarding the project.

REGULATORY SETTING

Tribal Cultural Resources Assembly Bill 52 (AB 52)

AB 52 (Chapter 532, Statutes 2014) required an update of the CEQA Guidelines to include questions related to impacts to tribal cultural resources. AB 52 establishes a consultation process with all California Native American Tribes on the Native American Heritage Commission List, Federal and Non-Federal Recognized Tribes. AB 52 also establishes a new class of resources: Tribal Cultural Resources. Key components of AB 52 include consideration of Tribal Cultural Values in determination of project impacts and mitigation and required Tribal notice and meaningful consultation.

PRC Section 21080.3.2(b) states that consultation ends when either 1) parties agree to mitigation measures or avoid a significant effect on a tribal cultural resource, or 2) a party, acting in good faith and after reasonable effort concludes that mutual agreement cannot be reached.

State of California Public Resources Code

Section 21074 of the PRC defines historical resources related to tribal cultural resources.

a) "Tribal cultural resources" are either of the following:

    1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

        A. Included or determined to be eligible for inclusion in the California Register of Historical Resources.

        B. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

    2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

Section 5020.1(k) defines "Local register of historical resources" as a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution.

Section 5024.1 is the establishment of the California Register of Historical Resources (California Register).

DISCUSSION OF IMPACTS

a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of size and scope of the landscape,

sacred place, or object with cultural value to a California Native American tribe, and that is:

i) ***Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?***

ii) ***A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.***

Less-than-Significant Impact with Mitigation Incorporated

The potential exists for unknown tribal cultural resources to be discovered during earth-disturbing landfill activities, such as excavation, that could occur in the course of future operational activities. Thus, the project would have a ***potentially significant impact***.

MITIGATION MEASURES

Implementation of Mitigation Measure CUL-1 (see Section 4.2.5, Cultural Resources) would ensure that any accidentally discovered tribal cultural resources would be treated with proper care during future ground-disturbing activity at the project site. With implementation of Mitigation Measure CUL-1, the project's potential impact would be reduced to a ***less-than-significant*** level.

4.2.19 Utilities and Service Systems

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

ENVIRONMENTAL SETTING

Pacific Gas and Electric (PG&E) provides natural gas and electricity to the project site. Spectrum is the largest telecommunications provider in the County, amongst other regional providers. The County's Department of Public Works is responsible for wastewater collection and treatment, in addition to solid waste disposal. The County owns and operates the Lovelace Materials Recovery Facility and Transfer Station and North County Recycling Center and Sanitary Landfill, while the Foothill Sanitary Landfill and Hazardous Household Waste Facility is publicly owned but privately operated. Each landfill serves San Joaquin County.

DISCUSSION OF IMPACTS

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications

facilities, the construction or relocation of which could cause significant environmental effects?

Less-than-Significant Impact

The project would not result in the relocation or construction of new utility-related infrastructure. The project is limited to minor operational changes, and the demand for utilities will not significantly increase. Therefore, project impacts would be ***less than significant***.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Less-than-Significant Impact

The project is limited to operational modifications at an existing landfill; any change in demand related to water supply would be minimal. The impact would be ***less than significant***.

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?

Less-than-Significant Impact

The project is limited to the modification of landfill operations at an existing landfill. Demand for wastewater treatment or provider capacity would be minimal and primarily associated with the increase of six on-site employees. Thus, impacts related to wastewater treatment and demand would be ***less than significant***.

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?

Less-than-Significant Impact

Project operation would be limited to an increase in solid waste intake by redirecting trucks that currently pick up and dispose of waste at other landfills within the County and an increase in the permitted tonnage of commercial waste accepted. Under the facility's current SWFP, the estimated closure year is 2048. Upon project implementation, the North County Landfill is estimated to reach capacity in 2043. However, once the landfill reaches capacity, the County has the option to expand the landfill via purchase of adjacent property. Project implementation itself would not generate additional solid waste, therefore, no new infrastructure is proposed as part of the project to accommodate additional waste at any County landfill. Therefore, the project would not exceed the capacity of current infrastructure nor impair the implementation of waste reduction goals. The impact of the project would be ***less than significant.***

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact

The project would not implement operational changes related to solid waste collection until the facility's permit is amended. Thereafter, project operations would comply with the amended SWFP. Thus, there is no conflict with federal, state, and local management and reduction statutes regulations related to solid waste. ***No impact*** would occur.

4.2.20 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 Impact with Mitigation Incorporated*	*Less-than-Significant Impact*	*No Impact*
a)	Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b)	Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c)	Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d)	Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

ENVIRONMENTAL SETTING

The project site is a landfill and project activities are limited to operational changes; no site expansion or construction activities are proposed. It is not located within a state responsibility area and not within a designated fire hazard severity zone (CAL FIRE 2024).

REGULATORY SETTING

The General Plan Public Health and Safety Element outlines policies for fire hazards in the County (General Plan 2016). Four communities within the County were identified as being at risk for wildfire: Bellota, Clements, Linden and Lockeford); General Plan Policies 4.1 – 4.6 address measures for fire resilience in these Fire Hazard Severity Zones.

DISCUSSION OF IMPACTS

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

No Impact

The project site is located near Lodi in unincorporated San Joaquin County and not identified in the General Plan as an area at risk for wildfire. Furthermore, project activities are limited to landfill operations and would not physically interfere with any designated evacuation route or public right-of-way. Therefore, the project would not substantially impair an adopted emergency response plan or emergency evacuation plan, ***no impact*** would occur.

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?***

No Impact

The project site is an existing landfill. Operational modifications would not result in changes to slopes or other factors that would exacerbate wildfire risks. ***No impact*** would occur.

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?***

No Impact

The project would not result in the installation of any infrastructure that may exacerbate wildfire risk or result in temporary or ongoing impacts to the environment. ***No impact*** would occur.

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

No Impact

The project does not propose any site modifications. All project activities are operational and would not result in drainage changes or post-fire runoff risks. ***No impact*** would occur.

4.2.21 Mandatory Findings of Significance

	Potentially Significant Impact	Less-than-Significant Impact 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 that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

DISCUSSION OF IMPACTS

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?

Less-than-Significant Impact with Mitigation Incorporated

As discussed in *Section 4.2.4, Biological Resources*, the project does not have the potential to impact special-status species and sensitive natural communities. The project is limited to operational changes at an existing landfill and no construction activities or site expansion have been proposed. Furthermore, the project site is required to comply with the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan and SWPP. As no construction activities are proposed, neither the sedimentation basin nor mitigation area north of the project site will be impacted compared to current conditions. In summation, none of the project's operational changes would have an impact on wildlife, habitats, or stormwater runoff into the creeks surrounding the project site. The impacts would be less than significant.

Furthermore, project activities would not impact known cultural or tribal cultural resources. As discussed in *Section 4.2.5, Cultural Resources*, and *Section 4.2.18, Tribal* Cultural *Resources*, there are no known historical or cultural resources located within the project site. Mitigation Measure CUL-1 would ensure that any accidentally discovered cultural resources would be treated with proper care if there is future ground-disturbing construction activity at the project site. Therefore, the impacts would be ***less than significant with mitigation incorporated***.

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)?

Less-than-Significant Impact

The project is limited to the increase of waste acceptance and operating hours at an existing landfill; solid waste would be diverted from other County landfills to North County Landfill. The project is not connected to any past projects or anticipated future projects with which its incremental effects would be deemed cumulatively considerable. Landfill operations would be expanded, and upon the landfill's closure, there is one other sanitary landfill, a recycling center and transfer station, and a hazardous household waste facility to serve the County. Also, the County will have the option of expanding the landfill via purchase of adjacent property. No site expansion is proposed by the project and would thus not encourage further growth or development within the County. The project's cumulative impacts would be ***less than significant***.

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

Less-than-Significant Impact

Based upon the impact evaluations in *Sections 4.2.1, Aesthetics*, through *4.2.20, Wildfire*, the project does not have the potential to result in environmental effects that will cause substantial adverse effects on human beings. Two environmental impacts may be caused by the project, related to cultural resources and tribal cultural resources. However, the project would implement mitigation measure CUL-1, reducing project related impacts that may affect cultural resources and tribal cultural resources to a less than significant level. Therefore, the project does not have the potential to cause substantial adverse effects on human beings.

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6.0 REPORT PREPARERS

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APPENDIX A. AIR QUALITY TECHNICAL STUDY

MEMORANDUM

Date: March 25, 2025 **Job No.:** 21202-23

To: Rob Carnachan, Senior Environmental Planner, WRA, Inc.

From: Yilin Tian, Project Environmental Engineer, Baseline Environmental Consulting

Subject: **Air Quality Technical Study, North County Sanitary Landfill and Recycling Center Solid Waste Facility Permit Amendment Project, Lodi, California**

Baseline Environmental Consulting (Baseline) has prepared this technical study to evaluate the potential air quality impacts associated with the proposed North County Sanitary Landfill and Recycling Center (North County Landfill) Solid Waste Facility Permit Amendment Project (project) located in Lodi, California. This technical memorandum includes an overview of existing air quality conditions and regulations, and an analysis of the potential air quality impacts associated with the implementation of the project. This study will be used to support the environmental review for the project under the California Environmental Quality Act (CEQA).

PROJECT DESCRIPTION

The project site is located at 17720 East Harney Lane and approximately 0.35 miles south of East Harney Lane via an access road (**Figure 1**). The project site has operated as a solid waste disposal and transfer/processing facility since 1991. The total permitted area for all facility operations is 320 acres and the landfilling area is 185 acres. The northern one-third of the property between the landfill and Harney Lane is a mitigation area established to preserve wetlands in the landfill's footprint. In addition to the waste disposal area, the four main buildings on site are a recycling center, office/maintenance building, water pump house building, and scale house. There is a permanent berm, set back 100 feet from the property line, surrounding the project site's perimeter.

The project consists of a proposed amendment to the Solid Waste Facility Permit to increase the maximum allowed daily refuse disposal and the number of daily incoming refuse vehicles from 1,200 tons per day and 850 vehicles per day to 4,000 tons and 1,200 vehicles per day. This increase would involve a change in refuse truck routing; approximately 50 transfer trucks that currently go to the Foothill Landfill would be re-routed to the North County Landfill. The refuse trucks would access the North County Landfill via East Harney Lane and the North County Landfill access road. The projected annual intake would increase from 250,000 tons in 2024 to 660,000 tons in 2026, then increase 3% annually thereafter. In addition, the North County Landfill currently operates from 7:00 am to 5:00 pm, seven days per week. The project would add one more hour to the Noth County Landfill's daily operations between 6:00 am and 7:00 am to allow the acceptance of commercial waste during this time period. The project would not change the North County Landfill's capacity and would not involve new construction. At current operational levels, the projected closure year of the landfill is 2046. With the implementation of the project, the projected closure date would move up three years to 2043.

In 2006, the North County Landfill installed a landfill gas (LFG) collection system, including a flare, vertical wells, and connecting piping. Additional LFG collectors, primarily horizontal collection trenches, will continue to be installed in the refuse and connected to the LFG collection system as the landfill is constructed. Collected LFG is combusted in a temperature-controlled flare in accordance with the existing San Joaquin Valley Air Pollution Control District (Valley Air District) Title V permit (N-119-1-13). A new 1,200 standard cubic feet per minute low nitrogen oxides (NOx) flare was installed in October 2024 and is currently used as the primary flare. The previous flare will be used as back-up.

ENVIRONMENTAL SETTING

Regional Climate, Meteorology, and Topography

The project site is located within the San Joaquin Valley Air Basin (SJVAB). The SJVAB encompasses eight counties, including Fresno, Kern (western and central), Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. Air basins have characteristics that limit the ability of natural processes to either dilute or transport air pollutants. The major determinants of air pollution transport and dilution are climatic and topographic factors such as wind, atmospheric stability, terrain that influences air movement, and sunshine. Wind and terrain can combine to transport pollutants away from upwind areas, while solar energy can chemically transform pollutants in the air to create secondary photochemical pollutants such as ozone.

The San Joaquin Valley (Valley) is bordered by the Sierra Nevada Mountains in the east, the Coast Ranges in the west, and the Tehachapi mountains in the south. The surrounding mountains created a bowl-shaped topography, limiting movement of pollutants out of the Valley. The Valley has a mediterranean climate characterized by wet winters with sparse rainfall, and hot and dry summers. In addition, persistent temperature inversions occur in the Valley, preventing vertical dilution of pollutants and increase the concentrations of pollutants at or near the ground. Summertime high temperatures in the Valley often exceed 100 degrees Fahrenheit, while wintertime high-pressure events drop the temperature into the 30s degrees Fahrenheit. During summer, prevailing winds primarily originate from the northwest, directing the airflow toward the southwestern end of the Valley. Additionally, a notable secondary wind pattern comes from the southeast, attributable to nighttime drainage winds, prefrontal conditions, and summer monsoons. During winter, stagnant conditions characterized by very weak winds often occur between storms. The high-pressure and light winds allow cold moist air to accumulate on the San Joaquin Valley floor, contributing to the formation of Tule fog. The project site is located in the City of Lodi, San Joaquin County, which receives an average of 17.6 inches of precipitation per year.[1]

Criteria Air Pollutants

The California Air Resources Board (CARB) and United States (U.S.) Environmental Protection Agency (EPA) focus on the following air pollutants as regional indicators of ambient air quality:

- ozone
- coarse particulate matter (PM_{10})
- fine particulate matter ($PM_{2.5}$)
- nitrogen dioxide
- carbon monoxide
- sulfur dioxide
- lead

These are referred to as "criteria air pollutants" because they are the most prevalent air pollutants known to be harmful to human health based on extensive criteria documents.

In accordance with the Federal Clean Air Act and California Clean Air Act (see Regulatory Setting below), areas in California are classified as either in attainment, maintenance (i.e., former nonattainment), or nonattainment of the National Ambient Air Quality Standards (NAAQS) and California ambient air quality standards (CAAQS) for each criteria air pollutant. At the Federal level, SJVAB is currently designated as extreme nonattainment for the 8-hour ozone standard and is designated nonattainment for the $PM_{2.5}$ standard. At the State level, the SJVAB is designated as nonattainment for the 8-hour ozone, PM_{10}, and $PM_{2.5}$ standards. The SJVAB is designated as an attainment or unclassified area for all other pollutants at the Federal and State level. Therefore, the primary criteria air pollutants of concern in the SJVAB are ground-level ozone formed through reactions of NO_x and reactive organic gases (ROG), PM_{10}, and $PM_{2.5}$ due to the nonattainment designations.

Toxic Air Contaminants

In addition to criteria air pollutants, individual projects may emit toxic air contaminants (TACs). TACs include a diverse group of air pollutants that can adversely affect human health and include diesel particulate matter (DPM)s, lead, benzene, formaldehyde, and hexavalent chromium, among others. In addition, substances which have been listed as federal hazardous air pollutants (HAPs) are TACs under the state's air toxics program. TACs are not subject to

[1] Western Regional Climate Center. Lodi, California (045032), Period of Record Monthly Climate Summary (01/01/1893 to 01/30/2015). Available via: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5032.

ambient air quality standards but are regulated through state and local risk management programs.

Unlike criteria air pollutants, which generally affect regional air quality, TAC emissions are evaluated based on estimations of localized concentrations and risk assessments. The adverse health effects a person may experience following exposure to any chemical depend on several factors, including the amount (dose), duration, chemical form, and any simultaneous exposure to other chemicals.

For risk assessment purposes, TACs are separated into carcinogens and non-carcinogens. Carcinogens are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per 1 million exposed individuals over a lifetime of exposure. Non-carcinogenic substances are generally assumed to have a safe threshold below which health impacts would not occur. Acute and chronic exposure to non-carcinogens is expressed as a hazard index, which is the sum of expected exposure levels divided by the corresponding acceptable exposure levels.

Landfill Gas

Methane (CH_4) and carbon dioxide (CO_2) are the primary constituents of LFG and are produced by the natural process of bacterial decomposition of organic material within the landfill under anaerobic conditions. By volume, LFG is typically about 50 percent methane and 50 percent carbon dioxide and water vapor. In addition to these main components, LFG contains small amounts of nitrogen, oxygen, and hydrogen, less than 1 percent non-methane organic compounds (NMOCs), and trace amounts of inorganic compounds. Some of these compounds have strong, pungent odors (for example, hydrogen sulfide).

Volatile organic compounds (VOC), including approximately 30 TACs, have been identified in uncontrolled LFG, including benzene, toluene, ethyl benzene, and vinyl chloride. Exposure to these pollutants can lead to adverse health effects. Existing regulations under the Federal Clean Air Act, as discussed below under Regulatory Setting, require landfills of a certain size to install and operate a gas collection and control system. These regulations target municipal solid waste (MSW) landfill emissions. The regulations require NMOCs to be measured as a surrogate for LFG and owner/operators to collect and combust their LFG.

The rate of LFG generation is influenced by the amount of bioavailable carbon, the type of material containing it, and the environmental conditions that support anaerobic bacterial activity. As waste is continuously deposited in the landfill, LFG production gradually increases throughout the landfill’s operational life, reaching its highest level on the final day of waste disposal, often referred to as the landfill’s closure. After closure and capping, LFG generation may decline further due to reduced moisture infiltration.

Existing Sensitive Receptors

Sensitive receptors are areas where individuals are more susceptible to the adverse effects of poor air quality. Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. Residential areas are also considered sensitive receptors because people are often at home for extended periods, thereby increasing the duration of exposure to potential air contaminants.

The surrounding land uses are primarily agricultural with scattered single-family residences within 1-mile radius. The closest sensitive receptor is a residence located on-site about 460 feet southeast of the intersection of East Harney Lane and the North County Landfill access road (**Figure 1**). This residence is located approximately 2,100 feet northeast from the top of Lined Area 1, and approximately 1,800 feet northeast from the existing LFG flare station.

As mentioned above, the project-generated trucks would access the North County Landfill via East Harney Lane and the North County Landfill access road. Sensitive receptors along the haul route include residences as close as approximately 65 feet to the centerline of East Harney Lane and schools, including Harmony Grove Elementary School and the Adelita Montessori School, as close as approximately 70 feet to the centerline of East Harney Lane.

REGULATORY SETTING

Federal and State Regulations

The foundational framework of the Federal Clean Air Act was laid out by Congress in 1970, and major revisions were made in 1977 and again in 1990. The U.S. EPA is responsible for implementing programs established under the Federal Clean Air Act, such as establishing and reviewing the NAAQS and judging the adequacy of State Implementation Plans to attain the NAAQS. A State Implementation Plan must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. In accordance with the U.S. EPA Green Book,[2] San Joaquin Valley is currently designated as extreme nonattainment for the 8-hour ozone standard and is designated nonattainment for the $PM_{2.5}$ standard based on the NAAQS.

The Federal Clean Air Act requires the EPA to identify HAPs that are known or suspected to cause cancer or other serious health effects, to protect public health and welfare, and to establish national emission standards for HAPs. The Federal Clean Air Act Amendments in 1990

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[2] United States Environmental Protection Agency (EPA), 2025. Green Book; Current Nonattainment Counties for All Criteria Pollutants. https://www3.epa.gov/airquality/greenbook/ancl.html. Last updated January 31, 2025.

identified 188 hazardous air pollutants that EPA is required to control. Regulation of HAPs is achieved through federal, state, and local controls on industrial, mobile, and indoor sources.

In 1988, California passed the California Clean Air Act (California Health and Safety Code sections 39600 et seq.), which, like its federal counterpart, required the designation of areas as attainment or non-attainment, but based these designations on state ambient air quality standards rather than the federal standards. CARB is responsible for establishing and reviewing the CAAQS, developing and managing the State Implementation Plan, identifying TACs, and overseeing the activities of regional air quality management districts. To achieve the CAAQS, criteria air pollutant emissions are managed through control measures that are described in regional air quality plans as well as by emission limitations placed on permitted stationary sources. In California, mobile emissions sources (e.g., construction equipment, trucks, automobiles) are regulated by CARB, and stationary emissions sources (e.g., industrial facilities) are regulated by the regional air quality management districts. According to CARB,[3] San Joaquin Valley is designated as nonattainment for the 8-hour ozone, PM_{10}, and $PM_{2.5}$ standards and is designated an attainment or unclassified area for all other pollutants based on the CAAQS.

In 2016, the EPA established two regulations—the New Source Performance Standards (NSPS) for new landfills and the Emission Guidelines (EG) for existing landfills—aimed at reducing methane emissions from landfill gas. The EG require the installation of a LFG collection and control system (GCCS) at MSW landfills that exceed a specified design capacity and NMOC emission threshold. At the State level, in response to California Assembly Bill 32, CARB adopted the Landfill Methane Regulation in 2010, which requires MSW landfills to reduce methane and other air pollutant emissions through emissions monitoring and capturing fugitive methane emissions. Promulgated in 2016, California Senate Bill (SB) 1383 set a statewide target to reduce organic waste disposed of in landfills of 50 percent by 2020 and 75 percent by 2025. In addition, SB 1383 requires recovering at least 20 percent of disposed edible food for human consumption by 2025. As organic waste is a primary substance that generates LFG, diverting organic waste from landfills can reduce LFG emissions. In addition, MSW landfills are regulated under local air district rules that implement the federal requirements of the NSPS and EG, 40 Code of Federal Regulations Part 60 Subparts WWW and Cc, for MSW landfills.

Regional Regulations

The project is located in the SJVAB, which is under the jurisdiction of the Valley Air District. The mission of the Valley Air District is to improve the health and quality of life for all Valley residents through efficient, effective and entrepreneurial air quality management strategies. The Valley Air District has adopted several air quality attainment plans for particulate matter and ozone over the years that identify measures needed in the SJVAB to attain NAAQS. The

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[3] California Air Resources Board (CARB), 2023. Maps of State and Federal Area Designations. Available at: https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations. Accessed Feb 14, 2025.

Valley Air District has implemented these plans and adopted nearly 650 rules that have resulted in significant emissions reductions. Specific rules applicable to the proposed project include the following:

- **Rule 2201 (New and Modified Stationary Source Review Rule)**. This rule, also known as New Source Review, applies to all new stationary sources and all modifications to existing stationary sources which are subject to the Valley Air District permit requirements and after construction emit or may emit one or more regulated pollutant (e.g. criteria air pollutants and precursors). This rule requires new and modified stationary sources to mitigate emissions using Best Available Control Technology and to offset emissions when estimated emissions are above specified thresholds. Valley Air District implementation of New Source Review ensures that there is no net increase in emissions above specified thresholds from new and modified Stationary Sources for all nonattainment pollutants and their precursors.

- **Rule 4102 (Nuisance).** This rule prohibits discharge of air contaminants or other materials which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such person or the public or which cause or have a natural tendency to cause injury or damage to business or property.

- **Rule 4642 (Solid Waste Disposal Sites).** This rule limits volatile organic compound emissions from solid waste disposal sites.

- **Regulation VIII (Fugitive PM10 Prohibitions)**. This regulation consists of a series of rules requiring the implementation of dust control measures to reduce fugitive dust emissions generated by human activity.

Consistent with CEQA Guideline Appendix G, the Valley Air District has adopted thresholds of significance to assist lead agencies in the evaluation and mitigation of air quality impacts under CEQA (CEQA Guidance).[4] The District's thresholds establish levels at which emissions of ozone precursors (ROG and NO_x), PM_{10}, $PM_{2.5}$, carbon monoxide, sulfur oxides (SO_x), TACs, and odors could cause significant air quality impacts. The Valley Air District's thresholds of significance that are used in this analysis are summarized in **Table 1** below.

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[4] Joaquin Valley Air Pollution Control District (Valley Air District), 2015. Guidance for Assessing and Mitigating Air Quality Impacts (CEQA Guidance), March 19.

Table 1. Air Quality Thresholds of Significance

Impact Analysis	Pollutant	Threshold of Significance
Criteria Air Pollutants (Construction and Operation[1])	CO	100 tons per year
	NO_x	10 tons per year
	ROG	10 tons per year
	SO_x	27 tons per year
	PM_{10}	15 tons per year
	$PM_{2.5}$	15 tons per year
Health Risks and Hazards (Combined)	Tox air Contaminant	For the Maximally Exposed Individual: Cancer risk increase > 20.0 in one million Chronic hazard index > 1.0 Acute hazard index > 1.0

[1] Construction emissions, operational emission from permitted equipment and activities, and operational emissions from non-permitted equipment and activities are evaluated separately.
Source: Valley Air District, 2015

The Valley Air District has established that preliminary screening can be used to determine with a fair level of certainty that the effect a project has on any given intersection would not result in a CO hotspot. According to the Valley Air District, a project would result in a less-than-significant impact related to localized CO concentrations if neither of the following screening criteria are met at all intersections affected by the development project:

- A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; nor

- A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at one or more intersections in the project vicinity.

The Valley Air District identified some common types of facilities that have been known to produce odors, including sanitary landfills, and established screening levels for potential odor sources, in the form of screening distances, to semi-quantitatively assess a project's potential to adversely affect area receptors. For projects that would result in sensitive receptors being located closer than the screening level distances, the Valley Air District has established the following significance threshold for odor problems:

- More than one confirmed complaint per year averaged over a three-year period, or

- Three or more unconfirmed complaints per year averaged over a three-year period.

SIGNIFICANCE CRITERIA

Based on Appendix G of the CEQA Guidelines, implementation of the proposed project would result in a significant air quality impact if it would:

1) Conflict with or obstruct implementation of the applicable air quality plan;
2) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard;
3) Expose sensitive receptors to substantial pollutant concentrations; or
4) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The thresholds of significance for criteria air pollutant emissions, TACs, and odor established by the Valley Air District are used in this study to evaluate the project's air quality impacts. For criteria air pollutants, the Valley Air District established these thresholds of significance based on District New Source Review offset requirements for stationary sources, with the resulting emission reductions playing a critical role in the Valley Air District's air quality plans. Thus, projects with emissions below the thresholds of significance for criteria pollutants are determined to not conflict with or obstruct the implementation of the Valley Air District's air quality plan. For localized air quality impacts, such as exposure to TACs, the potential for adverse air quality impacts decreases as the distance between the source of emissions and receptors increases. The Valley Air District has not established a specific zone of influence within which health risks to sensitive receptors must be analyzed. However, the Bay Area Air Quality Management District recommends evaluating project's potential health risks to sensitive receptors within 1,000 feet of the project site.

Air districts such as the Valley Air District use regional air dispersion models to evaluate regional criteria air pollutants. However, these dispersion models have limited sensitivity to the relatively small (or negligible) changes in criteria air pollutant concentrations associated with an individual project. Therefore, providing reliable estimates of specific health risks associated with regional air pollutant emissions from an individual project is not feasible and would result in speculative results.[5,6] The methodology used in this analysis is consistent with the California Supreme Court's ruling regarding *Sierra Club v. County of Fresno*.[7]

ANALYSIS AND FINDINGS

Consistency with Air Quality Plan

As discussed above, the Valley Air District has adopted several air quality attainment plans for particulate matter and ozone over the years that identify measures needed in the SJVAB to attain NAAQS. Emission reductions achieved through implementation of the Valley Air District New Source Review offset requirements are a major component of the Vally Air District's air quality plans. Since the Valley Air District's thresholds of significance were developed based on New Source Review offset requirements, projects with emissions below the thresholds of significance for criteria air pollutants would be determined to not conflict or obstruct implementation of the Valley Air District's air quality plans. As discussed below, the project's emissions of criteria air pollutants of concern from permitted equipment and activities, as well as from non-permitted equipment and activities, would be below the thresholds of significance. In addition, the project would be required to comply with applicable rules and regulations, such a Regulation VIII (Fugitive PM_{10} Prohibitions). Therefore, the project would not conflict with or obstruct implementation of applicable air quality plans.

Criteria Air Pollutant Emissions

The project would not change the North County Landfill's design capacity of 41.2 million cubic yards of disposal and would not involve construction of new facilities. The project would increase the maximum amount of allowed daily refuse disposal and the number of daily incoming refuse trucks from 1,200 tons per day and 850 trucks per day to 4,000 tons and 1,200 trucks per day. This increase would involve a change in refuse truck routing; approximately 51 transfer trucks that currently go to the Foothill Landfill would be re-routed to the North County Landfill. The increase in daily refuse disposal would also increase the use of off-road equipment associated with landfill operations. Up to six new employees would be needed for the increase in waste disposal and truck trip-related activity.

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[5] Brief for South Coast Air Quality Management District as Amicus Curiae Supporting Respondents, Sierra Club, Revive the San Joaquin, and League of Women Voters Fresno v. County of Fresno and Friant Ranch (SCAQMD Amicus Curiae), 2018, 6 Cal.5th 502, Case No. S219783.
[6] Brief for San Joaquin Valley Unified Air Pollution Control District as Amicus Curiae Supporting Respondents, Sierra Club, Revive the San Joaquin, and League of Women Voters Fresno v. County of Fresno and Friant Ranch (SJVUAP Amicus Curiae), 2018, 6 Cal.5th 502, Case No. S219783.
[7] California Supreme Court, 2018. Sierra Club, Revive the San Joaquin, and League of Women Voters Fresno v. County of Fresno and Friant Ranch, 6 Cal.5th 502, Case No. S219783.

Operation of the Project would generate criteria pollutant emissions that could potentially impact regional air quality. The primary pollutant emissions of concern during project operation would be ozone precursors (ROG and NOx), PM_{10}, $PM_{2.5,}$ and emissions of LFG. Implementation of the project would result in net increases in off-road equipment usage on the project site, and project-generated vehicle trips along the haul route. Although the project would not change the North County Landfill design capacity, the rate of additional cell and module construction on the project site would increase to accommodate the amount of waste accepted with the proposed increase in maximum allowed daily refuse disposal. Compared to the current operation condition, the project could increase fugitive emissions from the landfill surface, and exhaust emissions from LFG control devices (e.g., flare) due to the increase in LFG generated and collected.

Off-Road Equipment and On-Road Mobile Sources

The heavy off-road equipment currently used at the North County Landfill will continue to be used with implementation of the project. As mentioned above, the project would increase off-road equipment usage on site, in terms of hours of operation and number of off-road equipment used. Criteria air pollutant emissions from off-road equipment for the current operation condition (2024) and project condition were calculated using CalEEMod version 2022.1 methodologies.

For mobile sources, the project would increase the maximum allowed number of daily incoming refuse vehicles from 850 vehicles per day to 1,200 vehicles per day. This increase would involve a change in refuse truck routing; approximately 50 transfer trucks that currently go to the Foothill Landfill would be re-routed to the North County Landfill. In addition, it was assumed that the project would generate 12 one-way worker commute trips per day for the six new employees. Emissions of criteria air pollutants from mobile sources were estimated for the current operation condition and project condition using the year 2024 emission factors from CARB's EMFAC2021 database. Because statewide vehicle emission standards are required to improve over time in accordance with vehicle emission regulations, using the emission factors for the baseline year (2024) provides the maximum expected annual emissions.

The project would generate fugitive PM_{10} and $PM_{2.5}$ emissions from onsite earthwork activities, on-road vehicle brake wear and tire wear, resuspended road dust on paved and unpaved roads, and windblown landfill sediment and cover. Earthwork is conducted in accordance with the Valley Air District's Regulation VIII. Water trucks and sweepers are used for dust control. It was assumed that the exposed areas will be watered twice per day.

The primary input data used to estimate criteria air pollutant emissions associated with operation of the project were provided by the applicant and included information about the current operation condition and project off-road construction equipment inventory and usage, off-site haul truck trips, on-site water trucks trips, other on-site service truck trips, and travel distances for each trip category. The input parameters and assumptions used to estimate criteria air pollutant emissions from off-road heavy construction equipment and mobile sources are provided in **Attachment A**.

The estimated annual emissions during operation of the project are presented in **Table 2**. As shown in **Table 2**, the project's estimated net change in ROG, NO_x, PM_{10}, $PM_{2.5}$, CO, and SO_x emissions during operation are below the Valley Air District's threshold of significance and would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment; therefore, the project's impact on regional air quality would be less than significant.

Table 2. Estimated Annual Criteria Air Pollutant and Precursor Emissions from Non-Permitted Equipment and Activities (tons per year)

Emission Scenarios	ROG	NO_x	PM_{10}	$PM_{2.5}$	CO	SO_x
Off-Road Equipment						
Baseline Condition	0.24	6.79	1.06	0.63	7.60	0.01
Project Condition	0.35	7.82	1.87	1.07	12.73	0.02
Net Difference	**0.11**	**1.04**	**0.81**	**0.44**	**5.13**	**0.01**
On-Road Mobile Sources						
Baseline Condition	0.13	3.70	1.40	0.31	0.18	0.03
Project Condition	0.13	3.54	1.48	0.31	0.18	0.04
Net Difference	**0.01**	**-0.16**	**0.08**	**0.00**	**0.002**	**0.004**
Total Net Difference	**0.11**	**0.88**	**0.90**	**0.45**	**5.13**	**0.01**
Valley Air District Thresholds	10	10	15	15	100	27
Threshold Exceeded?	No	No	No	No	No	No

Source: Attachment A.

Landfill Gas

As discussed above, the project would increase criteria air pollutant emissions attributable to the potential increases in exhaust emissions from the flare. The reported emission inventory for the North County Landfill in 2023 was provided by the applicant (**Attachment B**) and is summarized in **Table 3** as a representation of the baseline condition. As shown in **Table 3**, under the baseline condition, emissions of ROG, NO_x, PM_{10}, CO, and SO_x from the flare are relatively low – approximately two orders of magnitudes lower than the applicable Valley Air District operation thresholds for permitted sources. For the project condition, the maximum criteria air pollutant emissions from the flare were conservatively estimated using emission limits obtained from the project's current Title V permit and the heat input to flare obtained from the 2023 inventory. Detailed calculations are provided in **Attachment A**. For the project condition, the conservatively estimated maximum emissions from the flare are below the Valley Air District's thresholds of significance. Therefore, the impact associated with LFG-related criteria air pollutant emissions would be less than significant.

Table 3. Estimated Annual Criteria Air Pollutant and Precursor Emissions from Permitted LFG Collection System (tons per year)

Emission Scenario	Emissions (tons per year)				
	ROG[2]	NO_x	PM_{10}	CO	SO_x
Baseline Condition[1]	<0.01	0.04	0.09	<0.01	0.02
Project Condition	1.41	6.41	3.63	9.62	3.21
Net Difference	1.41	6.37	3.54	9.62	3.19
Valley Air District Thresholds	10	10	15	100	27
Threshold Exceeded?	No	No	No	No	No

[1] Based on 2023 inventory for the North County Landfill.
[2] ROG emissions based on total VOC emissions.
Source: Attachments A and B.

Exposure to Toxic Air Contaminants

Project operation would generate LFG-related emissions and DPM emissions from the exhaust of on-road heavy-duty diesel haul trucks and on-site off-road diesel construction equipment. As discussed above, the closest sensitive receptor is a residence located on-site approximately 2,100 feet northeast from the top of Lined Area 1, and approximately 1,800 feet northeast from the existing LFG flare station (**Figure 1**). Because the closest sensitive receptor is not located within 1,000 feet of the fill area and flare station, exposure to on-site TACs during project operation was not evaluated. Although LFG may contain trace amount of TACs, the health risk from flare emissions is typically very low as the combustion process would destroy most toxic substances contained in the flared gas. Per the project's Title V permit, VOC destruction efficiency for the flare shall be at least 98 percent by weight.

For sensitive receptors along the haul route, a health risk assessment was conducted to estimate the incremental increase in cancer risk and chronic hazard index (HI) from exposure to DPM emissions from trucks in accordance with guidance from the Valley Air District[8] and the Office of Environmental Health Hazard Assessment (OEHHA).[9]

[8] Joaquin Valley Air Pollution Control District (Valley Air District), 2015. Guidance for Assessing and Mitigating Air Quality Impacts (CEQA Guidance), March 19.
[9] Office of Environmental Health Hazard Assessment (OEHHA), 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, May.

The on-road DPM emissions from trucks travelling by sensitive receptors along the haul route were estimated based on the net increase in average daily truck trips in the project vicinity. Emission factors for exhaust and fugitive emissions were derived from CARB's EMFAC2021 database. The model input parameters, assumptions, and results are summarized in **Attachment C**.

The annual average concentrations of DPM during project operation at sensitive receptors along the haul route were estimated using the American Meteorological Society/U.S. EPA regulatory air dispersion model (AERMOD). For the analysis, emissions of exhaust PM_{10} were used as a surrogate for DPM, which is a conservative assumption because more than 90 percent of DPM is less than 1 micron in diameter. The input parameters and assumptions used for estimating emission rates of DPM from trucks are included in **Attachment C**.

PM_{10} emissions from off-site trucks were modeled as a line source along a representative section of the haul route (East Harney Lane between SR-88 and North County Landfill entrance road). The North County Landfill operates from 7:00 am to 5:00 pm, seven days per week. The AERMOD model input parameters included five years of Valley Air District meteorological data from the Stockton Met Site (Site ID 23237) located approximately 16 miles to the southwest of the North County Landfill.

For sensitive receptors along the haul route, a uniform grid of receptors spaced approximately 50 meters apart with receptor heights of 1.8 meters was placed along the haul route as a means of developing isopleths (i.e., concentration contours) that illustrate the air dispersion pattern. In addition, lines of discrete receptors spaced approximately 20 meters apart and approximately 20 meters (65 feet) away from the haul route centerline were created for ground level receptors at heights of 1.8 meters to calculate concentrations at the closest sensitive receptors to the haul route. Comparing to other sensitive receptors identified above, the residential receptors identified along the haul route are among the receptors that are closest to the road and have a longer exposure duration and frequency than other sensitive receptors along the haul rout, such as school children. Therefore, the discrete residential receptors modeled at 20 meters (65 feet) from the centerline of the haul route represent a reasonable worst-case scenario.

Based on the annual average concentrations of DPM estimated using AERMOD, potential health risks were evaluated for the maximally exposed individual resident (MEIR) along the haul route. The incremental increase in cancer risk at the MEIR was assessed for an individual initially exposed to DPM as a fetus during the third trimester of pregnancy until the age of 18, assuming 18 years of exposure to project operation emissions (between 2025 to 2043). This exposure scenario represents the most sensitive individual who could be exposed to adverse air quality conditions in the vicinity of the haul route. The input parameters and results of the health risk assessment are included in **Attachment C**.

The estimated health risks at the MEIR due to DPM emissions from project operation are summarized and compared to the Valley Air District's thresholds of significance in **Table 4**. The estimated cancer risk and chronic HI for DPM at the MEIR were below the Valley Air District's thresholds. Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations. The impact would be less than significant.

Table 4. Health Risks during Project Operation

Emissions Scenario	Receptor	Diesel Particulate Matter	
		Cancer Risk (per million)	Chronic Hazard Index
Baseline Condition	Haul Route MEIR	0.8	<0.01
Project Condition		1.5	<0.01
Net Difference		0.7	<0.01
Thresholds of Significance		10	1.0
Exceed Threshold?		No	No

Source: Attachment C.

Exposure to Carbon Monoxide Emissions

The source of local carbon monoxide concentrations is often associated with heavy traffic congestion at nearby intersections. According to the Transportation Impact Analysis for the project,[10] the project would generate 461 trips per day in average. The studied intersections and road segments would operate acceptably at LOS C or better under existing and future volumes without or with the addition of project-generated trips. Since the project would not reduce LOS on streets or intersections in the project vicinity to LOS E or F, the project does not meet the Valley Air District's screening level for potentially significant carbon monoxide impacts. Therefore, the project would not result in a net increase in the potential exposure of existing sensitive receptors to carbon monoxide concentrations from project-generated traffic and this impact would be less than significant.

Odor

Landfills have the potential to produce odors that could adversely affect area receptors. Odors are generated at the landfill working face due to tipping and dumping putrescible waste. The main method for controlling odor at the landfill working face is by applying cover material. In addition, fugitive LFG that escape through the LFG collection and control system can contribute to odors. According to the applicant, no complaints have been received for the North County Landfill over the past three years. Since the project would not change the odor control method

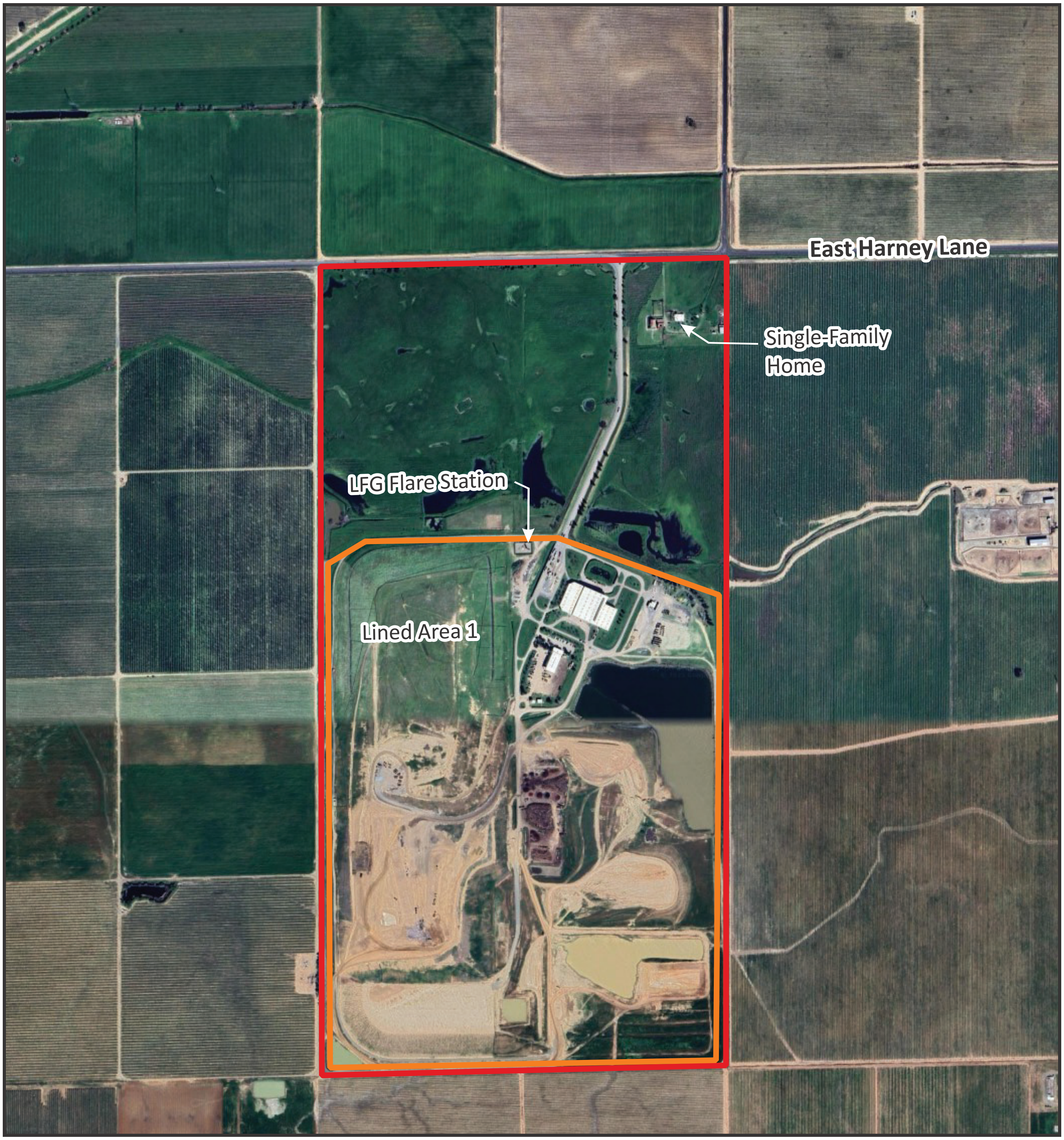
[10] W-Trans, 2025. Draft Transportation Impact Analysis for the North County Recycling Center and Sanitary Landfill Project. January 23.

or the LFG collection and control system, the increase in maximum allowed daily refuse disposal is not expected to substantially increase odor generation. Therefore, the project's odor impact would be less than significant.

CONCLUSIONS

Based on the analysis above, the project would not result in a cumulatively considerable net increase in criteria air pollutants for which the region is in nonattainment and would not conflict with or obstruct implementation of applicable air quality plans. The project would not expose sensitive receptors to substantial pollutant concentrations and the impact would be less than significant. The project impacts related to odors and other emissions would be less than significant.

FIGURES



Legend

Project Site Boundary

Planned Fill Area

0 1,250 Feet

N

BASELINE ENVIRONMENTAL CONSULTING

Figure 1
Project Site and Sensitive Receptor Locations

21202-23 Figures 02/13/25

North County Sanitary Landfill and Recycling Center
Solid Waste Facility Permit Amendment Project

ATTACHMENT A
CRITERIA AIR POLLUTANT EMISSION CALCULATION DETAILS

Appendix A-1: Off-Road Equipment Model Input Parameters and Emissions Calculations

Overview

Information about existing and project off-road diesel equipment usage was provided by the project applicant. Exhaust emissions of criteria air pollutants and greenhouse gases from off-road equipment use were estimated using the methodology from the California Emissions Estimator Model (CalEEMod) version 2022.1.1.

Summary of Off-Road Equipment Usage

Project Equipment	CalEEMod Equipment Category	Number	Fuel Type	Horse-power	Low HP	High HP	Engine Tier	Load Factor	Weekly Usage Hours		Annual Usage Hours	
									Existing	Project	Existing	Project
94-073 825C Compactor	Rubber Tired Dozers	1	Diesel	315	300	599	Tier 1	0.40	3	3.3	156	172
95-025 Storm Water Pump	Pumps	1	Diesel	30	25	49	Average	0.74	--	--	50	50
96-002 Genie	Aerial Lifts	1	Diesel	25	25	49	Tier 1	0.31	1	1	52	52
96-003 Forklift-Clark	Forklifts	1	Diesel	40	25	49	Average	0.20	3	3	156	156
96-041 Cat 950F Loader	Rubber Tired Loaders	1	Diesel	100	75	199	Tier 1	0.36	10	12	520	624
02-035 623 Scraper	Scrapers	1	Diesel	365	300	599	Tier 1	0.48	12	14	624	728
02-910 Sweeper	Sweepers/Scrubbers	1	Diesel	25	25	49	Tier 1	0.46	1	1.5	52	77
23-112 Pressure Washer	Pressure Washers	1	Gas	10	0	24	Gas	0.30	2	2	104	104
03-909 AL-JON 81K - Compactor	Rubber Tired Dozers	1	Diesel	360	300	599	Tier 1	0.40	1	2.5	52	129
04-042 836G COMPACTOR	Rubber Tired Dozers	1	Diesel	525	300	599	Tier 2	0.40	31	33	1,612	1,716
04-075 JD 850C Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 2	0.40	14	15	728	780
04-971 JD Grader	Graders	1	Diesel	217	175	299	Tier 1	0.41	2	3	104	156
06-041 CAT 950H	Rubber Tired Loaders	1	Diesel	150	120	174	Tier 2	0.36	32	34	1,664	1,768
06-18571 Portable Light Tower	Other General Industrial Equipment	1	Diesel	15	25	49	Tier 2	0.34	6	6.3	312	330
10-020 CAT D8 Dozer	Rubber Tired Dozers	1	Diesel	310	300	599	Tier 2	0.40	42	44	2,184	2,288
15-071 CAT 420 F2 Backhoe	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	9	10	468	520
18-042 CAT 836K Compactor	Rubber Tired Dozers	1	Diesel	540	300	599	Tier 4 Interim	0.40	31	33	1,612	1,716
18-075 JD 850K Dozer	Rubber Tired Dozers	1	Diesel	270	175	299	Tier 4 Interim	0.40	22	24	1,144	1,248
19-041 JD 644K Hybrid Loader	Rubber Tired Loaders	1	Diesel	150	75	199	Tier 4 Interim	0.36	36	38	1,872	1,976
19-073 JD Track Loader	Rubber Tired Loaders	1	Diesel	165	75	199	Tier 4 Interim	0.36	2	3	104	156
20-009 JD SKID STEER 333G	Skid Steer Loaders	1	Diesel	80	75	199	Tier 4 Interim	0.37	8	9	416	468
20-020 JD 1050K LARGE DOZER	Rubber Tired Dozers	1	Diesel	325	300	599	Tier 4 Interim	0.40	40	42	2,080	2,184
20-071 JD 310SL/HL BACKHOE	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	19	20	988	1,040
20-714 KUBOTA	Tractors/Loaders/Backhoes	1	Diesel	40	25	49	Tier 4 Interim	0.37	13	13.3	676	693
22-073 JD 755K Track Loader	Tractors/Loaders/Backhoes	1	Diesel	165	75	199	Tier 4 Interim	0.37	6	6	312	312
TARPOMATIC Landfill Covers - 04-001	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 1	0.40	1	2	52	104
TARPOMATIC Landfill Covers - 18-002	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 4 Interim	0.40	2	3	104	156
Fire Pump	Pumps	1	Diesel	25	25	49	Tier 1	0.74	--	--	50	50
KARCHER PRESSURE WASHER	Pressure Washers	1	Gas	10	0	24	Gas	0.30	1	2	52	104
03-908 Sterling Water Truck (tan)	Off-Highway Trucks	1	Diesel	200	175	299	Average	0.38	2	3	104	143
20-908 International Water Truck	Off-Highway Trucks	1	Diesel	225	175	299	Tier 4 Interim	0.38	5	7	260	347
2025 CAT LPG D-6 Finish Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 4 Final	0.40	--	48	0.0	2,500
2025-26 CAT 836 Compactor	Plate Compactors	1	Diesel	540	300	599	Tier 4 Final	0.43	--	45	0.0	2,350
2025-26 CAT 623 Scraper	Scrapers	1	Diesel	370	300	599	Tier 4 Final	0.48	--	19	0.0	1,000
2025-26 Large Dozer	Rubber Tired Dozers	1	Diesel	400	300	599	Tier 4 Final	0.40	--	43	0.0	2,250
2025 Loader mid size	Rubber Tired Loaders	1	Diesel	165	120	174	Tier 4 Final	0.36	--	37	0.0	1,900

Notes:

were used for the corresponding equipment categories. Assumed fire pump and storm water pump, which are for emergency uses, will be used 50 hours per year. Water truck usage was converted from vehicle miles travelled assuming 5 mph speed.

Off-Road Equipment ROG Emissions

Project Equipment	CalEEMod Equipment Category	Number	Fuel Type	Horse-power	Low HP	High HP	Engine Tier	Load Factor	EF (g/hp-hr)	ROG Emissions (lbs per year)	
										Existing	Project
94-073 825C Compactor	Rubber Tired Dozers	1	Diesel	315	300	599	Tier 1	0.4	0.29	12.57	13.86
95-025 Storm Water Pump	Pumps	1	Diesel	30	25	49	Average	0.74	0.401	0.98	0.98
96-002 Genie	Aerial Lifts	1	Diesel	25	25	49	Tier 1	0.31	1.32	1.17	1.17
96-003 Forklift-Clark	Forklifts	1	Diesel	40	25	49	Average	0.2	0.401	1.10	1.10
96-041 Cat 950F Loader	Rubber Tired Loaders	1	Diesel	100	75	199	Tier 1	0.36	0.9	37.14	44.57
02-035 623 Scraper	Scrapers	1	Diesel	365	300	599	Tier 1	0.48	0.29	69.90	81.55
02-910 Sweeper	Sweepers/Scrubbers	1	Diesel	25	25	49	Tier 1	0.46	1.32	1.74	2.58
23-112 Pressure Washer	Pressure Washers	1	Gas	10	0	24	Gas	0.3	3.93	2.70	2.70
03-909 AL-JON 81K - Compactor	Rubber Tired Dozers	1	Diesel	360	300	599	Tier 1	0.4	0.29	4.79	11.88
04-042 836G COMPACTOR	Rubber Tired Dozers	1	Diesel	525	300	599	Tier 2	0.4	0.09	67.17	71.50
04-075 JD 850C Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 2	0.4	0.11	18.71	20.05
04-971 JD Grader	Graders	1	Diesel	217	175	299	Tier 1	0.41	0.29	5.92	8.87
06-041 CAT 950H	Rubber Tired Loaders	1	Diesel	150	120	174	Tier 2	0.36	0.15	29.71	31.57
06-18571 Portable Light Tower	Other General Industrial Equipment	1	Diesel	15	25	49	Tier 2	0.34	0.22	0.77	0.82
10-020 CAT D8 Dozer	Rubber Tired Dozers	1	Diesel	512	300	599	Tier 2	0.4	0.09	88.75	92.97
15-071 CAT 420 F2 Backhoe	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.08	3.36	3.73
18-042 CAT 836K Compactor	Rubber Tired Dozers	1	Diesel	540	300	599	Tier 4 Interim	0.4	0.06	46.06	49.03
18-075 JD 850K Dozer	Rubber Tired Dozers	1	Diesel	270	175	299	Tier 4 Interim	0.4	0.06	16.34	17.83
19-041 JD 644K Hybrid Loader	Rubber Tired Loaders	1	Diesel	150	75	199	Tier 4 Interim	0.36	0.08	17.83	18.82
19-073 JD Track Loader	Rubber Tired Loaders	1	Diesel	165	75	199	Tier 4 Interim	0.36	0.08	1.09	1.63
20-009 JD SKID STEER 333G	Skid Steer Loaders	1	Diesel	80	75	199	Tier 4 Interim	0.37	0.08	2.17	2.44
20-020 JD 1050K LARGE DOZER	Rubber Tired Dozers	1	Diesel	325	300	599	Tier 4 Interim	0.4	0.06	35.77	37.56
20-071 JD 310SL/HL BACKHOE	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.08	7.09	7.47
20-714 KUBOTA	Tractors/Loaders/Backhoes	1	Diesel	40	25	49	Tier 4 Interim	0.37	0.09	1.99	2.04
22-073 JD 755K Track Loader	Tractors/Loaders/Backhoes	1	Diesel	165	75	199	Tier 4 Interim	0.37	0.08	3.36	3.36
TARPOMATIC Landfill Covers - 04-001	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 1	0.4	1.32	1.21	2.42
TARPOMATIC Landfill Covers - 18-002	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 4 Interim	0.4	0.09	0.17	0.25
Fire Pump	Pumps	1	Diesel	25	25	49	Tier 1	0.74	1.32	2.69	2.69
KARCHER PRESSURE WASHER	Pressure Washers	1	Gas	10	0	24	Gas	0.3	3.93	1.35	2.70
03-908 Sterling Water Truck (tan)	Off-Highway Trucks	1	Diesel	200	175	299	Average	0.38	0.187	3.26	4.49
20-908 International Water Truck	Off-Highway Trucks	1	Diesel	225	175	299	Tier 4 Interim	0.38	0.06	2.94	3.92
2025 CAT LPG D-6 Finish Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 4 Final	0.4	0.05	0.00	29.21
2025-26 CAT 836 Compactor	Plate Compactors	1	Diesel	540	300	599	Tier 4 Final	0.43	0.05	0.00	60.15
2025-26 CAT 623 Scraper	Scrapers	1	Diesel	370	300	599	Tier 4 Final	0.48	0.05	0.00	19.58
2025-26 Large Dozer	Rubber Tired Dozers	1	Diesel	400	300	599	Tier 4 Final	0.4	0.05	0.00	39.68
2025 Loader mid size	Rubber Tired Loaders	1	Diesel	165	120	174	Tier 4 Final	0.36	0.05	0.00	12.44
									Total emissions per Year (lbs)	**490**	**708**
									Total emissions per Year (tons)	**0.24**	**0.35**
									Annual Average emissions per Day (lbs)	**1.34**	**1.94**

Assumptions

Grams per pound	453.592
Pounds per ton	2,000
Work days per year	365

Abbreviations

ROG = reactive organic gases; EF= emission factor; g/hp-hr = gram per horsepower-hour; lbs = pounds

Notes:

Emission factors were obtained from CalEEMod based on equipment type, fuel type, horsepower, and engine tier.

Equations:

Emissions [lbs] = emission factor [g/hp-gr] × number of pieces of equipment × horsepower × load factor × hours of annual operation/ 453.592 grams per pound

Off-Road Equipment NOx Emissions

Project Equipment	CalEEMod Equipment Category	Number	Fuel Type	Horse-power	Low HP	High HP	Engine Tier	Load Factor	EF (g/hp-hr)	NOx Emissions (lbs per year) Existing	Project
94-073 825C Compactor	Rubber Tired Dozers	1	Diesel	315	300	599	Tier 1	0.4	5.93	256.97	283.33
95-025 Storm Water Pump	Pumps	1	Diesel	30	25	49	Average	0.74	3.53	8.64	8.64
96-002 Genie	Aerial Lifts	1	Diesel	25	25	49	Tier 1	0.31	5.26	4.67	4.67
96-003 Forklift-Clark	Forklifts	1	Diesel	40	25	49	Average	0.2	3.53	9.71	9.71
96-041 Cat 950F Loader	Rubber Tired Loaders	1	Diesel	100	75	199	Tier 1	0.36	6.54	269.91	323.89
02-035 623 Scraper	Scrapers	1	Diesel	365	300	599	Tier 1	0.48	5.93	1,429.25	1,667.46
02-910 Sweeper	Sweepers/Scrubbers	1	Diesel	25	25	49	Tier 1	0.46	5.26	6.93	10.27
23-112 Pressure Washer	Pressure Washers	1	Gas	10	0	24	Gas	0.3	3.44	2.37	2.37
03-909 AL-JON 81K - Compactor	Rubber Tired Dozers	1	Diesel	360	300	599	Tier 1	0.4	5.93	97.89	242.85
04-042 836G COMPACTOR	Rubber Tired Dozers	1	Diesel	525	300	599	Tier 2	0.4	3.79	2,828.51	3,011.00
04-075 JD 850C Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 2	0.4	4.15	706.02	756.46
04-971 JD Grader	Graders	1	Diesel	217	175	299	Tier 1	0.41	5.93	120.97	181.45
06-041 CAT 950H	Rubber Tired Loaders	1	Diesel	150	120	174	Tier 2	0.36	4.15	822.11	873.49
06-18571 Portable Light Tower	Other General Industrial Equipment	1	Diesel	15	25	49	Tier 2	0.34	4.63	16.24	17.18
10-020 CAT D8 Dozer	Rubber Tired Dozers	1	Diesel	512	300	599	Tier 2	0.4	3.79	3,737.29	3,915.25
15-071 CAT 420 F2 Backhoe	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	2.15	90.28	100.32
18-042 CAT 836K Compactor	Rubber Tired Dozers	1	Diesel	540	300	599	Tier 4 Interim	0.4	1.29	990.25	1,054.13
18-075 JD 850K Dozer	Rubber Tired Dozers	1	Diesel	270	175	299	Tier 4 Interim	0.4	1.29	351.38	383.32
19-041 JD 644K Hybrid Loader	Rubber Tired Loaders	1	Diesel	150	75	199	Tier 4 Interim	0.36	2.15	479.15	505.77
19-073 JD Track Loader	Rubber Tired Loaders	1	Diesel	165	75	199	Tier 4 Interim	0.36	2.15	29.28	43.92
20-009 JD SKID STEER 333G	Skid Steer Loaders	1	Diesel	80	75	199	Tier 4 Interim	0.37	2.15	58.37	65.66
20-020 JD 1050K LARGE DOZER	Rubber Tired Dozers	1	Diesel	325	300	599	Tier 4 Interim	0.4	1.29	769.01	807.46
20-071 JD 310SL/HL BACKHOE	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	2.15	190.60	200.63
20-714 KUBOTA	Tractors/Loaders/Backhoes	1	Diesel	40	25	49	Tier 4 Interim	0.37	4.55	100.36	102.88
22-073 JD 755K Track Loader	Tractors/Loaders/Backhoes	1	Diesel	165	75	199	Tier 4 Interim	0.37	2.15	90.28	90.28
TARPOMATIC Landfill Covers - 04-001	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 1	0.4	5.26	4.82	9.65
TARPOMATIC Landfill Covers - 18-002	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 4 Interim	0.4	4.55	8.35	12.52
Fire Pump	Pumps	1	Diesel	25	25	49	Tier 1	0.74	5.26	10.73	10.73
KARCHER PRESSURE WASHER	Pressure Washers	1	Gas	10	0	24	Gas	0.3	3.44	1.18	2.37
03-908 Sterling Water Truck (tan)	Off-Highway Trucks	1	Diesel	200	175	299	Average	0.38	1.15	20.04	27.63
20-908 International Water Truck	Off-Highway Trucks	1	Diesel	225	175	299	Tier 4 Interim	0.38	1.29	63.22	84.28
2025 CAT LPG D-6 Finish Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 4 Final	0.4	0.26	0.00	151.90
2025-26 CAT 836 Compactor	Plate Compactors	1	Diesel	540	300	599	Tier 4 Final	0.43	0.26	0.00	312.78
2025-26 CAT 623 Scraper	Scrapers	1	Diesel	370	300	599	Tier 4 Final	0.48	0.26	0.00	101.80
2025-26 Large Dozer	Rubber Tired Dozers	1	Diesel	400	300	599	Tier 4 Final	0.4	0.26	0.00	206.35
2025 Loader mid size	Rubber Tired Loaders	1	Diesel	165	120	174	Tier 4 Final	0.36	0.26	0.00	64.69
									Total emissions per Year (lbs)	**13,575**	**15,647**
									Total emissions per Year (tons)	**6.79**	**7.82**
									Annual Average emissions per Day (lbs)	**37.19**	**42.87**

Assumptions

Grams per pound	453.592
Pounds per ton	2,000
Work days per year	365

Abbreviations

NOx = nitrogen oxides; EF = emission factor; g/hp-hr = gram per horsepower-hour; lbs = pounds

Notes:

Emission factors were obtained from CalEEMod based on equipment type, fuel type, horsepower, and engine tier.

Equations:

Emissions [lbs] = emission factor [g/hp-gr] × number of pieces of equipment × horsepower × load factor × hours of annual operation/ 453.592 grams per pound

Off-Road Equipment PM_{10E} Emissions

Project Equipment	CalEEMod Equipment Category	Number	Fuel Type	Horse-power	Low HP	High HP	Engine Tier	Load Factor	EF (g/hp-hr)	PM_{10E} Emissions (lbs per year)	
										Existing	Project
94-073 825C Compactor	Rubber Tired Dozers	1	Diesel	315	300	599	Tier 1	0.4	0.12	5.20	5.73
95-025 Storm Water Pump	Pumps	1	Diesel	30	25	49	Average	0.74	0.099	0.24	0.24
96-002 Genie	Aerial Lifts	1	Diesel	25	25	49	Tier 1	0.31	0.48	0.43	0.43
96-003 Forklift-Clark	Forklifts	1	Diesel	40	25	49	Average	0.2	0.099	0.27	0.27
96-041 Cat 950F Loader	Rubber Tired Loaders	1	Diesel	100	75	199	Tier 1	0.36	0.55	22.70	27.24
02-035 623 Scraper	Scrapers	1	Diesel	365	300	599	Tier 1	0.48	0.12	28.92	33.74
02-910 Sweeper	Sweepers/Scrubbers	1	Diesel	25	25	49	Tier 1	0.46	0.48	0.63	0.94
23-112 Pressure Washer	Pressure Washers	1	Gas	10	0	24	Gas	0.3	0.207	0.14	0.14
03-909 AL-JON 81K - Compactor	Rubber Tired Dozers	1	Diesel	360	300	599	Tier 1	0.4	0.12	1.98	4.91
04-042 836G COMPACTOR	Rubber Tired Dozers	1	Diesel	525	300	599	Tier 2	0.4	0.09	67.17	71.50
04-075 JD 850C Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 2	0.4	0.09	15.31	16.41
04-971 JD Grader	Graders	1	Diesel	217	175	299	Tier 1	0.41	0.12	2.45	3.67
06-041 CAT 950H	Rubber Tired Loaders	1	Diesel	150	120	174	Tier 2	0.36	0.13	25.75	27.36
06-18571 Portable Light Tower	Other General Industrial Equipment	1	Diesel	15	25	49	Tier 2	0.34	0.28	0.98	1.04
10-020 CAT D8 Dozer	Rubber Tired Dozers	1	Diesel	512	300	599	Tier 2	0.4	0.09	88.75	92.97
15-071 CAT 420 F2 Backhoe	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.01	0.42	0.47
18-042 CAT 836K Compactor	Rubber Tired Dozers	1	Diesel	540	300	599	Tier 4 Interim	0.4	0.01	7.68	8.17
18-075 JD 850K Dozer	Rubber Tired Dozers	1	Diesel	270	175	299	Tier 4 Interim	0.4	0.01	2.72	2.97
19-041 JD 644K Hybrid Loader	Rubber Tired Loaders	1	Diesel	150	75	199	Tier 4 Interim	0.36	0.01	2.23	2.35
19-073 JD Track Loader	Rubber Tired Loaders	1	Diesel	165	75	199	Tier 4 Interim	0.36	0.01	0.14	0.20
20-009 JD SKID STEER 333G	Skid Steer Loaders	1	Diesel	80	75	199	Tier 4 Interim	0.37	0.01	0.27	0.31
20-020 JD 1050K LARGE DOZER	Rubber Tired Dozers	1	Diesel	325	300	599	Tier 4 Interim	0.4	0.01	5.96	6.26
20-071 JD 310SL/HL BACKHOE	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.01	0.89	0.93
20-714 KUBOTA	Tractors/Loaders/Backhoes	1	Diesel	40	25	49	Tier 4 Interim	0.37	0.13	2.87	2.94
22-073 JD 755K Track Loader	Tractors/Loaders/Backhoes	1	Diesel	165	75	199	Tier 4 Interim	0.37	0.01	0.42	0.42
TARPOMATIC Landfill Covers - 04-001	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 1	0.4	0.48	0.44	0.88
TARPOMATIC Landfill Covers - 18-002	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 4 Interim	0.4	0.13	0.24	0.36
Fire Pump	Pumps	1	Diesel	25	25	49	Tier 1	0.74	0.48	0.98	0.98
KARCHER PRESSURE WASHER	Pressure Washers	1	Gas	10	0	24	Gas	0.3	0.207	0.07	0.14
03-908 Sterling Water Truck (tan)	Off-Highway Trucks	1	Diesel	200	175	299	Average	0.38	0.044	0.77	1.06
20-908 International Water Truck	Off-Highway Trucks	1	Diesel	225	175	299	Tier 4 Interim	0.38	0.01	0.49	0.65
2025 CAT LPG D-6 Finish Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 4 Final	0.4	0.01	0.00	5.84
2025-26 CAT 836 Compactor	Plate Compactors	1	Diesel	540	300	599	Tier 4 Final	0.43	0.01	0.00	12.03
2025-26 CAT 623 Scraper	Scrapers	1	Diesel	370	300	599	Tier 4 Final	0.48	0.01	0.00	3.92
2025-26 Large Dozer	Rubber Tired Dozers	1	Diesel	400	300	599	Tier 4 Final	0.4	0.01	0.00	7.94
2025 Loader mid size	Rubber Tired Loaders	1	Diesel	165	120	174	Tier 4 Final	0.36	0.01	0.00	2.49
									Total emissions per Year (lbs)	**288**	**348**
									Total emissions per Year (tons)	**0.14**	**0.17**
									Annual Average emissions per Day (lbs)	**0.79**	**0.95**

Assumptions

Grams per pound	453.592
Pounds per ton	2,000
Work days per year	365

Abbreviations

PM_{10E} = coarse particulate matter (exhaust); EF = emission factor; g/hp-hr = gram per horsepower-hour; lbs = pounds

Notes:

Emission factors were obtained from CalEEMod based on equipment type, fuel type, horsepower, and engine tier.

Equations:

Emissions [lbs] = emission factor [g/hp-gr] × number of pieces of equipment × horsepower × load factor × hours of annual operation/ 453.592 grams per pound

Off-Road Equipment $PM_{2.5E}$ Emissions

Project Equipment	CalEEMod Equipment Category	Number	Fuel Type	Horse-power	Low HP	High HP	Engine Tier	Load Factor	EF (g/hp-hr)	$PM_{2.5E}$ Emissions (lbs per year)	
										Existing	Project
94-073 825C Compactor	Rubber Tired Dozers	1	Diesel	315	300	599	Tier 1	0.4	0.11	4.77	5.26
95-025 Storm Water Pump	Pumps	1	Diesel	30	25	49	Average	0.74	0.091	0.22	0.22
96-002 Genie	Aerial Lifts	1	Diesel	25	25	49	Tier 1	0.31	0.44	0.39	0.39
96-003 Forklift-Clark	Forklifts	1	Diesel	40	25	49	Average	0.2	0.091	0.25	0.25
96-041 Cat 950F Loader	Rubber Tired Loaders	1	Diesel	100	75	199	Tier 1	0.36	0.51	21.05	25.26
02-035 623 Scraper	Scrapers	1	Diesel	365	300	599	Tier 1	0.48	0.11	26.51	30.93
02-910 Sweeper	Sweepers/Scrubbers	1	Diesel	25	25	49	Tier 1	0.46	0.44	0.58	0.86
23-112 Pressure Washer	Pressure Washers	1	Gas	10	0	24	Gas	0.3	0.156	0.11	0.11
03-909 AL-JON 81K - Compactor	Rubber Tired Dozers	1	Diesel	360	300	599	Tier 1	0.4	0.11	1.82	4.50
04-042 836G COMPACTOR	Rubber Tired Dozers	1	Diesel	525	300	599	Tier 2	0.4	0.08	59.70	63.56
04-075 JD 850C Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 2	0.4	0.08	13.61	14.58
04-971 JD Grader	Graders	1	Diesel	217	175	299	Tier 1	0.41	0.11	2.24	3.37
06-041 CAT 950H	Rubber Tired Loaders	1	Diesel	150	120	174	Tier 2	0.36	0.12	23.77	25.26
06-18571 Portable Light Tower	Other General Industrial Equipment	1	Diesel	15	25	49	Tier 2	0.34	0.26	0.91	0.96
10-020 CAT D8 Dozer	Rubber Tired Dozers	1	Diesel	512	300	599	Tier 2	0.4	0.08	78.89	82.64
15-071 CAT 420 F2 Backhoe	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.01	0.42	0.47
18-042 CAT 836K Compactor	Rubber Tired Dozers	1	Diesel	540	300	599	Tier 4 Interim	0.4	0.01	7.68	8.17
18-075 JD 850K Dozer	Rubber Tired Dozers	1	Diesel	270	175	299	Tier 4 Interim	0.4	0.01	2.72	2.97
19-041 JD 644K Hybrid Loader	Rubber Tired Loaders	1	Diesel	150	75	199	Tier 4 Interim	0.36	0.01	2.23	2.35
19-073 JD Track Loader	Rubber Tired Loaders	1	Diesel	165	75	199	Tier 4 Interim	0.36	0.01	0.14	0.20
20-009 JD SKID STEER 333G	Skid Steer Loaders	1	Diesel	80	75	199	Tier 4 Interim	0.37	0.01	0.27	0.31
20-020 JD 1050K LARGE DOZER	Rubber Tired Dozers	1	Diesel	325	300	599	Tier 4 Interim	0.4	0.01	5.96	6.26
20-071 JD 310SL/HL BACKHOE	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.01	0.89	0.93
20-714 KUBOTA	Tractors/Loaders/Backhoes	1	Diesel	40	25	49	Tier 4 Interim	0.37	0.12	2.65	2.71
22-073 JD 755K Track Loader	Tractors/Loaders/Backhoes	1	Diesel	165	75	199	Tier 4 Interim	0.37	0.01	0.42	0.42
TARPOMATIC Landfill Covers - 04-001	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 1	0.4	0.44	0.40	0.81
TARPOMATIC Landfill Covers - 18-002	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 4 Interim	0.4	0.12	0.22	0.33
Fire Pump	Pumps	1	Diesel	25	25	49	Tier 1	0.74	0.44	0.90	0.90
KARCHER PRESSURE WASHER	Pressure Washers	1	Gas	10	0	24	Gas	0.3	0.156	0.05	0.11
03-908 Sterling Water Truck (tan)	Off-Highway Trucks	1	Diesel	200	175	299	Average	0.38	0.041	0.71	0.99
20-908 International Water Truck	Off-Highway Trucks	1	Diesel	225	175	299	Tier 4 Interim	0.38	0.01	0.49	0.65
2025 CAT LPG D-6 Finish Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 4 Final	0.4	0.01	0.00	5.84
2025-26 CAT 836 Compactor	Plate Compactors	1	Diesel	540	300	599	Tier 4 Final	0.43	0.01	0.00	12.03
2025-26 CAT 623 Scraper	Scrapers	1	Diesel	370	300	599	Tier 4 Final	0.48	0.01	0.00	3.92
2025-26 Large Dozer	Rubber Tired Dozers	1	Diesel	400	300	599	Tier 4 Final	0.4	0.01	0.00	7.94
2025 Loader mid size	Rubber Tired Loaders	1	Diesel	165	120	174	Tier 4 Final	0.36	0.01	0.00	2.49
									Total emissions per Year (lbs)	**261**	**319**
									Total emissions per Year (tons)	**0.13**	**0.16**
									Annual Average emissions per Day (lbs)	**0.71**	**0.87**

Assumptions

Grams per pound	453.592
Pounds per ton	2,000
Work days per year	365

Abbreviations

$PM_{2.5E}$ = fine particulate matter (exhaust); EF = emission factor; g/hp-hr = gram per horsepower-hour; lbs = pounds

Notes:

Emission factors were obtained from CalEEMod based on equipment type, fuel type, horsepower, and engine tier.

Equations:

Emissions [lbs] = emission factor [g/hp-gr] × number of pieces of equipment × horsepower × load factor × hours of annual operation/ 453.592 grams per pound

Off-Road Equipment CO Emissions

Project Equipment	CalEEMod Equipment Category	Number	Fuel Type	Horse-power	Low HP	High HP	Engine Tier	Load Factor	EF (g/hp-hr)	CO Emissions (lbs per year) Existing	Project
94-073 825C Compactor	Rubber Tired Dozers	1	Diesel	315	300	599	Tier 1	0.4	8.5	368.34	406.12
95-025 Storm Water Pump	Pumps	1	Diesel	30	25	49	Average	0.74	3.94	9.64	9.64
96-002 Genie	Aerial Lifts	1	Diesel	25	25	49	Tier 1	0.31	4.1	3.64	3.64
96-003 Forklift-Clark	Forklifts	1	Diesel	40	25	49	Average	0.2	3.94	10.84	10.84
96-041 Cat 950F Loader	Rubber Tired Loaders	1	Diesel	100	75	199	Tier 1	0.36	8.5	350.80	420.96
02-035 623 Scraper	Scrapers	1	Diesel	365	300	599	Tier 1	0.48	8.5	2,048.67	2,390.12
02-910 Sweeper	Sweepers/Scrubbers	1	Diesel	25	25	49	Tier 1	0.46	4.1	5.41	8.00
23-112 Pressure Washer	Pressure Washers	1	Gas	10	0	24	Gas	0.3	262	180.21	180.21
03-909 AL-JON 81K - Compactor	Rubber Tired Dozers	1	Diesel	360	300	599	Tier 1	0.4	8.5	140.32	348.10
04-042 836G COMPACTOR	Rubber Tired Dozers	1	Diesel	525	300	599	Tier 2	0.4	2.6	1,940.40	2,065.59
04-075 JD 850C Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 2	0.4	2.6	442.33	473.92
04-971 JD Grader	Graders	1	Diesel	217	175	299	Tier 1	0.41	8.5	173.39	260.09
06-041 CAT 950H	Rubber Tired Loaders	1	Diesel	150	120	174	Tier 2	0.36	3.7	732.97	778.78
06-18571 Portable Light Tower	Other General Industrial Equipment	1	Diesel	15	25	49	Tier 2	0.34	4.1	14.38	15.21
10-020 CAT D8 Dozer	Rubber Tired Dozers	1	Diesel	512	300	599	Tier 2	0.4	2.6	2,563.84	2,685.93
15-071 CAT 420 F2 Backhoe	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	3.7	155.37	172.64
18-042 CAT 836K Compactor	Rubber Tired Dozers	1	Diesel	540	300	599	Tier 4 Interim	0.4	2.6	1,995.84	2,124.61
18-075 JD 850K Dozer	Rubber Tired Dozers	1	Diesel	270	175	299	Tier 4 Interim	0.4	2.6	708.20	772.59
19-041 JD 644K Hybrid Loader	Rubber Tired Loaders	1	Diesel	150	75	199	Tier 4 Interim	0.36	3.7	824.59	870.40
19-073 JD Track Loader	Rubber Tired Loaders	1	Diesel	165	75	199	Tier 4 Interim	0.36	3.7	50.39	75.59
20-009 JD SKID STEER 333G	Skid Steer Loaders	1	Diesel	80	75	199	Tier 4 Interim	0.37	3.7	100.44	113.00
20-020 JD 1050K LARGE DOZER	Rubber Tired Dozers	1	Diesel	325	300	599	Tier 4 Interim	0.4	2.6	1,549.94	1,627.44
20-071 JD 310SL/HL BACKHOE	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	3.7	328.01	345.27
20-714 KUBOTA	Tractors/Loaders/Backhoes	1	Diesel	40	25	49	Tier 4 Interim	0.37	4.1	90.43	92.71
22-073 JD 755K Track Loader	Tractors/Loaders/Backhoes	1	Diesel	165	75	199	Tier 4 Interim	0.37	3.7	155.37	155.37
TARPOMATIC Landfill Covers - 04-001	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 1	0.4	4.1	3.76	7.52
TARPOMATIC Landfill Covers - 18-002	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 4 Interim	0.4	4.1	7.52	11.28
Fire Pump	Pumps	1	Diesel	25	25	49	Tier 1	0.74	4.1	8.36	8.36
KARCHER PRESSURE WASHER	Pressure Washers	1	Gas	10	0	24	Gas	0.3	262	90.11	180.21
03-908 Sterling Water Truck (tan)	Off-Highway Trucks	1	Diesel	200	175	299	Average	0.38	1.23	21.43	29.55
20-908 International Water Truck	Off-Highway Trucks	1	Diesel	225	175	299	Tier 4 Interim	0.38	2.6	127.42	169.86
2025 CAT LPG D-6 Finish Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 4 Final	0.4	2.6	0.00	1,518.99
2025-26 CAT 836 Compactor	Plate Compactors	1	Diesel	540	300	599	Tier 4 Final	0.43	2.6	0.00	3,127.79
2025-26 CAT 623 Scraper	Scrapers	1	Diesel	370	300	599	Tier 4 Final	0.48	2.6	0.00	1,018.01
2025-26 Large Dozer	Rubber Tired Dozers	1	Diesel	400	300	599	Tier 4 Final	0.4	2.6	0.00	2,063.53
2025 Loader mid size	Rubber Tired Loaders	1	Diesel	165	120	174	Tier 4 Final	0.36	3.7	0.00	920.61
									Total emissions per Year (lbs)	**15,202**	**25,462**
									Total emissions per Year (tons)	**7.60**	**12.73**
									Annual Average emissions per Day (lbs)	**41.65**	**69.76**

Assumptions

Grams per pound	453.592
Pounds per ton	2,000
Work days per year	365

Abbreviations

CO= carbon monoxide; EF = emission factor; g/hp-hr = gram per horsepower-hour; lbs = pounds

Notes:

Emission factors were obtained from CalEEMod based on equipment type, fuel type, horsepower, and engine tier.

Equations:

Emissions [lbs] = emission factor [g/hp-gr] × number of pieces of equipment × horsepower × load factor × hours of annual operation/ 453.592 grams per pound

Off-Road Equipment SOx Emissions

Project Equipment	CalEEMod Equipment Category	Number	Fuel Type	Horse-power	Low HP	High HP	Engine Tier	Load Factor	EF (g/hp-hr)	SO_x Emissions (lbs per year)	
										Existing	Project
94-073 825C Compactor	Rubber Tired Dozers	1	Diesel	315	300	599	Tier 1	0.4	0.0049	0.21	0.23
95-025 Storm Water Pump	Pumps	1	Diesel	30	25	49	Average	0.74	0.0049	0.01	0.01
96-002 Genie	Aerial Lifts	1	Diesel	25	25	49	Tier 1	0.31	0.0054	0.00	0.00
96-003 Forklift-Clark	Forklifts	1	Diesel	40	25	49	Average	0.2	0.0049	0.01	0.01
96-041 Cat 950F Loader	Rubber Tired Loaders	1	Diesel	100	75	199	Tier 1	0.36	0.0049	0.20	0.24
02-035 623 Scraper	Scrapers	1	Diesel	365	300	599	Tier 1	0.48	0.0049	1.17	1.37
02-910 Sweeper	Sweepers/Scrubbers	1	Diesel	25	25	49	Tier 1	0.46	0.0049	0.01	0.01
23-112 Pressure Washer	Pressure Washers	1	Gas	10	0	24	Gas	0.3	0.0053	0.00	0.00
03-909 AL-JON 81K - Compactor	Rubber Tired Dozers	1	Diesel	360	300	599	Tier 1	0.4	0.0049	0.08	0.20
04-042 836G COMPACTOR	Rubber Tired Dozers	1	Diesel	525	300	599	Tier 2	0.4	0.0049	3.64	3.87
04-075 JD 850C Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 2	0.4	0.0054	0.92	0.99
04-971 JD Grader	Graders	1	Diesel	217	175	299	Tier 1	0.41	0.0054	0.11	0.17
06-041 CAT 950H	Rubber Tired Loaders	1	Diesel	150	120	174	Tier 2	0.36	0.0054	1.07	1.14
06-18571 Portable Light Tower	Other General Industrial Equipment	1	Diesel	15	25	49	Tier 2	0.34	0.0049	0.02	0.02
10-020 CAT D8 Dozer	Rubber Tired Dozers	1	Diesel	512	300	599	Tier 2	0.4	0.0049	4.81	5.04
15-071 CAT 420 F2 Backhoe	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.0049	0.21	0.23
18-042 CAT 836K Compactor	Rubber Tired Dozers	1	Diesel	540	300	599	Tier 4 Interim	0.4	0.0049	3.74	3.98
18-075 JD 850K Dozer	Rubber Tired Dozers	1	Diesel	270	175	299	Tier 4 Interim	0.4	0.0054	1.47	1.61
19-041 JD 644K Hybrid Loader	Rubber Tired Loaders	1	Diesel	150	75	199	Tier 4 Interim	0.36	0.0049	1.09	1.15
19-073 JD Track Loader	Rubber Tired Loaders	1	Diesel	165	75	199	Tier 4 Interim	0.36	0.0049	0.07	0.10
20-009 JD SKID STEER 333G	Skid Steer Loaders	1	Diesel	80	75	199	Tier 4 Interim	0.37	0.0049	0.13	0.15
20-020 JD 1050K LARGE DOZER	Rubber Tired Dozers	1	Diesel	325	300	599	Tier 4 Interim	0.4	0.0049	2.91	3.05
20-071 JD 310SL/HL BACKHOE	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.0049	0.43	0.46
20-714 KUBOTA	Tractors/Loaders/Backhoes	1	Diesel	40	25	49	Tier 4 Interim	0.37	0.0049	0.11	0.11
22-073 JD 755K Track Loader	Tractors/Loaders/Backhoes	1	Diesel	165	75	199	Tier 4 Interim	0.37	0.0049	0.21	0.21
TARPOMATIC Landfill Covers - 04-001	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 1	0.4	0.0049	0.00	0.01
TARPOMATIC Landfill Covers - 18-002	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 4 Interim	0.4	0.0049	0.01	0.01
Fire Pump	Pumps	1	Diesel	25	25	49	Tier 1	0.74	0.0049	0.01	0.01
KARCHER PRESSURE WASHER	Pressure Washers	1	Gas	10	0	24	Gas	0.3	0.0053	0.00	0.00
03-908 Sterling Water Truck (tan)	Off-Highway Trucks	1	Diesel	200	175	299	Average	0.38	0.0054	0.09	0.13
20-908 International Water Truck	Off-Highway Trucks	1	Diesel	225	175	299	Tier 4 Interim	0.38	0.0054	0.27	0.35
2025 CAT LPG D-6 Finish Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 4 Final	0.4	0.0054	0.00	3.16
2025-26 CAT 836 Compactor	Plate Compactors	1	Diesel	540	300	599	Tier 4 Final	0.43	0.0049	0.00	5.86
2025-26 CAT 623 Scraper	Scrapers	1	Diesel	370	300	599	Tier 4 Final	0.48	0.0049	0.00	1.91
2025-26 Large Dozer	Rubber Tired Dozers	1	Diesel	400	300	599	Tier 4 Final	0.4	0.0049	0.00	3.87
2025 Loader mid size	Rubber Tired Loaders	1	Diesel	165	120	174	Tier 4 Final	0.36	0.0054	0.00	1.35
									Total emissions per Year (lbs)	**23**	**41**
									Total emissions per Year (tons)	**0.01**	**0.02**
									Annual Average emissions per Day (lbs)	**0.06**	**0.11**

Assumptions

Grams per pound	453.592
Pounds per ton	2,000
Work days per year	365

Abbreviations

SOx= sulfur oxides; EF = emission factor; g/hp-hr = gram per horsepower-hour; lbs = pounds

Notes:

Emission factors were obtained from CalEEMod based on equipment type, fuel type, horsepower, and engine tier.

Equations:

Emissions [lbs] = emission factor [g/hp-gr] × number of pieces of equipment × horsepower × load factor × hours of annual operation/ 453.592 grams per pound

Off-Road Construction Equipment CO_2 Emissions

Project Equipment	CalEEMod Equipment Category	Number	Fuel Type	Horse-power	Low HP	High HP	Engine Tier	Load Factor	EF (g/hp-hr)	CO_2 Emissions (lbs per year)	
										Existing	Project
94-073 825C Compactor	Rubber Tired Dozers	1	Diesel	315	300	599	Tier 1	0.4	528	22,880.40	25,227.11
95-025 Storm Water Pump	Pumps	1	Diesel	30	25	49	Average	0.74	568	1,389.97	1,389.97
96-002 Genie	Aerial Lifts	1	Diesel	25	25	49	Tier 1	0.31	528	469.11	469.11
96-003 Forklift-Clark	Forklifts	1	Diesel	40	25	49	Average	0.2	568	1,562.78	1,562.78
96-041 Cat 950F Loader	Rubber Tired Loaders	1	Diesel	100	75	199	Tier 1	0.36	528	21,790.86	26,149.03
02-035 623 Scraper	Scrapers	1	Diesel	365	300	599	Tier 1	0.48	528	127,258.63	148,468.40
02-910 Sweeper	Sweepers/Scrubbers	1	Diesel	25	25	49	Tier 1	0.46	528	696.10	1,030.76
23-112 Pressure Washer	Pressure Washers	1	Gas	10	0	24	Gas	0.3	429	295.08	295.08
03-909 AL-JON 81K - Compactor	Rubber Tired Dozers	1	Diesel	360	300	599	Tier 1	0.4	528	8,716.34	21,623.24
04-042 836G COMPACTOR	Rubber Tired Dozers	1	Diesel	525	300	599	Tier 2	0.4	528	394,051.39	419,474.06
04-075 JD 850C Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 2	0.4	528	89,826.77	96,242.97
04-971 JD Grader	Graders	1	Diesel	217	175	299	Tier 1	0.41	528	10,770.74	16,156.11
06-041 CAT 950H	Rubber Tired Loaders	1	Diesel	150	120	174	Tier 2	0.36	528	104,596.13	111,133.39
06-18571 Portable Light Tower	Other General Industrial Equipment	1	Diesel	15	25	49	Tier 2	0.34	528	1,852.22	1,959.08
10-020 CAT D8 Dozer	Rubber Tired Dozers	1	Diesel	512	300	599	Tier 2	0.4	528	520,656.29	545,449.45
15-071 CAT 420 F2 Backhoe	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	528	22,172.20	24,635.78
18-042 CAT 836K Compactor	Rubber Tired Dozers	1	Diesel	540	300	599	Tier 4 Interim	0.4	528	405,310.01	431,459.04
18-075 JD 850K Dozer	Rubber Tired Dozers	1	Diesel	270	175	299	Tier 4 Interim	0.4	528	143,819.68	156,894.20
19-041 JD 644K Hybrid Loader	Rubber Tired Loaders	1	Diesel	150	75	199	Tier 4 Interim	0.36	528	117,670.65	124,207.90
19-073 JD Track Loader	Rubber Tired Loaders	1	Diesel	165	75	199	Tier 4 Interim	0.36	528	7,190.98	10,786.48
20-009 JD SKID STEER 333G	Skid Steer Loaders	1	Diesel	80	75	199	Tier 4 Interim	0.37	528	14,333.54	16,125.24
20-020 JD 1050K LARGE DOZER	Rubber Tired Dozers	1	Diesel	325	300	599	Tier 4 Interim	0.4	528	314,756.87	330,494.72
20-071 JD 310SL/HL BACKHOE	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	528	46,807.98	49,271.56
20-714 KUBOTA	Tractors/Loaders/Backhoes	1	Diesel	40	25	49	Tier 4 Interim	0.37	528	11,646.00	11,938.88
22-073 JD 755K Track Loader	Tractors/Loaders/Backhoes	1	Diesel	165	75	199	Tier 4 Interim	0.37	528	22,172.20	22,172.20
TARPOMATIC Landfill Covers - 04-001	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 1	0.4	528	484.24	968.48
TARPOMATIC Landfill Covers - 18-002	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 4 Interim	0.4	528	968.48	1,452.72
Fire Pump	Pumps	1	Diesel	25	25	49	Tier 1	0.74	528	1,076.74	1,076.74
KARCHER PRESSURE WASHER	Pressure Washers	1	Gas	10	0	24	Gas	0.3	429	147.54	295.08
03-908 Sterling Water Truck (tan)	Off-Highway Trucks	1	Diesel	200	175	299	Average	0.38	526	9,165.73	12,638.14
20-908 International Water Truck	Off-Highway Trucks	1	Diesel	225	175	299	Tier 4 Interim	0.38	528	25,876.65	34,495.56
2025 CAT LPG D-6 Finish Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 4 Final	0.4	528	0.00	308,471.05
2025-26 CAT 836 Compactor	Plate Compactors	1	Diesel	540	300	599	Tier 4 Final	0.43	528	0.00	635,182.63
2025-26 CAT 623 Scraper	Scrapers	1	Diesel	370	300	599	Tier 4 Final	0.48	528	0.00	206,733.80
2025-26 Large Dozer	Rubber Tired Dozers	1	Diesel	400	300	599	Tier 4 Final	0.4	528	0.00	419,055.01
2025 Loader mid size	Rubber Tired Loaders	1	Diesel	165	120	174	Tier 4 Final	0.36	528	0.00	131,373.75
Total emissions per Year (lbs)										**2,450,412**	**4,346,359**
Total emissions per Year (metric tons)										**1,111**	**1,971**
Total CO_{2e} emissions per Year (metric tons)										**1,111**	**1,971**

Assumptions

Grams per pound	453.592
Pounds per metric ton	2,205
Global Warming Potential	1

Abbreviations

CO_2 = carbon dioxide; EF = emission factor; g/hp-hr = gram per horsepower-hour; lbs = pounds

Notes:

Emission factors were obtained from CalEEMod.

Equations:

Emissions [lbs] = emission factor [g/hp-gr] × number of pieces of equipment × horsepower × load factor × hours of annual operation/ 453.592 grams per pound

Off-Road Construction Equipment CH_4 Emissions

Project Equipment	CalEEMod Equipment Category	Number	Fuel Type	Horse-power	Low HP	High HP	Engine Tier	Load Factor	EF (g/hp-hr)	CH_4 Emissions (lbs per year)	
										Existing	Project
94-073 825C Compactor	Rubber Tired Dozers	1	Diesel	315	300	599	Tier 1	0.4	0.021	0.91	1.00
95-025 Storm Water Pump	Pumps	1	Diesel	30	25	49	Average	0.74	0.023	0.06	0.06
96-002 Genie	Aerial Lifts	1	Diesel	25	25	49	Tier 1	0.31	0.021	0.02	0.02
96-003 Forklift-Clark	Forklifts	1	Diesel	40	25	49	Average	0.2	0.023	0.06	0.06
96-041 Cat 950F Loader	Rubber Tired Loaders	1	Diesel	100	75	199	Tier 1	0.36	0.021	0.87	1.04
02-035 623 Scraper	Scrapers	1	Diesel	365	300	599	Tier 1	0.48	0.021	5.06	5.90
02-910 Sweeper	Sweepers/Scrubbers	1	Diesel	25	25	49	Tier 1	0.46	0.021	0.03	0.04
23-112 Pressure Washer	Pressure Washers	1	Gas	10	0	24	Gas	0.3	0.018	0.01	0.01
03-909 AL-JON 81K - Compactor	Rubber Tired Dozers	1	Diesel	360	300	599	Tier 1	0.4	0.021	0.35	0.86
04-042 836G COMPACTOR	Rubber Tired Dozers	1	Diesel	525	300	599	Tier 2	0.4	0.021	15.67	16.68
04-075 JD 850C Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 2	0.4	0.021	3.57	3.83
04-971 JD Grader	Graders	1	Diesel	217	175	299	Tier 1	0.41	0.021	0.43	0.64
06-041 CAT 950H	Rubber Tired Loaders	1	Diesel	150	120	174	Tier 2	0.36	0.021	4.16	4.42
06-18571 Portable Light Tower	Other General Industrial Equipment	1	Diesel	15	25	49	Tier 2	0.34	0.021	0.07	0.08
10-020 CAT D8 Dozer	Rubber Tired Dozers	1	Diesel	512	300	599	Tier 2	0.4	0.021	20.71	21.69
15-071 CAT 420 F2 Backhoe	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.021	0.88	0.98
18-042 CAT 836K Compactor	Rubber Tired Dozers	1	Diesel	540	300	599	Tier 4 Interim	0.4	0.021	16.12	17.16
18-075 JD 850K Dozer	Rubber Tired Dozers	1	Diesel	270	175	299	Tier 4 Interim	0.4	0.021	5.72	6.24
19-041 JD 644K Hybrid Loader	Rubber Tired Loaders	1	Diesel	150	75	199	Tier 4 Interim	0.36	0.021	4.68	4.94
19-073 JD Track Loader	Rubber Tired Loaders	1	Diesel	165	75	199	Tier 4 Interim	0.36	0.021	0.29	0.43
20-009 JD SKID STEER 333G	Skid Steer Loaders	1	Diesel	80	75	199	Tier 4 Interim	0.37	0.021	0.57	0.64
20-020 JD 1050K LARGE DOZER	Rubber Tired Dozers	1	Diesel	325	300	599	Tier 4 Interim	0.4	0.021	12.52	13.14
20-071 JD 310SL/HL BACKHOE	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.021	1.86	1.96
20-714 KUBOTA	Tractors/Loaders/Backhoes	1	Diesel	40	25	49	Tier 4 Interim	0.37	0.021	0.46	0.47
22-073 JD 755K Track Loader	Tractors/Loaders/Backhoes	1	Diesel	165	75	199	Tier 4 Interim	0.37	0.021	0.88	0.88
TARPOMATIC Landfill Covers - 04-001	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 1	0.4	0.021	0.02	0.04
TARPOMATIC Landfill Covers - 18-002	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 4 Interim	0.4	0.021	0.04	0.06
Fire Pump	Pumps	1	Diesel	25	25	49	Tier 1	0.74	0.021	0.04	0.04
KARCHER PRESSURE WASHER	Pressure Washers	1	Gas	10	0	24	Gas	0.3	0.018	0.01	0.01
03-908 Sterling Water Truck (tan)	Off-Highway Trucks	1	Diesel	200	175	299	Average	0.38	0.021	0.37	0.50
20-908 International Water Truck	Off-Highway Trucks	1	Diesel	225	175	299	Tier 4 Interim	0.38	0.021	1.03	1.37
2025 CAT LPG D-6 Finish Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 4 Final	0.4	0.021	0.00	12.27
2025-26 CAT 836 Compactor	Plate Compactors	1	Diesel	540	300	599	Tier 4 Final	0.43	0.021	0.00	25.26
2025-26 CAT 623 Scraper	Scrapers	1	Diesel	370	300	599	Tier 4 Final	0.48	0.021	0.00	8.22
2025-26 Large Dozer	Rubber Tired Dozers	1	Diesel	400	300	599	Tier 4 Final	0.4	0.021	0.00	16.67
2025 Loader mid size	Rubber Tired Loaders	1	Diesel	165	120	174	Tier 4 Final	0.36	0.021	0.00	5.23
Total CH_4 emissions per Year (lbs)										**97**	**173**
Total CH_4 emissions per Year (metric tons)										**0.04**	**0.08**
Total CO_{2e} emissions per Year (metric tons)										**1.11**	**1.96**

Assumptions

Grams per pound 453.592

Pounds per metric ton 2,205

Global Warming Potential 25 CARB 2022. GHG Global Warming Potentials. Available at via https://ww2.arb.ca.gov/ghg-gwps. Accessed on September 9, 2024.

Abbreviations

CH_4 =methane; EF = emission factor; g/hp-hr = gram per horsepower-hour; lbs = pounds

Notes:

Emission factors were obtained from CalEEMod.

Equations:

Emissions [lbs] = emission factor [g/hp-gr] × number of pieces of equipment × horsepower × load factor × hours of annual operation/ 453.592 grams per pound

Off-Road Construction Equipment N_2O Emissions

Project Equipment	CalEEMod Equipment Category	Number	Fuel Type	Horse-power	Low HP	High HP	Engine Tier	Load Factor	EF (g/hp-hr)	N_2O Emissions (lbs per year)	
										Existing	Project
94-073 825C Compactor	Rubber Tired Dozers	1	Diesel	315	300	599	Tier 1	0.4	0.004	0.173	0.191
95-025 Storm Water Pump	Pumps	1	Diesel	30	25	49	Average	0.74	0.005	0.012	0.012
96-002 Genie	Aerial Lifts	1	Diesel	25	25	49	Tier 1	0.31	0.004	0.004	0.004
96-003 Forklift-Clark	Forklifts	1	Diesel	40	25	49	Average	0.2	0.005	0.014	0.014
96-041 Cat 950F Loader	Rubber Tired Loaders	1	Diesel	100	75	199	Tier 1	0.36	0.004	0.165	0.198
02-035 623 Scraper	Scrapers	1	Diesel	365	300	599	Tier 1	0.48	0.004	0.964	1.125
02-910 Sweeper	Sweepers/Scrubbers	1	Diesel	25	25	49	Tier 1	0.46	0.004	0.005	0.008
23-112 Pressure Washer	Pressure Washers	1	Gas	10	0	24	Gas	0.3	0.004	0.003	0.003
03-909 AL-JON 81K - Compactor	Rubber Tired Dozers	1	Diesel	360	300	599	Tier 1	0.4	0.004	0.066	0.164
04-042 836G COMPACTOR	Rubber Tired Dozers	1	Diesel	525	300	599	Tier 2	0.4	0.004	2.985	3.178
04-075 JD 850C Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 2	0.4	0.004	0.681	0.729
04-971 JD Grader	Graders	1	Diesel	217	175	299	Tier 1	0.41	0.004	0.082	0.122
06-041 CAT 950H	Rubber Tired Loaders	1	Diesel	150	120	174	Tier 2	0.36	0.004	0.792	0.842
06-18571 Portable Light Tower	Other General Industrial Equipment	1	Diesel	15	25	49	Tier 2	0.34	0.004	0.014	0.015
10-020 CAT D8 Dozer	Rubber Tired Dozers	1	Diesel	512	300	599	Tier 2	0.4	0.004	3.944	4.132
15-071 CAT 420 F2 Backhoe	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.004	0.168	0.187
18-042 CAT 836K Compactor	Rubber Tired Dozers	1	Diesel	540	300	599	Tier 4 Interim	0.4	0.004	3.071	3.269
18-075 JD 850K Dozer	Rubber Tired Dozers	1	Diesel	270	175	299	Tier 4 Interim	0.4	0.004	1.090	1.189
19-041 JD 644K Hybrid Loader	Rubber Tired Loaders	1	Diesel	150	75	199	Tier 4 Interim	0.36	0.004	0.891	0.941
19-073 JD Track Loader	Rubber Tired Loaders	1	Diesel	165	75	199	Tier 4 Interim	0.36	0.004	0.054	0.082
20-009 JD SKID STEER 333G	Skid Steer Loaders	1	Diesel	80	75	199	Tier 4 Interim	0.37	0.004	0.109	0.122
20-020 JD 1050K LARGE DOZER	Rubber Tired Dozers	1	Diesel	325	300	599	Tier 4 Interim	0.4	0.004	2.385	2.504
20-071 JD 310SL/HL BACKHOE	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.004	0.355	0.373
20-714 KUBOTA	Tractors/Loaders/Backhoes	1	Diesel	40	25	49	Tier 4 Interim	0.37	0.004	0.088	0.090
22-073 JD 755K Track Loader	Tractors/Loaders/Backhoes	1	Diesel	165	75	199	Tier 4 Interim	0.37	0.004	0.168	0.168
TARPOMATIC Landfill Covers - 04-001	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 1	0.4	0.004	0.004	0.007
TARPOMATIC Landfill Covers - 18-002	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 4 Interim	0.4	0.004	0.007	0.011
Fire Pump	Pumps	1	Diesel	25	25	49	Tier 1	0.74	0.004	0.008	0.008
KARCHER PRESSURE WASHER	Pressure Washers	1	Gas	10	0	24	Gas	0.3	0.004	0.001	0.003
03-908 Sterling Water Truck (tan)	Off-Highway Trucks	1	Diesel	200	175	299	Average	0.38	0.004	0.070	0.096
20-908 International Water Truck	Off-Highway Trucks	1	Diesel	225	175	299	Tier 4 Interim	0.38	0.004	0.196	0.261
2025 CAT LPG D-6 Finish Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 4 Final	0.4	0.004	0.000	2.337
2025-26 CAT 836 Compactor	Plate Compactors	1	Diesel	540	300	599	Tier 4 Final	0.43	0.004	0.000	4.812
2025-26 CAT 623 Scraper	Scrapers	1	Diesel	370	300	599	Tier 4 Final	0.48	0.004	0.000	1.566
2025-26 Large Dozer	Rubber Tired Dozers	1	Diesel	400	300	599	Tier 4 Final	0.4	0.004	0.000	3.175
2025 Loader mid size	Rubber Tired Loaders	1	Diesel	165	120	174	Tier 4 Final	0.36	0.004	0.000	0.995
Total N_2O emissions per Year (lbs)										**19**	**33**
Total N_2O emissions per Year (metric tons)										**0.008**	**0.015**
Total CO_{2e} emissions per Year (metric tons)										**2.51**	**4.45**

Assumptions

Grams per pound 453.592

Pounds per metric ton 2,205

Global Warming Potential 298 CARB 2022. GHG Global Warming Potentials. Available at via https://ww2.arb.ca.gov/ghg-gwps. Accessed on September 9, 2024.

Abbreviations

N_2O =nitrous oxide; EF = emission factor; g/hp-hr = gram per horsepower-hour; lbs = pounds

Notes:

Emission factors were obtained from CalEEMod.

Equations:

Emissions [lbs] = emission factor [g/hp-gr] × number of pieces of equipment × horsepower × load factor × hours of annual operation/ 453.592 grams per pound

Appendix A-2: Earthmoving Activity Model Input Parameters and Dust Emissions Calculations

Overview

Information about grading and bulldozing activities was provided by the project applicant. Emissions of fugitive dust from earthmoving activities were estimated using emissions factors from the U.S. Environmental Protection Agency's Compilation of Air Pollutant Emissions Factors (AP-42), Section 11.9 *Western Surface Coal Mining* and guidance from the California Emissions Estimator Model (CalEEMod) version 2022.1.1.

Summary of Earthmoving Activity

Project Equipment	Activity	CalEEMod Equipment Category	Annual Hours of Operation		Annual VMT	
			Existing	Project	Existing	Project
02-035 623 Scraper	Grading	Scrapers	624	728	54	63
04-971 JD Grader	Grading	Graders	104	156	4	13
2025-26 CAT 623 Scraper	Grading	Scrapers	0	1,000	0	86

Project Equipment	Activity	CalEEMod Equipment Category	Annual Hours of Operation	
			Existing	Project
04-075 JD 850C Dozer	Bulldozing	Rubber Tired Dozers	728	780
10-020 CAT D8 Dozer	Bulldozing	Rubber Tired Dozers	2,184	2,288
18-075 JD 850K Dozer	Bulldozing	Rubber Tired Dozers	1,144	1,248
20-020 JD 1050K LARGE DOZER	Bulldozing	Rubber Tired Dozers	2,080	2,184
2025 CAT LPG D-6 Finish Dozer	Bulldozing	Rubber Tired Dozers	0	2,500
2025-26 Large Dozer	Bulldozing	Rubber Tired Dozers	0	2,250

Assumptions

Square feet per acre (C1)	43,560	
Feet per mile (C2)	5,280	
Acres graded per hours for scrapers (As)	0.125	South Coast Air Quality Management District Construction Survey
Acres graded per hours for graders (As)	0.0625	South Coast Air Quality Management District Construction Survey
Blade width (ft) of grading equipment (Wb)	12	CalEEMod default

Equation:

Vehicle Miles Travelled (VMT) = Hours operation * As / Wb * C1 / C2

Earth Moving PM_{10} Dust Emissions

Project Equipment	Activity	CalEEMod Equipment Category	Emission Factor		Controlled PM_{10D} Emissions (lbs per year)	
			EF	Unit	Existing	Project
02-035 623 Scraper	Grading	Scrapers	1.54	lbs/VMT	32.3	37.6
04-971 JD Grader	Grading	Graders	1.54	lbs/VMT	2.7	8.1
2025-26 CAT 623 Scraper	Grading	Scrapers	1.54	lbs/VMT	0	51.7
04-075 JD 850C Dozer	Bulldozing	Rubber Tired Dozers	0.75	lbs/hour	213.7	229.0
10-020 CAT D8 Dozer	Bulldozing	Rubber Tired Dozers	0.75	lbs/hour	641.2	671.7
18-075 JD 850K Dozer	Bulldozing	Rubber Tired Dozers	0.75	lbs/hour	335.9	366.4
20-020 JD 1050K LARGE DOZER	Bulldozing	Rubber Tired Dozers	0.75	lbs/hour	610.6	641.2
2025 CAT LPG D-6 Finish Dozer	Bulldozing	Rubber Tired Dozers	0.75	lbs/hour	0.0	733.9
2025-26 Large Dozer	Bulldozing	Rubber Tired Dozers	0.75	lbs/hour	0.0	660.5
Total emissions per Year (lbs)					**1,836**	**3,400**
Total emissions per Year (tons)					**0.92**	**1.70**
Annual Average emissions per Day (lbs)					**5.03**	**9.32**

Assumptions

Grams per pound	453.6	
Pounds per ton	2,000	
Work days per year	365	
Mean vehicle speed (S)	7.1	AP-42 Table 11.9-3
Scraping Coefficient (SC)	0.051	AP-42 Table 11.9-1
Scraping Constant (Sa)	2.00	AP-42 Table 11.9-1
Scraping PM_{10} Scaling Factor (SF)	0.6	AP-42 Table 11.9-1
Scraping EF (lbs/VMT)	$SC*S^{Sa}*SF$	AP-42 Table 11.9-1
Bulldozing Coefficient (BC)	1.0	AP-42 Table 11.9-1
Bulldozing Constant (Ba)	1.5	AP-42 Table 11.9-1
Bulldozing Constant (Bb)	1.4	AP-42 Table 11.9-1
Material Silt Content (s)	6.9	AP-42 Table 11.9-3
Material moisture content (M)	7.9	AP-42 Table 11.9-4
Bulldozing PM_{10} Scaling Factor (BF)	0.75	AP-42 Table 11.9-1
Bulldozing EF (lbs/hour)	$BC*s^{Ba}/M^{Bb}*BF$	AP-42 Table 11.9-1
Dust Control Efficiency	61%	Watering exposed area every three hours (WRAP Fugitive Dust Handbook, Table 6-7)

Abbreviations

EF = emission factor; lbs = pounds; VMT = vehicle mile travelled; PM_{10D} = coarse particulate matter (dust)

Equation:

Scraping Emissions = VMT * Emission Factor * (1 - Dust Control Efficiency)

Bulldozing Emissions = Hours of Operation * Emission Factor * (1 - Dust Control Efficiency)

Earth Moving $PM_{2.5}$ Dust Emissions

Project Equipment	Activity	CalEEMod Equipment Category	Emission Factor		Controlled $PM_{2.5D}$ Emissions	
			EF	Unit	Existing	Project
02-035 623 Scraper	Grading	Scrapers	0.17	lbs/VMT	3.5	4.1
04-971 JD Grader	Grading	Graders	0.17	lbs/VMT	0.3	0.9
2025-26 CAT 623 Scraper	Grading	Scrapers	0.17	lbs/VMT	0.00	5.6
04-075 JD 850C Dozer	Bulldozing	Rubber Tired Dozers	0.41	lbs/hour	117.48	125.9
10-020 CAT D8 Dozer	Bulldozing	Rubber Tired Dozers	0.41	lbs/hour	352.44	369.2
18-075 JD 850K Dozer	Bulldozing	Rubber Tired Dozers	0.41	lbs/hour	184.61	201.4
20-020 JD 1050K LARGE DOZER	Bulldozing	Rubber Tired Dozers	0.41	lbs/hour	335.66	352.4
2025 CAT LPG D-6 Finish Dozer	Bulldozing	Rubber Tired Dozers	0.41	lbs/hour	0.00	403.4
2025-26 Large Dozer	Bulldozing	Rubber Tired Dozers	0.41	lbs/hour	0.00	363.1
				Total emissions per Year (lbs)	**994**	**1,826**
				Total emissions per Year (tons)	**0.50**	**0.91**
				Annual Average emissions per Day (lbs)	**2.72**	**5.00**

Assumptions

Grams per pound	453.6	
Pounds per ton	2,000	
Work days per year	365	
Mean vehicle speed (S)	7.1	AP-42 Table 11.9-3
Scraping Coefficient (SC)	0.04	AP-42 Table 11.9-1
Scraping Constant (Sa)	2.5	AP-42 Table 11.9-1
Scraping $PM_{2.5}$ Scaling Factor (SF)	0.031	AP-42 Table 11.9-1
Scraping EF (lbs/VMT)	$SC*S^{Sa}*SF$	AP-42 Table 11.9-1
Bulldozing Coefficient (BC)	5.7	AP-42 Table 11.9-1
Bulldozing Constant (Ba)	1.2	AP-42 Table 11.9-1
Bulldozing Constant (Bb)	1.3	AP-42 Table 11.9-1
Material Silt Content (s)	6.9	AP-42 Table 11.9-3
Material moisture content (M)	7.9	AP-42 Table 11.9-4
Bulldozing $PM_{2.5}$ Scaling Factor (BF)	0.11	AP-42 Table 11.9-1
Bulldozing EF (lbs/hour)	$BC*s^{Ba}/M^{Bb}*BF$	AP-42 Table 11.9-1
Dust Control Efficiency	61%	Watering exposed area every three hours (WRAP Fugitive Dust Handbook, Table 6-7)

Abbreviations

EF = emission factor; lbs = pounds; VMT = vehicle mile travelled; $PM_{2.5D}$ = fine particulate matter (dust)

Equation:

Scraping Emissions = VMT * Emission Factor * (1 - Dust Control Efficiency)

Bulldozing Emissions = Hours of Operation * Emission Factor * (1 - Dust Control Efficiency)

Appendix A-3: On-Road Vehicle Model Input Parameters and Emissions Calculations

Overview

Information about on-road vehicles used for on-site activities and off-site travel was provided by the project applicant. Emissions of criteria air pollutants and greenhouse gases from on-road vehicles were estimated using emissions factors from the California Air Resources Board's EMFAC2021 database for the San Joaquin Valley Air District. Baseline year 2024 emission factors were used in this analysis to be conservative. The total dust emissions calculated for the on-road vehicles is associated with tire wear and brake wear. Fugitive dust and resuspended dust emissions from travel along unpaved and paved roads are reported in Appendices A-4 and A-5, respectively.

Summary of On-Road Vehicle Miles Travelled (VMT)

Activity Description			Vehicle	Model	Fuel	Annual Trips (One-Way)			Annual VMT	
Origin	Destination	Vehicle Type	Classification	Year	Type	Existing	Project	Miles/Trip	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	13,728	0	48.0	658,944	0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	15,600	0	31.1	485,160	0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	2,496	0	8.0	19,968	0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	0	13,728	43.0	0	590,304
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	8,736	26,832	26.4	230,630	708,365
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	7488	7488	11.7	87,610	87,610
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	4160	4160	17.0	70,720	70,720
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	8112	8112	15.0	121,680	121,680
Regional		Misc Comm	LHDT1	Aggregate	Diesel	8,112	8,112	15.0	121,680	121,680
Worker Commute		Worker cars	LDA	Aggregate	Gas	35,040	39,420	11.9	416,626	468,704
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	6864	8236.8	0.5	3,432	4,118
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	9,776	10,680	0.5	4,888	5,340

On-Road Vehicle ROG Emissions

Activity Description											ROG Emissions (lbs per year)	
Origin	Destination	Vehicle Type	Vehicle Classification	Model Year	Fuel Type	RUNEX (g/VMT)	IDLEX (g/trip)	STREX (g/trip)	DIURN+ HOTSOAK (g/trip)	RUNLOSS (g/VMT)	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.014	0.398	0.000	0.000	0.000	32.9	0.0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.014	0.398	0.000	0.000	0.000	29.0	0.0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.014	0.398	0.000	0.000	0.000	2.8	0.0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.014	0.398	0.000	0.000	0.000	0.0	30.7
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	0.014	0.398	0.000	0.000	0.000	15.0	46.0
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	0.014	0.398	0.000	0.000	0.000	9.3	9.3
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	0.011	0.005	0.000	0.000	0.000	1.8	1.8
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	0.026	0.005	0.000	0.000	0.000	7.2	7.2
Regional		Misc Comm	LHDT1	Aggregate	Diesel	0.219	0.009	0.000	0.000	0.000	58.9	58.9
Worker Commute		Worker cars	LDA	Aggregate	Gas	0.009	0.000	0.324	0.446	0.028	93.2	104.8
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	0.014	0.398	0.000	0.000	0.000	6.1	7.3
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	0.219	0.009	0.000	0.000	0.000	2.5	2.8
										Total emissions per Year (lbs)	**258.87**	**268.94**
										Total emissions per Year (tons)	**0.129**	**0.134**
										Annual Average emissions per Day (lbs)	**0.71**	**0.74**

Assumptions

Grams per pound	453.592
Pounds per ton	2,000
Work days per year	365

Abbreviations

ROG = reactive organic gases; lbs = pounds; g = grams; VMT = vehicle mile travelled; RUNEX = running exhaust emission factor; IDLEX = idle exhaust emission factor; STREX = start exhaust emission factor
DIURN = diurnal evaporation emission factor; HOTSOAK = hot soak evaporation emission factor; RUNLOSS = running loss evaporation emission factor

Equations:

Emissions = [Annual VMT * (RUNEX+RUNLOSS) + Annual trips* (STREX+IDLEX+DIURN+HOTSOAK)]/ 453.592 grams per pound

On-Road Vehicle NOx Emissions

Activity Description									NOx Emissions (lbs per year)	
Origin	Destination	Vehicle Type	Vehicle Classification	Model Year	Fuel Type	RUNEX (g/VMT)	IDLEX (g/trip)	STREX (g/trip)	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	1.676	4.720	2.830	2663.8	0.0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	1.676	4.720	2.830	2052.7	0.0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	1.676	4.720	2.830	115.3	0.0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	1.676	4.720	2.830	0.0	2410.1
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	1.676	4.720	2.830	997.76	3064.55
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	1.676	4.720	2.830	448.42	448.42
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	0.088	0.130	0.000	14.97	14.97
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	1.141	0.269	0.404	318.00	318.00
Regional		Misc Comm	LHDT1	Aggregate	Diesel	2.168	0.177	0.000	584.89	584.89
Worker Commute		Worker cars	LDA	Aggregate	Gas	0.041	0.000	0.257	57.85	65.08
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	1.676	4.720	2.830	126.94	152.32
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	2.168	0.177	0.000	27.19	29.71
								Total emissions per Year (lbs)	**7,407.84**	**7,088.06**
								Total emissions per Year (tons)	**3.70**	**3.54**
								Annual Average emissions per Day (lbs)	**20.30**	**19.42**

Assumptions

Grams per pound	453.592
Pounds per ton	2,000
Work days per year	365

Abbreviations

NOx = nitrogen oxides; lbs = pounds; g = grams; VMT = vehicle mile travelled; RUNEX = running exhaust emission factor; IDLEX = idle exhaust emission factor; STREX = start exhaust emission factor

Equations:

Emissions = [Annual VMT * RUNEX + Annual trips * (IDLEX+STREX)]/ 453.592 grams per pound

On-Road Vehicle CO Emissions

Activity Description			Vehicle	Model	Fuel	RUNEX	IDLEX	STREX	CO Emissions (lbs per year)	
Origin	Destination	Vehicle Type	Classification	Year	Type	(g/VMT)	(g/trip)	(g/trip)	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.016	0.453	0.000	37.5	0.0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.016	0.453	0.000	33.1	0.0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.016	0.453	0.000	3.2	0.0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.016	0.453	0.000	0.0	35.0
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	0.016	0.453	0.000	17.04	52.33
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	0.016	0.453	0.000	10.63	10.63
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	0.809	0.330	0.000	129.23	129.23
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	0.030	0.006	0.000	8.18	8.18
Regional		Misc Comm	LHDT1	Aggregate	Diesel	0.249	0.010	0.000	67.08	67.08
Worker Commute		Worker cars	LDA	Aggregate	Gas	0.013	0.000	0.354	38.96	43.83
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	0.016	0.453	0.000	6.97	8.37
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	0.249	0.010	0.000	2.90	3.17
								Total emissions per Year (lbs)	**354.74**	**357.81**
								Total emissions per Year (tons)	**0.18**	**0.18**
								Annual Average emissions per Day (lbs)	**0.97**	**0.98**

Assumptions

Grams per pound	453.592
Pounds per ton	2,000
Work days per year	365

Abbreviations

CO = carbon monoxide; lbs = pounds; g = grams; VMT = vehicle mile travelled; RUNEX = running exhaust emission factor; IDLEX = idle exhaust emission factor; STREX = start exhaust emission factor

Equations:

Emissions = [Annual VMT * RUNEX + Annual trips * (IDLEX+STREX)]/ 453.592 grams per pound

On-Road Vehicle SOx Emissions

Activity Description			Vehicle	Model	Fuel	RUNEX	IDLEX	STREX	SOx Emissions (lbs per year)	
Origin	Destination	Vehicle Type	Classification	Year	Type	(g/VMT)	(g/trip)	(g/trip)	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.000	0.000	0.000	0.0	0.0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.000	0.000	0.000	0.0	0.0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.000	0.000	0.000	0.0	0.0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.000	0.000	0.000	0.0	0.0
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	0.000	0.000	0.000	0.0	0.0
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	0.000	0.000	0.000	0.0	0.0
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	0.000	0.000	0.000	0.0	0.0
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	0.000	0.000	0.000	0.0	0.0
Regional		Misc Comm	LHDT1	Aggregate	Diesel	0.000	0.000	0.000	0.0	0.0
Worker Commute		Worker cars	LDA	Aggregate	Gas	0.041	0.095	0.242	63.5	71.4
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	0.000	0.000	0.000	0.0	0.0
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	0.000	0.000	0.000	0.0	0.0
								Total emissions per Year (lbs)	**63.47**	**71.40**
								Total emissions per Year (tons)	**0.03**	**0.04**
								Annual Average emissions per Day (lbs)	**0.17**	**0.20**

Assumptions

Grams per pound	453.592
Pounds per ton	2,000
Work days per year	365

Abbreviations

SOx = sulfur oxides; lbs = pounds; g = grams; VMT = vehicle mile travelled; RUNEX = running exhaust emission factor; IDLEX = idle exhaust emission factor; STREX = start exhaust emission factor

Equations:

Emissions = [Annual VMT * RUNEX + Annual trips * (IDLEX+STREX)]/ 453.592 grams per pound

On-Road Vehicle PM_{10E} Emissions

Activity Description									PM_{10E} Emissions (lbs per year)	
Origin	Destination	Vehicle Type	Vehicle Classification	Model Year	Fuel Type	RUNEX (g/VMT)	IDLEX (g/trip)	STREX (g/trip)	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0292	0.0020	0.0000	42.5	0.0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0292	0.0020	0.0000	31.3	0.0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0292	0.0020	0.0000	1.3	0.0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0292	0.0020	0.0000	0.0	38.0
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	0.0292	0.0020	0.0000	14.9	45.7
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	0.0292	0.0020	0.0000	5.7	5.7
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	0.0016	0.0005	0.0000	0.2	0.2
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	0.0130	0.0006	0.0000	3.5	3.5
Regional		Misc Comm	LHDT1	Aggregate	Diesel	0.0501	0.0022	0.0000	13.5	13.5
Worker Commute		Worker cars	LDA	Aggregate	Gas	0.0013	0.0000	0.0021	1.3	1.5
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	0.0292	0.0020	0.0000	0.3	0.3
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	0.0501	0.0022	0.0000	0.6	0.6
								Total emissions per Year (lbs)	**114.98**	**109.07**
								Total emissions per Year (tons)	**0.057**	**0.055**
								Annual Average emissions per Day (lbs)	**0.32**	**0.30**

Assumptions

Grams per pound	453.6
Pounds per ton	2,000
Work days per year	365

Abbreviations

PM_{10E} = coarse particulate matter (exhaust); lbs = pounds; g = grams; VMT = vehicle mile travelled; RUNEX = running exhaust emission factor; IDLEX = idle exhaust emission factor; STREX = start exhaust emission factor

Equations:

Emissions = [Annual VMT * RUNEX + Annual trips * (IDLEX+STREX)]/ 453.592 grams per pound

On-Road Vehicle PM_{10D} Emissions (Brake and Tires Only)

Activity Description			Vehicle	Model	Fuel	PMTW	PMBW	PM_{10D} Emissions (lbs per year)	
Origin	Destination	Vehicle Type	Classification	Year	Type	(g/VMT)	(g/VMT)	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0357	0.0762	162.6	0.0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0357	0.0762	119.7	0.0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0357	0.0762	4.9	0.0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0357	0.0762	0.0	145.7
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	0.0357	0.0762	56.9	174.8
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	0.0357	0.0762	21.6	21.6
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	0.0120	0.0457	9.0	9.0
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	0.0120	0.0450	15.3	15.3
Regional		Misc Comm	LHDT1	Aggregate	Diesel	0.0120	0.0780	24.1	24.1
Worker Commute		Worker cars	LDA	Aggregate	Gas	0.0080	0.0071	13.9	15.6
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	0.0357	0.0762	0.8	1.0
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	0.0120	0.0780	1.0	1.1
							Total emissions per Year (lbs)	**429.89**	**408.19**
							Total emissions per Year (tons)	**0.215**	**0.204**
							Annual Average emissions per Day (lbs)	**1.18**	**1.12**

Assumptions

Grams per pound	453.6
Pounds per ton	2,000
Work days per year	365

Abbreviations

PM_{10D} = coarse particulate matter (dust); lbs = pounds; g = grams; VMT = vehicle mile travelled; PMTW = tire wear emission factor; PMBW = brake wear emission factor

Equations:

Emissions = [Annual VMT * (PMBW + PMTW)] / 453.592 grams per pound

On-Road Vehicle $PM_{2.5E}$ Emissions

Activity Description									$PM_{2.5E}$ Emissions (lbs per year)	
Origin	Destination	Vehicle Type	Vehicle Classification	Model Year	Fuel Type	RUNEX (g/VMT)	IDLEX (g/trip)	STREX (g/trip)	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0279	0.0019	0.0000	43.4	0.0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0279	0.0019	0.0000	31.9	0.0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0279	0.0019	0.0000	1.3	0.0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0279	0.0019	0.0000	0.0	38.8
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	0.0279	0.0019	0.0000	15.2	46.6
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	0.0279	0.0019	0.0000	5.8	5.8
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	0.0014	0.0004	0.0000	0.3	0.3
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	0.0125	0.0006	0.0000	3.5	3.5
Regional		Misc Comm	LHDT1	Aggregate	Diesel	0.0479	0.0021	0.0000	13.4	13.4
Worker Commute		Worker cars	LDA	Aggregate	Gas	0.0011	0.0000	0.0019	2.8	3.2
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	0.0279	0.0019	0.0000	0.2	0.3
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	0.0479	0.0021	0.0000	0.5	0.6
								Total emissions per Year (lbs)	**118.37**	**112.50**
								Total emissions per Year (tons)	**0.059**	**0.056**
								Annual Average emissions per Day (lbs)	**0.32**	**0.31**

Assumptions

Grams per pound	453.6
Pounds per ton	2,000
Work days per year	365

Abbreviations

$PM_{2.5E}$ = fine particulate matter (exhaust); lbs = pounds; g = grams; VMT = vehicle mile travelled; RUNEX = running exhaust emission factor; IDLEX = idle exhaust emission factor; STREX = start exhaust emission factor

Equations:

Emissions = [Annual VMT * RUNEX + Annual trips * (IDLEX+STREX)]/ 453.592 grams per pound

On-Road Vehicle $PM_{2.5D}$ Emissions (Brake and Tires Only)

Activity Description								$PM_{2.5D}$ Emissions (lbs per year)	
Origin	Destination	Vehicle Type	Vehicle Classification	Model Year	Fuel Type	PMTW (g/VMT)	PMBW (g/VMT)	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.009	0.027	51.7	0.0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.009	0.027	38.1	0.0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.009	0.027	1.6	0.0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.009	0.027	0.0	46.3
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	0.009	0.027	18.1	55.6
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	0.009	0.027	6.9	6.9
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	0.003	0.016	3.0	3.0
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	0.003	0.016	5.0	5.0
Regional		Misc Comm	LHDT1	Aggregate	Diesel	0.003	0.027	8.1	8.1
Worker Commute		Worker cars	LDA	Aggregate	Gas	0.002	0.002	4.1	4.6
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	0.009	0.027	0.3	0.3
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	0.003	0.027	0.3	0.4
							Total emissions per Year (lbs)	**137.19**	**130.25**
							Total emissions per Year (tons)	**0.069**	**0.065**
							Annual Average emissions per Day (lbs)	**0.38**	**0.36**

Assumptions

Grams per pound	453.6
Pounds per ton	2,000
Work days per year	365

Abbreviations

$PM_{2.5D}$ = fine particulate matter (dust); lbs = pounds; g = grams; VMT = vehicle mile travelled; PMTW = tire wear emission factor; PMBW = brake wear emission factor

Equations:

Emissions = [Annual VMT * (PMBW + PMTW)] / 453.592 grams per pound

On-Road Vehicle CO_2 Emissions

Activity Description			Vehicle	Model	Fuel	RUNEX	IDLEX	STREX	CO_2 Emissions (lbs per year)	
Origin	Destination	Vehicle Type	Classification	Year	Type	(g/VMT)	(g/trip)	(g/trip)	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	1569.98	925.22	0.00	3,624,834	0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	1569.98	925.22	0.00	2,668,853	0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	1569.98	925.22	0.00	109,843	0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	1569.98	925.22	0.00	0	3247247
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	1569.98	925.22	0.00	1,268,692	3896697
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	1569.98	925.22	0.00	481,938	481938
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	998.84	112.15	0.00	173,215	173215
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	1122.62	46.19	0.00	313,545	313545
Regional		Misc Comm	LHDT1	Aggregate	Diesel	638.99	10.79	0.00	174,309	174309
Worker Commute		Worker cars	LDA	Aggregate	Gas	282.34	0.00	70.30	323,893	364380
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	1569.98	925.22	0.00	18,879	22655
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	638.99	10.79	0.00	7,002	7650
								Total emissions per Year (lbs)	**9,165,006**	**8,681,637**
								Total emissions per Year (Metric tons)	**4,156**	**3,937**
								Total CO2e emissions per Year (metric tons)	**4,156**	**3,937**

Assumptions

Grams per pound	453.6
Pounds per metric ton	2,205
CO_2 GWP	1

Abbreviations

CO_2 = carbon dioxide; lbs = pounds; g = grams; VMT = vehicle mile travelled; RUNEX = running exhaust emission factor; IDLEX = idle exhaust emission factor; STREX = start exhaust emission factor

Equations:

Emissions = [Annual VMT * RUNEX + Annual trips * (IDLEX+STREX)]/ 453.592 grams per pound

On-Road Vehicle CH_4 Emissions

Activity Description			Vehicle	Model	Fuel	RUNEX	IDLEX	STREX	CH_4 Emissions (lbs per year)	
Origin	Destination	Vehicle Type	Classification	Year	Type	(g/VMT)	(g/trip)	(g/trip)	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0056	0.0185	0.0000	35.0	0.0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0056	0.0185	0.0000	25.8	0.0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0056	0.0185	0.0000	1.1	0.0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0056	0.0185	0.0000	0.0	31.4
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	0.0056	0.0185	0.0000	12.3	37.6
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	0.0056	0.0185	0.0000	4.7	4.7
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	0.7931	0.3233	0.0000	174.1	174.1
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	0.0012	0.0002	0.0000	0.4	0.4
Regional		Misc Comm	LHDT1	Aggregate	Diesel	0.0288	0.0004	0.0000	7.8	7.8
Worker Commute		Worker cars	LDA	Aggregate	Gas	0.0198	0.0000	0.0715	83.9	94.4
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	0.0056	0.0185	0.0000	0.2	0.2
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	0.0288	0.0004	0.0000	0.3	0.3
								Total emissions per Year (lbs)	**345.5**	**350.9**
								Total emissions per Year (Metric tons)	**0.157**	**0.159**
								Total CO2e emissions per Year (metric tons)	**3.92**	**3.98**

Assumptions

Grams per pound 453.6

Pounds per metric ton 2,205

Global Warming Potential 25 CARB 2022. GHG Global Warming Potentials. Available at via https://ww2.arb.ca.gov/ghg-gwps. Accessed on September, 9, 2024.

Abbreviations

CH_4 = methane; g = grams; VMT = vehicle mile travelled; RUNEX = running exhaust emission factor; IDLEX = idle exhaust emission factor; STREX = start exhaust emission factor

Equations:

Emissions = [Annual VMT * RUNEX + Annual trips * (IDLEX+STREX)]/ 453.592 grams per pound

On-Road Vehicle N_2O Emissions

Activity Description			Vehicle	Model	Fuel	RUNEX	IDLEX	STREX	N_2O Emissions (lbs per year)	
Origin	Destination	Vehicle Type	Classification	Year	Type	(g/VMT)	(g/trip)	(g/trip)	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.2474	0.1458	0.0000	571.1	0.0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.2474	0.1458	0.0000	420.5	0.0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.2474	0.1458	0.0000	17.3	0.0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.2474	0.1458	0.0000	0.0	511.6
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	0.2474	0.1458	0.0000	199.9	613.9
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	0.2474	0.1458	0.0000	75.9	75.9
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	0.2036	0.0229	0.0000	35.3	35.3
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	0.1769	0.0073	0.0000	49.4	49.4
Regional		Misc Comm	LHDT1	Aggregate	Diesel	0.1007	0.0017	0.0000	27.5	27.5
Worker Commute		Worker cars	LDA	Aggregate	Gas	0.0047	0.0000	0.0334	35.0	39.4
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	0.2474	0.1458	0.0000	3.0	3.6
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	0.1007	0.0017	0.0000	1.1	1.2
Total emissions per Year (lbs)									1,435.9	1,357.8
Total emissions per Year (Metric tons)									0.651	0.616
Total CO2e emissions per Year (metric tons)									194.06	183.50

Assumptions

Grams per pound 453.6

Pounds per metric ton 2,205

Global Warming Potential 298 CARB 2022. GHG Global Warming Potentials. Available at via https://ww2.arb.ca.gov/ghg-gwps. Accessed on September, 9, 2024.

Abbreviations

N_2O =nitrous oxide; g = grams; VMT = vehicle mile travelled; RUNEX = running exhaust emission factor; IDLEX = idle exhaust emission factor; STREX = start exhaust emission factor

Equations:

Emissions = [Annual VMT * RUNEX + Annual trips * (IDLEX+STREX)]/ 453.592 grams per pound

Appendix A-4: Unpaved Road Model Input Parameters and Dust Emissions Calculations

Overview

Information about on-site vehicle activities was provided by the project applicant. The main entry roads are paved, while the access roads extending to the fill areas and the perimeter road are unpaved. Emissions of fugitive dust from on-site vehicle travel on unpaved roads were estimated using emissions factors from the U.S. Environmental Protection Agency's Compilation of Air Pollutant Emissions Factors (AP-42), Section 13.2.2 *Unpaved Roads* .

Summary of On-Road Vehicle Miles Travelled (VMT) for On-Site Activities

Activity Description	Vehicle Type	Vehicle Classification	Annual VMT	
			Existing	Project
On-Site Transfer	48' Transfer	HHDT	3,432	4,118
On-Site Service Trucks	Service Truck, Roll-off Truck, Gator	LHDT1	4,888	5,340

On-Site PM_{10} Dust Emissions from Unpaved Roads

Activity Description	Vehicle Type	Vehicle Classification	EF (lbs/VMT)	PM_{10D} Emissions (lbs per year)	
				Existing	Project
On-Site Transfer	48' Transfer	HHDT	0.958	829	994
On-Site Service Trucks	Service Truck, Roll-off Truck, Gator	LHDT1	0.428	527	576
			Total emissions per Year (lbs)	**1,355**	**1,570**
			Total emissions per Year (tons)	**0.7**	**0.8**
			Annual Average emissions per Day (lbs)	**3.71**	**4.30**

Assumptions

Pounds per ton	2,000	
Work days per year	365	
Dust control efficiency - Speed	44%	Limit speed to 15 mph (WRAP Fugitive Dust Handbook, Table 6-6)
Dust control efficiency - Watering	55%	Water twice per day (WRAP Fugitive Dust Handbook, Table 6-6)
Surface Material Silt Content (s)	2.6	Percent (AP-42, 13.2.2-1, Unpaved Road Surface Material Silt Content Values Used in the 1999 NEI)
Mean Vehicle Weight (W) - Service Truck	5	Tons based on upper-bound LHDT1 weight
Mean Vehicle Weight (W) - Haul Trucks	30	Tons based on upper-bound HHDT weight (total weight of the truck combined with its maximum capacity when loaded)
Empirical Constant k	1.5	lbs/VMT, AP-42, Table 13.2.2-2
Empirical Constant a	0.9	AP-42, Table 13.2.2-2
Empirical Constant b	0.45	AP-42, Table 13.2.2-2
Days of Precipitation (P)	37.4	CalEEMod Default for the project location
Emission Factor (lbs/VMT)	$k*(s/12)^a*(W/3)^b*[(365-P)/365]$	AP-42, Equation 13.2.2.(1a)

Abbreviations

EF = emission factor; g = grams; m = meter; VMT = vehicle miles travelled; PM_{10D} = coarse particulate matter (dust); lbs = pounds

Equation:

Emissions = Daily VMT * Emission Factor * (1 - Dust Control Efficiency)

On-Site $PM_{2.5}$ Dust Emissions from Unpaved Roads

Activity Description	Vehicle Type	Vehicle Classification	EF (lbs/VMT)	$PM_{2.5D}$ Emissions (lbs per year)	
				Existing	Project
On-Site Transfer	48' Transfer	HHDT	0.096	82.9	99.4
On-Site Service Trucks	Service Truck, Roll-off Truck, Gator	LHDT1	0.043	52.7	57.6
			Total emissions per Year (lbs)	**136**	**157**
			Total emissions per Year (tons)	**0.07**	**0.08**
			Annual Average emissions per Day (lbs)	**0.37**	**0.43**

Assumptions

Pounds per ton	2,000	
Work days per year	365	Information provided by project applicant
Dust control efficiency - Speed	44%	Limit speed to 25 mph (WRAP Fugitive Dust Handbook, Table 6-6)
Dust control efficiency - Watering	55%	Water twice per day (WRAP Fugitive Dust Handbook, Table 6-6)
Surface Material Silt Content (s)	2.6	Percent (AP-42, 13.2.2-1, Unpaved Road Surface Material Silt Content Values Used in the 1999 NEI)
Mean Vehicle Weight (W) - Service Truck	5	Tons based on upper-bound LHDT1 weight
Mean Vehicle Weight (W) - Haul Trucks	30	Tons based on upper-bound HHDT weight (total weight of the truck combined with its maximum capacity when loaded)
Empirical Constant k	0.15	lbs/VMT, AP-42, Table 13.2.2-2
Empirical Constant a	0.9	AP-42, Table 13.2.2-2
Empirical Constant b	0.45	AP-42, Table 13.2.2-2
Days of Precipitation (P)	37.4	CalEEMod Default for the project location
Emission Factor (lbs/VMT)	$k*(s/12)^a*(W/3)^b*[(365-P)/365]$	AP-42, Equation 13.2.2.(1a)

Abbreviations

EF = emission factor; g = grams; m = meter; VMT = vehicle miles travelled; $PM_{2.5D}$ = fine particulate matter (dust); lbs = pounds

Equation:

Emissions = Daily VMT * Emission Factor * (1 - Dust Control Efficiency)

Appendix A-5: Paved Road Model Input Parameters and Dust Emissions Calculations

Overview

Information about off-site vehicle activities was provided by the project applicant. Emissions of resuspended dust along paved roads were estimated using emission factors from the U.S. Environmental Protection Agency's Compilation of Air Pollutant Emissions Factors (AP-42), Section 13.2.1 *Paved Roads* and guidance from the California Emissions Estimator Model (CalEEMod) version 2022.1.1.

Summary of On-Road Vehicle Miles Travelled (VMT) for Off-Site Activities

Activity Description			Vehicle	Annual VMT	
Origin	Destination	Vehicle Type	Classification	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	658,944	0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	485,160	0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	19,968	0
Tracy	North County Landfill	48' Transfer	HHDT	0	590,304
Lovelace TS		48' Transfer	HHDT	230,630	708,365
Lodi TS - WM		48' Transfer	HHDT	87,610	87,610
Stockton Scavenger		Garbage Truck	MHDT (NG)	70,720	70,720
Cal Waste - Area F/Galt		Garbage Truck	MHDT	121,680	121,680
Regional		Misc Comm	LHDT1	121,680	121,680
Worker Commute		Worker cars	LDA	416,626	468,704

Off-Site PM_{10} Dust Emissions from Paved Roads

Activity Description			Vehicle	EF	PM_{10D} Emissions (lbs per year)	
Origin	Destination	Vehicle Type	Classification	(lbs/VMT)	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	0.00041	267	0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	0.00041	197	0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	0.00041	8	0
Tracy	North County Landfill	48' Transfer	HHDT	0.00041	0	239
Lovelace TS		48' Transfer	HHDT	0.00041	94	287
Lodi TS - WM		48' Transfer	HHDT	0.00041	36	36
Stockton Scavenger		Garbage Truck	MHDT (NG)	0.00041	29	29
Cal Waste - Area F/Galt		Garbage Truck	MHDT	0.00041	49	49
Regional		Misc Comm	LHDT1	0.00041	49	49
Worker Commute		Worker cars	LDA	0.00041	169	190
				Total emissions per Year (lbs)	**898**	**880**
				Total emissions per Year (tons)	**0.45**	**0.44**
				Annual Average emissions per Day (lbs)	**2.46**	**2.41**

Assumptions

Pounds per ton	2,000	
Work days per year	365	
Particle size multiplier (k)	0.0022	lbs/VMT, AP-42, Table 13.2.1-1
Road surface silt loading (sL)	0.06	g/m^2, AP-42, Table 13.2.1-2 (ADT >5,000)
Average weight all vehicles on road (W)	2.4	tons (CalEEMod guidance)
Days of Precipitation (P)	34	CalEEMod Station USC00049699, POWAY 3.2NE, CA US
Day in averaging period (N)	365	days
Emission Factor (lbs/VMT)	$k*(sL)^{0.91}*(W)^{1.02}*[1-P/(4N)]$	AP-42, Equation 13.2.1.3 (2)

Abbreviations

EF = emission factor; g = grams; m= meter; VMT = vehicle miles travelled; PM_{10D} = coarse particulate matter (dust); lbs = pounds

Equation:

Emissions = Daily VMT * Emission Factor

Off-Site $PM_{2.5}$ Dust Emissions from Paved Roads

Activity Description		Vehicle Type	Vehicle Classification	EF (lbs/VMT)	$PM_{2.5D}$ Emissions (lbs per year)	
Origin	Destination				Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	0.00010	66	0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	0.00010	48	0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	0.00010	2	0
Tracy	North County Landfill	48' Transfer	HHDT	0.00010	0	59
Lovelace TS		48' Transfer	HHDT	0.00010	23	71
Lodi TS - WM		48' Transfer	HHDT	0.00010	9	9
Stockton Scavenger		Garbage Truck	MHDT (NG)	0.00010	7	7
Cal Waste - Area F/Galt		Garbage Truck	MHDT	0.00010	12	12
Regional		Misc Comm	LHDT1	0.00010	12	12
Worker Commute		Worker cars	LDA	0.00010	41	47
				Total emissions per Year (lbs)	**220**	**216**
				Total emissions per Year (tons)	**0.11**	**0.11**
				Annual Average emissions per Day (lbs)	**0.85**	**0.83**

Assumptions

Pounds per ton	2,000	
Work days per year	260	Information provided by project applicant
Particle size multiplier (k)	0.00054	lbs/VMT, AP-42, Table 13.2.1-1
Road surface silt loading (sL)	0.06	g/m^2, AP-42, Table 13.2.1-2 (ADT >5,000)
Average weight all vehicles on road (W)	2.4	tons (CalEEMod guidance)
Days of Precipitation (P)	34	CalEEMod Station USC00049699, POWAY 3.2NE, CA US
Day in averaging period (N)	365	days
Emission Factor (lbs/VMT)	$k*(sL)^{0.91}*(W)^{1.02}*[1-P/(4N)]$	AP-42, Equation 13.2.1.3 (2)

Abbreviations

EF = emission factor; g = grams; m= meter; VMT = vehicle miles travelled; $PM_{2.5D}$ = fine particulate matter (dust); lbs = pounds

Equation:

Emissions = Daily VMT * Emission Factor

Appendix A-6: Landfill Gas Flare Input Parameters and Emissions Calculations

Information about criteria air pollutant emissions limits was obtained from the project's current Title V permit. Average heat input to flare was obtained from the 2023 emission inventory.

Summary of Maximum Criteria Air Pollutant Emissions

Title V Emission Limit			Flare Heat Input (MMbtu/hour)	Maximum Emissions from Flare	
Pollutant	**Emission Factor**	**Unit**		**lb/hour**	**Tons/year**
NOx	0.06	lb/MMbtu	24.4	1.464	6.41
SOx	0.03	lb/MMbtu		0.732	3.21
CO	0.09	lb/MMbtu		2.196	9.62
PM_{10}	0.034	lb/MMbtu		0.8296	3.63
VOC	20	ppmv	--	0.32	1.41

Assumptions

Pounds per ton	2,000	
Work days per year	365	
Flare Heat Input	24.4	MMbtu/hr; 2023 emission inventory
VOC Molecuar Weight (as hexane)	86.18	g/mol
Flare flow rate	1200	scfm

ATTACHMENT B
NORTH COUNTY LANDFILL 2023 EMISSON INVENTORY

Emission Statement - Calendar Year 2023 Emissions

Date / Time Printed 1/16/2024 / 11:03:17 AM

UTM Zone: 10
UTM East: 666.405
UTM North: 4218.98

Please Sign and Return to:
San Joaquin Valley APCD
1990 E. Gettysburg Ave.
Fresno, CA 93726

Facility ID # N - 1119
TAD # 39 - 1119
SIC # 4953
Facility Name NORTH COUNTY SANITARY LANDFILL
TOXID # 0
Planning Inventory 3170

Update Summary ☐ CTR ☑

Device ID #	Process Number	Equipment Type	Yearly Process Rate	Units / Source Classification Code	NOX Lb / Unit	VOC Lb / Unit	SOX Lb / Unit	CO Lb / Unit	PM10 Lb / Unit	NH3* Lb / Unit	Note: NH3 emissions are in lbs / yr
1	1	24.4 MMBTU/HR FLARE - LPG PILOT FUEL COMBUSTION	0.3197	1000 GALLONS	8.8	.47	86.5	1.8	.26	.0	
				50290010	.0	.0	.01	.0	.0	.0	(Tons/Yr)
1	2	24.4 MMBTU/HR FLARE - PROCESS GAS COMBUSTION	~~272.4~~ 245.6	MILLION FT3 BURNED	.29	.01	.03	.03	.0	.0	
				50100410	.04	.0	.0	.0	.0	.0	(Tons/Yr)
1	3	12.4 MMCM CAPACITY MSW DISPOSAL	71.6	ACRES OF LANDFILL	.0	.0	.0	.0	2.6	.0	
				50200602	.0	.0	.0	.0	.09	.03	(Tons/Yr)
				Totals For the Facility (Tons / Year)	0.04	0.00	0.02	0.0	0.09	0.03	

Contact Mark Houghton
Company NORTH COUNTY SANITARY LANDFIL
Address P O BOX 1810
City,State,Zip STOCKTON, CA 95201
Telephone (209) 468 - 8504
Email:
Location of facility if different from above NORTH COUNTY SANITARY LANDFIL
17720 E HARNEY LN
LODI, CA 95240

Name and Title of Responsible Official

Billy Baier, ~~Taj Bahadori~~, ~~Desi Reno~~
~~Mark Houghton~~

I certify that I am authorized by the owner or operator of the facility to submit the annual emissions report, and that to the best of my knowledge, all information submitted is true, complete, and correct. Additionally, if the CTR box above is checked, this information will be transmitted to the California Air Resources Board on my behalf pursuant to the Regulation for the Reporting of Criteria Air Pollutants and Toxic Air Contaminants (17 CCR Section 93400-93410)(CTR).

3/28/24
Signature of Responsible Official and Date

To submit a request to the District to designate information as confidential, please forward a completed "Request for Confidential Classification of Source Data" to the District, which can be found online at www.valleyair.org. Upon receiving the form, District staff will assess the request and determine whether the information can be classified as confidential under District Rule 1030.

Note: This data was taken from last year's emissions inventory data. Please update this sheet with this year's data.

ATTACHMENT C
HEALTH RISK ASSESSMENT CALCULATION DETAILS

Appendix C-1: AERMOD Parameters, Assumptions, and Results for DPM Emissions from Haul Trucks along the Haul Route

Overview

Exhaust emissions of DPM from offsite haul trucks travel were used to model the annual average concentrations of DPM at sensitive receptors near the haul route. Information about haul truck trips was provided by the project applicant. Emissions of DPM from haul trucks were estimated for the project condition using emissions factors from the California Air Resources Board's EMFAC2021 database for the San Joaquin Valley Air Pollution Control District. The results from AERMOD, which were based on a unit emission rate (1 gram/second), were updated based on the actual DPM emission rates for each source area and year of operation.

AERMOD Results for Annual Average DPM Concentrations based on Unit Emission Rate (μg/m^3)

Source Area	Receptor Distance (feet)	Maximum Concentration[1]
Haul Truck Travel	65	22.19

Model Assumptions for Haul Truck Travel

Modeled Source Type	Line-Area Source	
Road Width (meters)	6.7	Double-lane road with 22 feet
Length of Side (meters)	12.7	Width of a two-lane road + 6 meter
Line Length (meters)	1,140	Haul road segment
Vehicle Height (meters)	4.0	Typical height of heavy-duty trucks
Plume Height (meters)	6.8	1.7 * vertical height (consider traffic-induced mixing)
Release Height (meters)	3.4	AERMOD Haul Road Area Source Calculator
Initial Vertical Dimension (meters)	3.16	AERMOD Haul Road Area Source Calculator

Notes:

DPM = diesel particulate matter

μg/m^3 = micrograms per cubic meter

[1] Based on the Maximally Exposed Individual Receptor at 65 feet from the haul route.

Actual DPM Emission Rates and Scaling Factors

Source Area	Units	Existing	Project
Haul Truck Travel	gram/second	0.000052	0.000098

Assumptions

Work days per year	365	
Haul trips per year (one-way)	36,608	Current Condition (excluding trucks currently routed to Foothill and Forward Landfill).
Haul trips per year (one-way)	68,432	Project Condition.
Haul trucks one-way trips per work day	100	Current Condition (excluding trucks currently routed to Foothill and Forward Landfill).
Haul trucks one-way trips per work day	187	Project Condition.
Trip length (miles)	0.71	Modeled line source length along haul route.
VMT/work day	71.05	Current Condition. Based on modeled line source length and one-way trips.
VMT/work day	132.81	Project Condition. Based on modeled line source length and one-way trips.
Average hours/work day	11	Everyday: 6 am to 5 pm
PM_{10} RUNEX EF (g/mile)	0.029	EMFAC2021 Emission Rates in Valley Air District in 2024; aggregate model years; aggregate speed.
Seconds per work day	39,600	

Notes:

DPM = diesel particulate matter

g/s = grams per second

RUNEX = Engine Running Exhaust Emission Factor

Equations:

Truck Travel Emission Rate (g/s) = VMT/day * RUNEX EF * conversion

AERMOD Results for Annual Average DPM Concentrations based on Actual Emission Rates (µg/m^3)

Source Area	Receptor Distance (feet)	Existing	Project
Haul Truck Travel	65	0.0011618	0.0021717

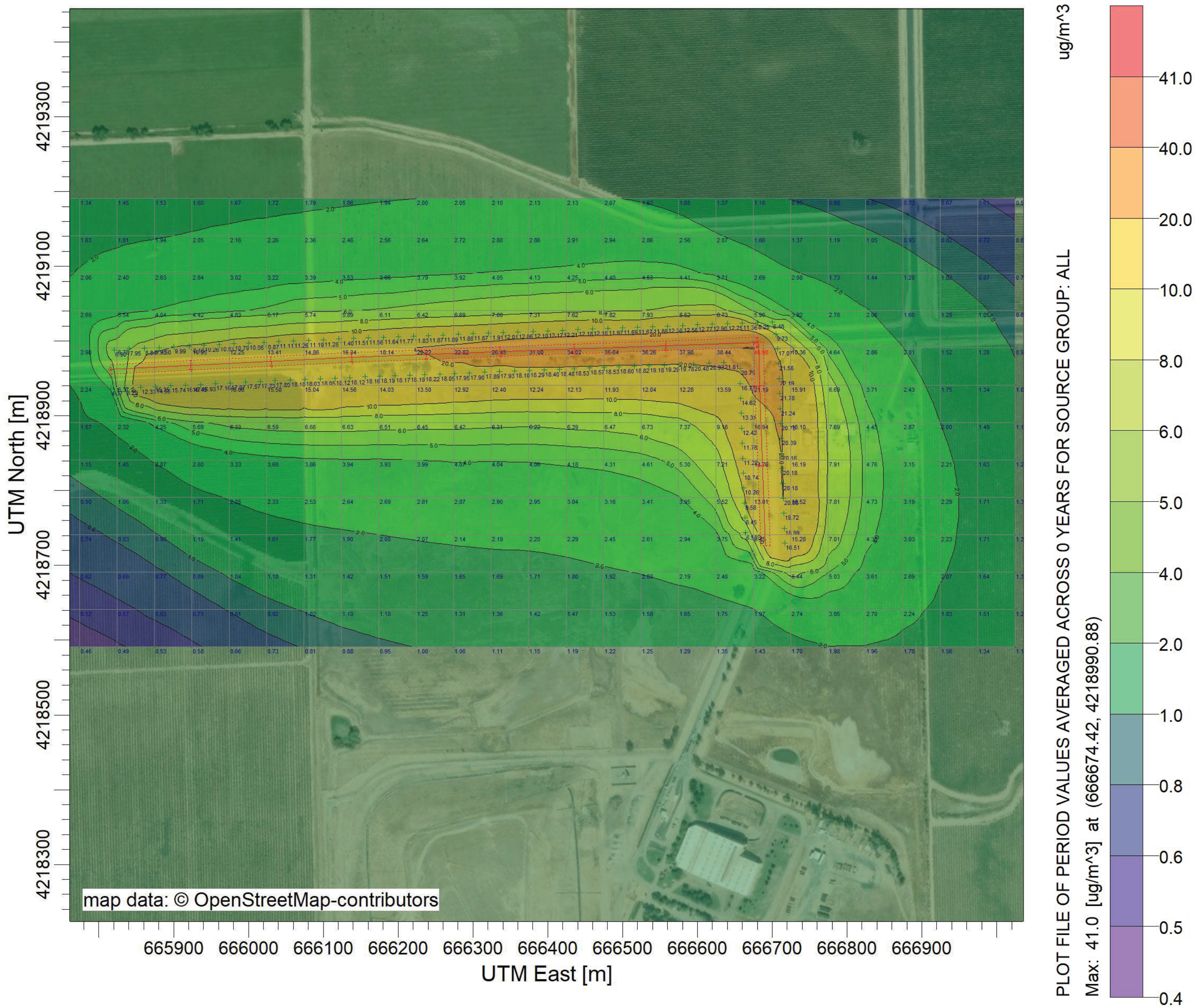
Notes:

DPM = diesel particulate matter

µg/m^3 = micrograms per cubic meter

PROJECT TITLE:

North County Landfill Project
Haul Truck Exhaust - Haul Route



COMMENTS:

Concentrations based on unit emission rate (1 g/s)

SOURCES:

1

RECEPTORS:

465

OUTPUT TYPE:

Concentration

MAX:

41.0 ug/m^3

COMPANY NAME:

Baseline Environmental Consulting

SCALE: 1:8,311

0 0.2 km

PROJECT NO.:

21202-23

AERMOD View - Lakes Environmental Software

Appendix C-2: Health Risk Assessment Parameters, Assumptions, and Results

Overview

In accordance with guidance from the Office of Environmental Health Hazard Assessment (OEHHA, 2015), the incremental increase in cancer risk and chronic hazard index for sensitive receptors exposed to DPM emissions from the haul trucks.

Existing Condition

Health Risk Assessment Parameters and Results for Exposure to DPM at the Maximally Exposed Individual Receptor 65 feet from the Haul Route

Inhalation Cancer Risk Assessment	Units	3rd Trimester	0-2 Year Infant	2-16 Year Child	> 16 Year Adult	Notes
Concentration (C)	$\mu g/m^3$	0.00116	0.00116	0.00116	0.00116	AERMOD Annual Average
Daily Breathing Rate (DBR)	L/kg-day	361	1090	572	621	95th percentile (OEHHA, 2015)
Inhalation absorption factor (A)	unitless	1.0	1.0	1.0	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.96	0.96	0.96	0.96	350 days/365 days in a year (OEHHA, 2015)
Dose Conversion Factor (CF_D)	$mg\text{-}m^3/\mu g\text{-}L$	0.000001	0.000001	0.000001	0.000001	Conversion of µg to mg and L to m^3
Dose (D)	mg/kg/day	0.0000004	0.0000012	0.0000006	0.0000007	$C*DBR*A*EF*CF_D$ (OEHHA, 2015)
Cancer Potency Factor (CPF)	$(mg/kg/day)^{-1}$	1.1	1.1	1.1	1.1	OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	10	10	3	1	OEHHA, 2015
Annual Exposure Duration (ED)	years	0.25	2.00	14.00	13.75	Assumes 30 years of exposure
Averaging Time (AT)	years	70	70	70	70	70 years for residents (OEHHA, 2015)
Fraction of time at home (FAH)	unitless	0.85	0.85	0.85	0.85	OEHHA, 2015
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	1000000	1000000	1000000	Chances per million (OEHHA, 2015)
Cancer Risk	per million	0.013	0.32	0.36	0.13	D*CPF*ASF*ED/AT*FAH*CF (OEHHA, 2015)
Total Cancer Risk	**per million**	**0.82**				**Threshold = 10.0**
Chronic Reference Exposure Level (REL)	$\mu g/m^3$	5.0	5.0	5.0	5.0	OEHHA, 2015
Chronic Hazard Quotient	unitless	0.00023	0.00023	0.00023	0.00023	C/REL (OEHHA, 2015)
Maximum Chronic Hazard Index	**unitless**	**0.00023**				**Threshold = 1.0**

Notes:

DPM = diesel particulate matter

$\mu g/m^3$ = micrograms per cubic meter

L/kg-day = liters per kilogram-day

mg/L = milligrams per liter

$m^3/\mu g$ = cubic meters per microgram

m^3/L = cubic meters per liter

mg/kg/day = milligrams per kilogram per day

Office of Environmental Health Hazard Assessment (OEHHA), 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.*

Project Condition

Health Risk Assessment Parameters and Results for Exposure to DPM at the Maximally Exposed Individual Receptor 65 feet from the Haul Route

Inhalation Cancer Risk Assessment	Units	3rd Trimester	0-2 Year Infant	2-16 Year Child	> 16 Year Adult	Notes
Concentration (C)	$\mu g/m^3$	0.00217	0.00217	0.00217	0.00217	AERMOD Annual Average
Daily Breathing Rate (DBR)	L/kg-day	361	1090	572	621	95th percentile (OEHHA, 2015)
Inhalation absorption factor (A)	unitless	1.0	1.0	1.0	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.96	0.96	0.96	0.96	350 days/365 days in a year (OEHHA, 2015)
Dose Conversion Factor (CF_D)	$mg\text{-}m^3/\mu g\text{-}L$	0.000001	0.000001	0.000001	0.000001	Conversion of µg to mg and L to m^3
Dose (D)	mg/kg/day	0.0000008	0.0000023	0.0000012	0.0000013	C*DBR*A*EF*CF_D (OEHHA, 2015)
Cancer Potency Factor (CPF)	$(mg/kg/day)^{-1}$	1.1	1.1	1.1	1.1	OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	10	10	3	1	OEHHA, 2015
Annual Exposure Duration (ED)	years	0.25	2.00	14.00	13.75	Assumes 30 years of exposure
Averaging Time (AT)	years	70	70	70	70	70 years for residents (OEHHA, 2015)
Fraction of time at home (FAH)	unitless	0.85	0.85	0.85	0.85	OEHHA, 2015
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	1000000	1000000	1000000	Chances per million (OEHHA, 2015)
Cancer Risk	per million	0.025	0.61	0.67	0.24	D*CPF*ASF*ED/AT*FAH*CF (OEHHA, 2015)
Total Cancer Risk	**per million**	**1.54**				**Threshold = 10.0**
Chronic Reference Exposure Level (REL)	$\mu g/m^3$	5.0	5.0	5.0	5.0	OEHHA, 2015
Chronic Hazard Quotient	unitless	0.00043	0.00043	0.00043	0.00043	C/REL (OEHHA, 2015)
Maximum Chronic Hazard Index	**unitless**	**0.00043**				**Threshold = 1.0**

Notes:

DPM = diesel particulate matter

$\mu g/m^3$ = micrograms per cubic meter

L/kg-day = liters per kilogram-day

mg/L = milligrams per liter

$m^3/\mu g$ = cubic meters per microgram

m^3/L = cubic meters per liter

mg/kg/day = milligrams per kilogram per day

Office of Environmental Health Hazard Assessment (OEHHA), 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.*

APPENDIX B. NOISE AND VIBRATION TECHNICAL STUDY

BASELINE ENVIRONMENTAL CONSULTING

MEMORANDUM

Date: February 26, 2025 **Job No.:** 21202-23

To: Rob Carnachan, Senior Environmental Planner, WRA, Inc.

From: Yilin Tian, Project Environmental Engineer, Baseline Environmental Consulting

Subject: **Noise and Vibration Technical Study, North County Sanitary Landfill and Recycling Center Solid Waste Facility Permit Amendment Project, Lodi, California**

Baseline Environmental Consulting (Baseline) has prepared this technical study to evaluate the potential noise and vibration impacts associated with the proposed North County Sanitary Landfill and Recycling Center (North County Landfill) Solid Waste Facility Permit Amendment Project (project) located in Lodi, California. This technical memorandum includes an overview of fundamental noise and vibration concepts, a description of the existing sensitive receptors and noise conditions in the project vicinity, and an analysis of the potential noise and vibration impacts associated with the implementation of the project. This study will be used to support environmental review for the project under the California Environmental Quality Act (CEQA).

PROJECT DESCRIPTION

The project site is located at 17720 East Harney Lane and approximately 0.35 miles south of East Harney Lane via an access road (**Figure 1**). The project site has operated as a solid waste disposal and transfer/processing facility since 1991. The total permitted area for all facility operations is 320 acres and the landfilling area is 185 acres. In addition to the waste disposal area, the four main buildings on site are a recycling center, office/maintenance building, water pump house building, and scale house. There is a permanent berm, set back 100 feet from the property line, surrounding the project site's perimeter.

The project consists of a proposed amendment to the Solid Waste Facility Permit to increase the maximum allowed daily refuse disposal and the number of daily incoming refuse vehicles from 1,200 tons per day and 850 vehicles per day to 4,000 tons and 1,200 vehicles per day. This increase would involve a change in refuse truck routing; approximately 50 transfer trucks that currently go to the Foothill Landfill would be re-routed to the North County Landfill. The refuse trucks would access the North County Landfill via East Harney Lane and the North County Landfill access road. The projected annual intake would increase from 250,000 tons in 2024 to 660,000 tons in 2026, then increase 3% annually thereafter. In addition, the North County Landfill currently operates from 7:00 am to 5:00 pm, seven days per week. The project would add one more hour to the Noth County Landfill's daily operations between 6:00 am and

7:00 am to allow the acceptance of commercial waste during this time period. The project would not change the North County Landfill's capacity and would not involve new construction.

NOISE AND VIBRATION CONCEPTS

Noise Concepts and Terminology

Noise is commonly defined as unwanted sound that annoys or disturbs people and can have an adverse psychological or physiological effect on human health. Sound is measured in decibels (dB), which is a logarithmic scale. Decibels describe the purely physical intensity of sound based on changes in air pressure, but they cannot accurately describe sound as perceived by the human ear since the human ear is only capable of hearing sound within a limited frequency range. For this reason, a frequency-dependent weighting system is used, and monitoring results are reported in A-weighted decibels (dBA). Decibels and other acoustical terms are defined in **Table 1**.

Table 1. Definition of Acoustical Terms

Term	Definition
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure.
Decibel (dB)	A unit describing the amplitude of sound on a logarithmic scale. Sound described in decibels is usually referred to as sound or noise "level." This unit is not used in this analysis because it includes frequencies that the human ear cannot detect.
A-Weighted Sound Level (dBA)	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, in a manner similar to the frequency response of the human ear, and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted.
Maximum Sound Levels (Lmax)	The maximum sound level measured during a given measurement period.
Exceedance Level (Ln)	The A-weighted noise levels that are exceeded 10%, 50%, and 90% (L10, L50, L90, respectively) of the time during the measurement.
Equivalent Noise Level (Leq)	The average A-weighted noise level during the measurement period. For this evaluation, Leq refers to a 1-hour period unless otherwise stated.
Day/Night Noise Level (Ldn)	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to sound levels during the night between 10:00 p.m. and 7:00 a.m.

Term	Definition
Ambient Noise Level	The existing level of environmental noise at a given location from all sources near and far.
Vibration Decibel (VdB)	A unit describing the amplitude of vibration on a logarithmic scale.
Peak Particle Velocity (PPV)	The maximum instantaneous peak of a vibration signal.
Root Mean Square (RMS) Velocity	The average of the squared amplitude of a vibration signal.

Sources: Charles M. Salter Associates, Inc., 1998. Acoustics – Architecture, Engineering, the Environment, William Stout Publishers.
Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September.

A typical method for determining a person's subjective reaction to a new noise is by comparing it to existing conditions. The following describes the general effects of noise on people:

- A 3-dBA increase is considered barely noticeable.
- A 5-dBA increase is considered clearly noticeable, but not dramatic.
- A 10-dBA increase is perceived as a doubling in loudness.

Traffic noise levels are often expressed in terms of the hourly dBA. The noise levels generated by vehicular sources mainly depend on traffic volume, the speed, and the percent of trucks within the fleet. Increases in these three factors will lead to higher noise levels. Doubling the number of sources, such as traffic volume, increases the noise level by approximately 3 dBA due to the logarithmic nature of noise levels.[1]

In an unconfined space, such as outdoors, noise attenuates with distance. Noise levels at a known distance from point sources are reduced by 6 dBA for every doubling of that distance for hard surfaces (e.g., asphalt) and by 7.5 dBA for every doubling of distance for soft surfaces (e.g., vegetative areas).

General Information on Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Typically, ground-borne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Vibration amplitudes are usually expressed as either Peak Particle Velocity (PPV) or as Root Mean Square (RMS) velocity. The PPV is defined as the maximum instantaneous peak of

[1] Federal Highway Administration (FHWA), 2018. Techniques for Reviewing Noise Analyses and Associated Noise Reports.

the vibration signal. PPV is appropriate for evaluating potential damage to buildings, but it is not suitable for evaluating human response to vibration because it takes the human body time to respond to vibration signals. The response of the human body to vibration is dependent on the average amplitude of a vibration event. The RMS of a signal is the average of the squared amplitude of the signal and is more appropriate for evaluating human response to vibration. PPV is normally described in units of inches per second (in/sec) and RMS is often described in vibration decibels (VdB).

Vibration can be felt or heard by humans well below a level that would result in damage to a structure. Except for long-term occupational exposure, vibration levels rarely affect human health. Instead, most people consider vibration to be an annoyance that can affect concentration or disturb sleep. According to the Federal Transit Administration (FTA), a vibration level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible.[2]

ENVIRONMENTAL SETTING

Existing Ambient Noise Conditions

The project site located in a rural area. The primary sources of existing noise in the project vicinity are vehicular traffic along East Harney Lane. The existing noise environment in the vicinity of the project site was characterized through an ambient noise monitoring survey conducted on February 7, 2025. The survey consisted of three short-term measurements (ST-1 through ST-3). The noise measurement locations are illustrated in **Figure 1**. Sound level measurements were conducted using Type 1 sound level meters with slow response and "A" weighting. The noise monitoring equipment for the short-term measurements were collected using a tripod at 5 feet above ground level. The microphones were protected from the effects of wind noises. The noise meters were field calibrated immediately prior to and post use. Ambient noise measurement locations, monitoring periods, and corresponding results are summarized in **Table 2** and the supporting noise measurement reports are included in **Attachment A**.

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[2] Federal Transit Administration (FTA), 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September.

Table 2. Summary of Existing Noise Level Measurements

ID	Location	Monitoring Period	Noise Level (dBA Leq)	Dominant Source of Noise
ST-1	About 430 feet south to the intersection of East Harney Lane and the North County Landfill access road (about 30 feet from the centerline of the access road)	09:45 am to 10:00 am	69.4	Automobiles and trucks on the access road
ST-2	Adjacent northeast corner of the project site near East Harney Lane (about 25 feet from the centerline)	10:42 am to 11:00 am	78.7	Automobiles and trucks on East Harney Lane
ST-3	Access road at western boundary of the North County Landfill	10:15 am to 10:30 am	55.9	Aircraft overflights, nearby worker activities (pick-up truck and workers talking)

Source: Attachment A.

Existing Sensitive Receptors

Noise-sensitive receptors are locations where people are more susceptible to elevated noise levels than others due to the amount of noise exposure and the types of activities typically involved. Sensitive receptors include, but are not limited to residences, schools, places of worship, hospitals, convalescent homes, hotels, and libraries. Vibration-sensitive receptors are locations where people are more susceptible to the adverse effects of vibration. These include residences and other buildings where people normally sleep, as well as buildings that have the potential for activity interference (e.g., vibration sensitive equipment, schools, and places of worship). In certain situations, vibration also can cause structural damage.

The surrounding land uses are primarily agricultural with scattered single-family residences. The closest sensitive receptor to the project site is a residence located on-site about 460 feet southeast of the intersection of East Harney Lane and the North County Landfill access road (**Figure 1**). As mentioned above, the project-generated trucks would access the North County Landfill via East Harney Lane and the North County Landfill access road. Sensitive receptors along the haul route include residences as close as approximately 65 feet to the centerline of East Harney Lane and schools, including Harmony Grove Elementary School and the Adelita Montessori School, as close as approximately 70 feet to the centerline of East Harney Lane.

REGULATORY FRAMEWORK

Federal Transit Administration

The Federal Transit Administration (FTA) has developed vibration thresholds to prevent disturbances to (i.e., annoyance of) building occupants based on the frequency of a vibration event.[3] Vibrations that are equal to or exceed the vibration thresholds could result in potential disturbance to people or activities. The FTA thresholds of 80 VdB and 83 VdB for infrequent events[4] are used in this analysis to evaluate disturbance to residences and buildings where people normally sleep and to institutional land uses with primarily daytime use (such as schools and library), respectively.

The FTA has also developed vibration thresholds based on PPV values to evaluate the potential impact of construction vibration on structures. Construction vibrations that are equal to or exceed the vibration thresholds could result in potential damage to structures. The FTA threshold of 0.2 in/sec PPV for non-engineered timber and masonry buildings is used to represent the building types near the project site and along the haul route based on the apparent age of the buildings.

San Joaquin County Noise Ordinance

San Joaquin County regulates noise via the County's noise ordinance (Code of Ordinance Chapter 9-404). Chapter 9-404.040 establishes standards for noise from transportation sources and stationary sources, as presented in **Tables 3** and **4,** respectively. For transportation sources, the noise ordinance chapter 9-404.040.(a) requires private development projects involving new or expanded transportation facilities to mitigate noise levels that exceed the standards specified in **Table 3**. For stationary noise sources, the noise ordinance chapter 9-404.040.(b) requires projects involving new or expanded stationary noise sources to mitigate noise levels that exceed the noise level standards specified in **Table 4**.

Table 3. San Joaquin County Maximum Allowable Noise Exposure from Transportation Noise Sources

Noise Sensitive Land Use	Outdoor Activity Areas[1] (dBA Ldn)	Interior Spaces (dBA Ldn)
Residential	65	45
College and Trade School	65	45
Commercial Use Types not separately listed	-	45

[3] Federal Transit Administration (FTA), 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September.
[4] Infrequent events = less than 30 events per day. The "infrequent events" threshold is appropriate for off-road equipment in this analysis based on the nature of the landfill operational activities.

Noise Sensitive Land Use	Outdoor Activity Areas[1] (dBA Ldn)	Interior Spaces (dBA Ldn)
Community Assembly/Religious Assembly	65	45
Cultural Institutions	65	45
Hospitals and Clinics	65	45
Offices	-	45
Parks and Recreation Facilities	65	45
Schools	65	45

[1] Where the location of outdoor activity areas is unknown or is not applicable, the noise standard shall be applied at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards shall be applied on the receiving side of noise barriers or other property line noise mitigation measures.
Source: San Joaquin County Code of Ordinance Table 9-404.040.

Table 4. San Joaquin County Maximum Allowable Noise Exposure from Stationary Noise Sources

Sound Level	Outdoor Activity Areas of Noise Sensitive Land Uses[1]	
	Daytime[2] (7 a.m. to 10 p.m.)	Nighttime[2] (10 p.m. to 7 a.m.)
Hourly Equivalent Sound Level (Leq), dBA[3]	55	45
Maximum Sound Level (Lmax), dBA	75	65

[1] Where the location of outdoor activity areas is unknown or is not applicable, the noise standard shall be applied at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards shall be applied on the receiving side of noise barriers or other property line noise mitigation measures.
[2] Each of the noise level standards specified shall be reduced by 5 dB for impulsive noise, single tone noise, or noise consisting primarily of speech or music.
[3] If the noise source operates for less than 30 minutes per hour, then the maximum sound level standard shall apply.
Source: San Joaquin County Code of Ordinance Table 9-404.040.

San Joaquin County General Plan, Noise Element

Besides the noise standards presented in **Tables 3** and **4**, the San Joaquin County 2035 General Plan (General Plan)[5] includes the following policies related to noise and vibration:

> **PHS-9.4 Acceptable Vibration Levels**. The County shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby vibration-sensitive uses based on FTA criteria.

[5] Mintier Harnish Planning Consultants, 2016. San Joaquin County General Plan Policy Document, December.

PHS-9.6 Enforcement of State and Federal Noise Regulations. The County shall continue to enforce State and Federal noise laws regarding vehicle operation, equipment, and building insulation.

SIGNIFICANCE CRITERIA

Implementation of the project would result in a significant impact related to noise and vibration if it would:

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

The off-road equipment associated with the landfill facility operations is considered a stationary noise source. The noise levels generated by additional off-road equipment at the project site were evaluated using the noise standards for stationary sources established in San Joaquin County noise ordinance chapter 9-404.040.(b), as presented in **Table 4** above. In accordance with the San Joaquin County's General Plan, the FTA vibration impact criteria were used to evaluate potential vibration impacts associated with implementation of the project.

Noise levels along the project haul route would increase because of the additional vehicle trips contributed by project operations. This analysis evaluates if the project would result in a substantial permanent increase in traffic noise levels based on the standards established in San Joaquin County noise ordinance chapter 9-404.040.(a), as presented in **Table 3**, and a conservative threshold of 3 dBA above the existing conditions. According to the noise criteria from Caltrans's Technical Noise Supplement,[6] a 3 dBA increase above ambient noise levels is considered barely perceptible.

[6] California Department of Transportation (Caltrans), Division of Environmental Analysis. 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol. September.

ANALYSIS AND FINDINGS

Operation Noise

The project would not involve construction of new facilities at the North County Landfill. The primary source of noise during project operation would be due to a net increase in off-road equipment on the project site and project-generated vehicle trips along the haul route. The project would increase the maximum amount of allowed daily refuse disposal and the number of daily incoming refuse trucks from 1,200 tons per day and 850 trucks per day to 4,000 tons and 1,200 trucks per day. This increase would involve a change in refuse truck routing; approximately 51 transfer trucks that currently go to the Foothill Landfill would be re-routed to the North County Landfill. The increase in daily refuse disposal would also increase the use of off-road equipment associated with landfill operations. According to the Transportation Impact Analysis prepared for the project,[7] the project will generate an average of 461 new trips per day, including 359 visitor and worker commute trips and 102 haul truck trips.

Landfill Off-Road Equipment Noise

The heavy off-road equipment currently used at the North County Landfill will continue to be used with implementation of the project. Compared to the current operation condition, the project would increase the hours of operation and increase the number of off-road equipment used on site (one compactor, one scraper, two dozers, and one loader), but would not change the type of equipment used or the manner of operation. It was assumed that heavy off-road equipment will primarily be used at the designated waste disposal areas.

Noise levels from landfill off-road equipment usage were calculated using a conservative outdoor noise propagation methodology that did not consider sound attenuation from intervening buildings or terrain. The nearest noise sensitive receptor to the project site is a single-family home located approximately 2,100 feet northeast from the top of Lined Area 1 (**Figure 1**). Two scenarios were modeled to evaluate the potential noise impacts from off-road equipment operations at the project site:

1) Maximum Noise Level Scenario
2) Typical Noise Level Scenario

Under the Maximum Noise Level Scenario, it was conservatively assumed that all of the off-road equipment for the project (existing and proposed) would operate simultaneously near the top perimeter of Lined Area 1 for up to 30 minutes. It should be noted that this is a very conservative analysis because it is highly unlikely that all of the off-road equipment would be used simultaneously in this manner, and the existing cells within Lined Area 1 have been filled

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[7] W-Trans, 2025. DRAFT Transportation Impact Analysis for the North County Recycling Center and Sanitary Landfill Project. January 23.

and only nominal additions of refuse to this area are expected prior to final closure of the landfill. The combined noise from all off-road equipment under the Maximum Noise Level Scenario was compared to the Lmax thresholds in the County Noise Ordinance for stationary sources referenced in **Table 4**.

Under the Typical Noise Level Scenario, it was assumed that the two loudest pieces of equipment would operate simultaneously near the perimeter of Lined Area 1 throughout the workday (i.e., more than 30 minutes). As discussed above, this is a conservative analysis because Lined Area 1 is currently inactive and only nominal additions of refuse to this area are expected prior to final closure of the landfill. The combined noise from off-road equipment under the Typical Noise Level Scenario was compared to the Leq thresholds in the County Noise Ordinance for stationary sources referenced in **Table 4**.

Modeling the potential noise impact at the closest noise-sensitive receptor is also conservative because it represents a worst-case scenario for all nearby sensitive receptors exposed to noise during project operation. An "acoustical usage factor" was used to account for the fact that equipment would not operate at maximum capacity 100 percent of the time and was based on assumptions that have been developed by the Federal Highway Administration.[8] The types of heavy off-road equipment that would be used on the project site (e.g., backhoe, dozer, and grader) were provided by the project applicant (**Attachment A**).

As shown in **Table 5,** the estimated noise levels at the nearest noise-sensitive receptor for both the Maximum Noise Level Scenario and Typical Noise Level Scenario are below the applicable County Noise Ordinance daytime and nighttime noise standards for stationary sources. The project would also result in a less than 1 dBA increase in ambient noise levels at the nearest noise-sensitive receptor under the Maximum Noise Level Scenario, which would make no perceptible difference. Therefore, the project's use of off-road equipment would not generate substantial noise levels at nearby noise-sensitive receptors during project operations.

Table 5. Potential Noise Impact at Nearest Sensitive Receptor from Off-Road Equipment

Operation Scenario	Maximum Noise Level Scenario (dBA Lmax)	Typical Noise Level Scenario (dBA Leq)
Existing Condition	57.1	44.0
Project	58.0	44.0
Daytime Thresholds	75	55
Nighttime Thresholds	65	45
Exceed Thresholds?	No	No

Source: Noise calculations included in Attachment A.

[8] U.S. Department of Transportation, 2006. FHWA Highway Construction Noise Handbook. August.

Traffic Noise

Noise levels along the haul route would increase with the additional vehicle trips contributed by project operations. The project would generate a total of 9 truck trips and 31 visitor/worker commute trips during the AM peak hours and 8 visitor/worker commute trips during the PM peak hours. The project-generated traffic noise levels were calculated during the AM peak hour to represent the highest traffic noise increase during project operation. Traffic noise impacts are evaluated for the Existing plus Project condition, which is the 2024 existing condition plus the project-generated trips, and the Cumulative plus Project condition, which is the 2046 horizon year condition plus the project-generate trips. Traffic volumes during the AM peak hour and associated traffic composition were used in the Federal Highway Administration's Traffic Noise Model (TNM2.5) to estimate traffic noise levels for the Existing condition, Existing plus Project condition, Cumulative condition, and Cumulative plus Project condition. The traffic model inputs and outputs are included in **Attachment A**.

The estimated Existing, Existing plus Project, Cumulative, and Cumulative plus Project traffic noise levels for the studied road segments along the haul route are summarized in **Table 6**. The noise levels reported in **Table 6** are AM peak hour Leq levels, but were presented as Ldn levels for comparison with the San Joaquin County's noise standard of 65-dBA Ldn at noise-sensitive land uses for transportation sources as referenced in **Table 3**. Generally, during the peak traffic hour under normal traffic conditions, Ldn is within plus or minus 2 dBA of the Leq.[9]

Based on these estimates, the project would increase traffic noise by up to 2.0 dBA along the haul route compared to the Existing condition and Cumulative condition, which is below the conservative 3-dBA threshold. It is to be noted that where the Existing plus Project and/or Cumulative plus Project noise levels exceed the San Joaquin County's noise standard of 65-dBA Ldn, the corresponding Existing and Cumulative noise levels have already exceeded the 65-dBA Ldn threshold. Implementation of the project would not result in a new exceedance of the San Joaquin County's noise standards for transportation sources. Therefore, the project-generated traffic noise increase along the haul route would be less than significant.

Vibration

The project does not include any new construction. Landfill operation would not involve equipment (such as vibratory rollers and crack-and-seat equipment) or activities (such as pile driving) that would generate excessive groundborne vibration or groundborne noise levels. Typical vibration-generating heavy equipment, such as bulldozers and loaded trucks, is currently being used at the North County Landfill. The project would increase the hours of operation and increase the number of off-road equipment, namely one compactor, one scraper, two dozers, and one loader, but would not change the type of equipment used or the

[9] Caltrans, 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol. September.

manner of operation. Therefore, the project vibration impacts are substantially similar to the existing condition.

According to the FTA,[10] typical vibration levels generated by a large bulldozer and loaded trucks at 25 feet would be 0.089 inch per second (87 VdB) and 0.076 inch per second (86 VdB), respectively. For potential building damage, the vibration levels generated by a large bulldozer and loaded trucks at 25 feet are both below the applicable criteria of 0.2 inch per second recommended by the FTA to prevent damage to structures to non-engineered timber and masonry buildings. Therefore, project operation activities would not generate excessive vibration levels that could potentially cause structure damages.

For human disturbance, a large bulldozer would require a larger buffer distance to avoid generating vibration levels that could potentially cause human disturbance compared to loaded trucks. Vibration from a large bulldozer could exceed the 80-VdB FTA thresholds at residences and the 83-VdB FTA threshold at institutional land uses located within 43 feet and 34 feet, respectively (vibration calculations are provided in **Attachment A**). Since the nearest vibration-sensitive receptor to the project site is located about 2,750 feet from the equipment activity area and the nearest vibration-sensitive receptor along haul route is located about 65 feet from the centerline of the road, project operation activities would not generate excessive vibration levels that could potentially cause human disturbance.

[10] FTA, 2018. Transit Noise and Vibration Impact Assessment Manual, FTA Report No.0123, September.

Table 6 Existing and Projected Traffic Noise Levels along Haul Route

Road Segment		Traffic Noise Levels (dBA Ldn at 50 feet from centerline[1])					
		Existing	Existing plus Project	Estimated Increase	Cumulative	Cumulative plus Project	Estimated Increase
East Harney Lane	West of SR-88	**66.2**	**66.5**	0.3	**67.8**	**68.0**	0.2
	Between SR-88 and Jack Tone Road	**66.4**	**67.3**	0.9	**67.3**	**68.0**	0.7
	Between Jack Tone Road and Landfill Access Road	**65.8**	**66.8**	1.0	**66.4**	**67.2**	0.8
	Between Landfill Entrance and Clements Road	62.0	62.3	0.3	63.1	63.3	0.2
	East of Clements Road	53.6	53.6	0	53.6	53.6	0
SR-88	North of East Harney Lane	**69.8**	**69.8**	0	**72.1**	**72.1**	0
	South of East Harney Lane	**69.7**	**70.0**	0.3	**71.8**	**71.9**	0.1
Landfill Access Road	South of East Harney Lane	57.4	59.4	2.0	57.4	59.4	2.0
Clements Road	North of East Harney Lane	63.7	63.8	0.1	**66.5**	**66.5**	0
	South of East Harney Lane	63.5	63.7	0.2	**66.4**	**66.5**	0.1
	Thresholds	65	65	3	65	65	3
	Exceed Both Thresholds?	--	--	No	--	--	No

Bold values indicate exceedance of applicable threshold.
[1] The noise levels reported in Table 6 are AM peak hour Leq levels, but were presented as Ldn levels for comparison with the San Joaquin County's noise standard of 65-dBA Ldn at noise-sensitive land uses for transportation sources. Generally, during the peak traffic hour under normal traffic conditions, Ldn is within plus or minus 2 dBA of the Leq (Caltrans, 2013).
Sources: See Attachment A

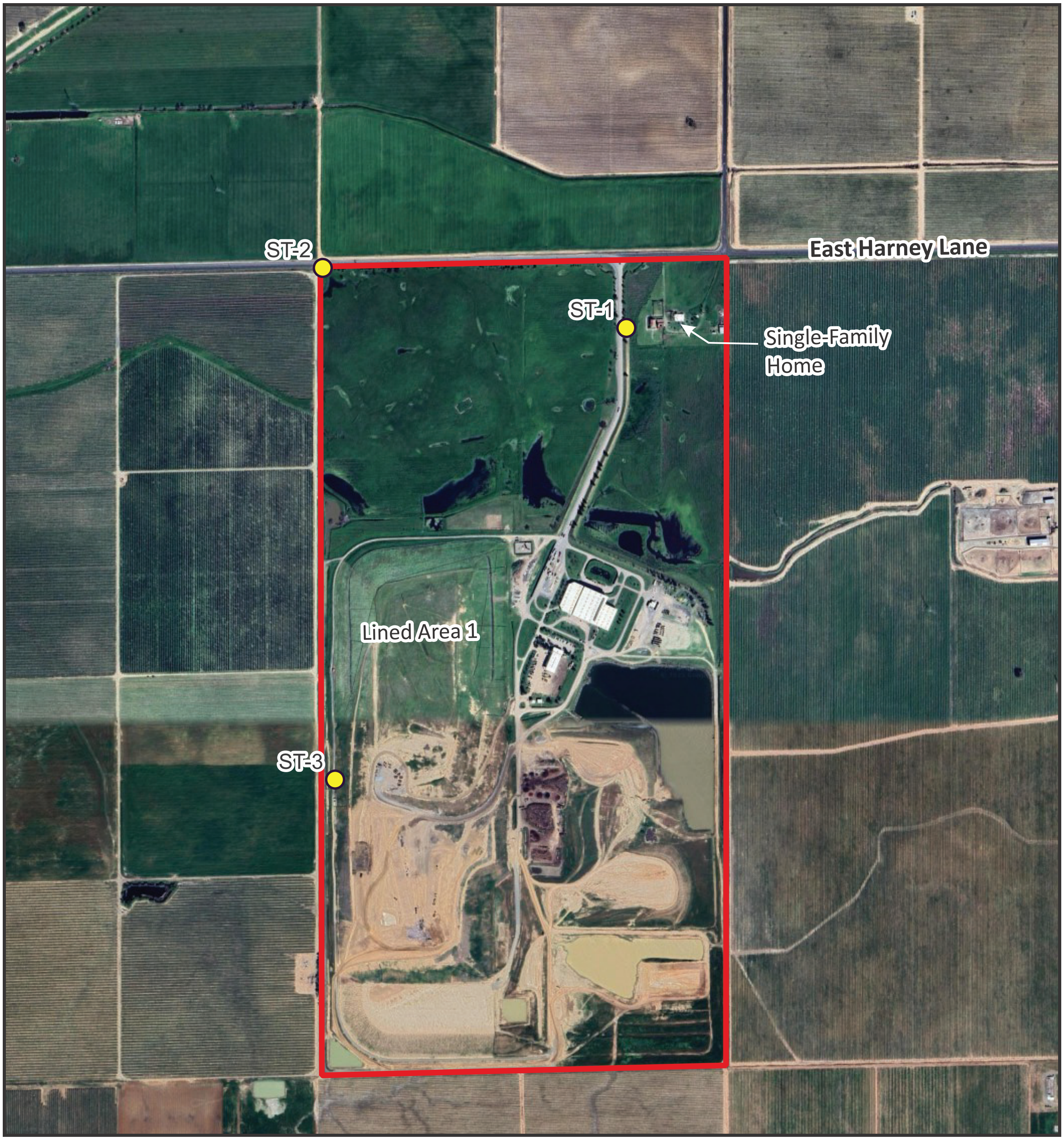
Airport Noise

The project site is not located within the vicinity of a private airstrip or within two miles of a public use airport. The nearest airport is the Wallom Field Airport (8CA8) located about 5.7 miles southwest to the project site. Therefore, the project would have no impact related to the exposure of people to excess noise levels from aircraft.

CONCLUSION

Based on the analysis above, implementation of the project would not result in any significant noise and vibration impacts.

FIGURE



Legend

Noise Measurement Location
Project Site Boundary

0 1,250 Feet
N

BASELINE
ENVIRONMENTAL CONSULTING

Figure 1
Project Site and Noise Measurement Locations

21202-23 Figures 02/13/25

North County Sanitary Landfill and Recycling Center
Solid Waste Facility Permit Amendment Project

ATTACHMENT A

Supporting Noise and Vibration Calculations

Landfill Off-Road Equipment Noise Calculations for the Existing Condition

Equipment Type[1]	USDOT Equipment Type[2]	No. Equipment[1]	Acoustical Usage Factor[2]	Maximum Noise Level @ 50 feet (Lmax)[3]	Typical Noise Level @ 50 feet (dBA_1)	Reference Distance (D_1)	Distance to Receptor (D_2)	Ground Absorption Constant (G)	Maximum Noise Level at Receptor (dBA_2)	Typical Noise Level at Receptor (dBA_2)	Maximum Noise Level Scenario	Typical Noise Level Scenario
		Unit:	%	dBA Lmax	dBA Leq	feet	feet	unitless	dBA Lmax	dBA Leq	dBA Lmax	dBA Leq
Soil Compactor	Compactor (ground)	1	20	82	75	50	2000	0.5	42	35	57.1	44.0
Emergency Pump	Pumps	2	50	77	74	50	2000	0.5	37	34		
Genie Lift	Man lift	1	20	85	78	50	2000	0.5	45	38		
Loader	Front End Loader	5	40	80	76	50	2000	0.5	40	36		
Scraper	Scraper	1	40	85	81	50	2000	0.5	45	41		
Sweeper	Vacuum Street Sweeper	2	10	80	70	50	2000	0.5	40	30		
Landfill Compactor	Compactor (ground)	3	20	82	75	50	2000	0.5	42	35		
Dozers	Dozer	4	40	85	81	50	2000	0.5	45	41		
Backhoe	Backhoe	2	40	80	76	50	2000	0.5	40	36		
Grader	Grader	2	40	85	81	50	2000	0.5	45	41		
Skid Steer	Backhoe	1	40	80	76	50	2000	0.5	40	36		
KUBOTA Tracker	Tractor	1	40	84	80	50	2000	0.5	44	40		
Tarpomatic Landfill Covers	Dozer	2	40	85	81	50	2000	0.5	45	41		
Backup Alarm	Backup Alarm[4]	1	5	80	67	50	2000	0.5	40	27		

Notes:

Noise level at the receptor calculated based on the following equation:[4]

$dBA_2 = dBA_1 + 10 * \log_{10}(D_1/D_2)^{2+G}$

Where:

dBA_2 = Noise level at receptor

dBA_1 = Noise level at reference distance

D_1 = Reference distance

D_2 = Receptor distance

G = Ground absorption constant (0 for hard surface, 0.5 for soft surface)

Combined noise levels at receptor using decibel addition:

$L = 10 * \log_{10} (10^\wedge(L_1/10)+10^\wedge(L_2/10) \ldots +10^\wedge(Ln/10))$

Where:

L = Combined noise level

L_1 = Noise level for first noisiest piece of equipment

L_2 = Noise level for second noisiest piece of equipment

L_n = Noise level for the n^{th} noisiest piece of equipment

[1] The type of construction equipment is based on construction equipment list provided by the applicant.

[2] U.S. Department of Transportation, 2006. FHWA Highway Construction Noise Handbook, Table 9.1. August.

[3] Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment Manual, Table 7-1. September.

[4] National Cooperative Highway Research Program (NCHRP), 1999. Mitigation of Nighttime Construction Noise, Vibrations, and Other Nuisances. NCHRP Synthesis 218.

[5] California Department of Transportation, 1998. Technical Noise Supplement (TeNS). Equation N-2141.2. October.

Landfill Off-Road Equipment Noise Calculations for the Project

Equipment Type[1]	USDOT Equipment Type[2]	No. Equipment[1]	Acoustical Usage Factor[2]	Maximum Noise Level @ 50 feet (Lmax)[3]	Typical Noise Level @ 50 feet (dBA_1)	Reference Distance (D_1)	Distance to Receptor (D_2)	Ground Absorption Constant (G)	Maximum Noise Level at Receptor (dBA_2)	Typical Noise Level at Receptor (dBA_2)	Maximum Noise Level Scenario	Typical Noise Level Scenario
		Unit:	%	dBA Lmax	dBA Leq	feet	feet	unitless	dBA Lmax	dBA Leq	dBA Lmax	dBA Leq
Soil Compactor	Compactor (ground)	1	20	82	75	50	2000	0.5	42	35	58.0	44.0
Emergency Pump	Pumps	2	50	77	74	50	2000	0.5	37	34		
Genie Lift	Man lift	1	20	85	78	50	2000	0.5	45	38		
Loader	Front End Loader	6	40	80	76	50	2000	0.5	40	36		
Scraper	Scraper	2	40	85	81	50	2000	0.5	45	41		
Sweeper	Vacuum Street Sweeper	2	10	80	70	50	2000	0.5	40	30		
Landfill Compactor	Compactor (ground)	4	20	82	75	50	2000	0.5	42	35		
Dozers	Dozer	6	40	85	81	50	2000	0.5	45	41		
Backhoe	Backhoe	2	40	80	76	50	2000	0.5	40	36		
Grader	Grader	2	40	85	81	50	2000	0.5	45	41		
Skid Steer	Backhoe	1	40	80	76	50	2000	0.5	40	36		
KUBOTA Tracker	Tractor	1	40	84	80	50	2000	0.5	44	40		
Tarpomatic Landfill Covers	Dozer	2	40	85	81	50	2000	0.5	45	41		
Backup Alarm	Backup Alarm[4]	1	5	80	67	50	2000	0.5	40	27		

Notes:

Noise level at the receptor calculated based on the following equation:[4]

$dBA_2 = dBA_1 + 10 * \log_{10}(D_1/D_2)^{2+G}$

Where:

dBA_2 = Noise level at receptor

dBA_1 = Noise level at reference distance

D_1 = Reference distance

D_2 = Receptor distance

G = Ground absorption constant (0 for hard surface, 0.5 for soft surface)

Combined noise levels at receptor using decibel addition:

$L = 10 * \log_{10} (10\text{^}(L_1/10)+10\text{^}(L_2/10) \ldots +10\text{^}(Ln/10))$

Where:

L = Combined noise level

L_1 = Noise level for first noisiest piece of equipment

L_2 = Noise level for second noisiest piece of equipment

L_n = Noise level for the n^{th} noisiest piece of equipment

[1] The type of construction equipment is based on construction equipment list provided by the applicant.

[2] U.S. Department of Transportation, 2006. FHWA Highway Construction Noise Handbook, Table 9.1. August.

[3] Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment Manual, Table 7-1. September.

[4] National Cooperative Highway Research Program (NCHRP), 1999. Mitigation of Nighttime Construction Noise, Vibrations, and Other Nuisances. NCHRP Synthesis 218.

[5] California Department of Transportation, 1998. Technical Noise Supplement (TeNS). Equation N-2141.2. October.

Construction Vibration Calculations for Potential Disturbance

Equipment[1]	Typical Vibration Level @ 25 Feet[2] (RMS_1)	Annoyance Vibration Threshold (RMS2)		Reference Distance (D_1)	Buffer Distance to Annoyance Threshold (D2)	
		Residential	Institutional		Residential	Institutional
Unit	VdB	VdB	VdB	feet	feet	
Large bulldozer	87	80	83	25	43	34
Loaded trucks	86	80	83	25	40	31
Small bulldozer	58	80	83	25	5	4

Notes:

Buffer distance to vibration threshold for human annoyance calculated based on the following equation:[3]

$D_2 = D_1 * 10\text{^} ((RMS_1 - RMS_2) / 30)$

Where:

RMS_1 = Vibration level at reference distance

RMS_2 = Vibration threshold for human disturbance

D_1 = Reference distance

D_2 = Buffer distance to vibration threshold for human annoyance

Construction Vibration Calculations for Potential Building Damage

Equipment[1]	Typical Vibration Level @ 25 Feet[2] (PPV_1)	Building Damage Vibration Threshold (PPV_2)	Reference Distance (D_1)	Buffer Distance to Damage Threshold (D_2)
Unit	in/sec	in/sec	feet	feet
Large bulldozer	0.089	0.3	25	11
Loaded trucks	0.076	0.3	25	10
Small bulldozer	0.003	0.3	25	1

Notes:

Buffer distance to vibration threshold for building damage calculated based on the following equation:[3]

$D_2 = (PPV_1 / PPV_2)\text{^} (1 / 1.5) * D_1$

Where:

PPV_1 = Vibration level at reference distance

PPV_2 = Vibration threshold for building damage

D_1 = Reference distance

D_2 = Buffer distance to vibration threshold for building damage

[1] Demolition equipment provided by project applicant, and other equipment based on the CalEEMod default generated for the project. Only equipment that generates substantial vibration is shown.

[2] Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment Manual, Table 7-4. September.

[3] Federal Transit Administration, 2018. Transit Noise and Vibration Impact Assessment Manual, Equations 7-2 and 7-3. September.

Traffic Counts on Studied Road Segment

<u>Assumptions:</u>

Speed limit :	55 mph on East Harney Lane
	25 mph on Landfill Entrance Access Road
AM peak hour trip generation:	31 visitor/worker commute trips and 9 haul truck trips, evenly split between inbound and outbound.

<u>Source:</u>

Traffic volumes at each studied intersections for the 2024 existing condition, the 2046 cumulative condition, project-generated vehicle trips during peak hours, and trip distribution assumptions were provided by the transportation consultant.

Traffic Counts during AM Peak Hour

Road Segment		Vehicle Type	Existing	Existing plus Project	Cumulative	Cumulative plus Project
East Harney Lane	West of SR-88	Total (visitor/worker commute vehicles and trucks)	330	342	477	489
	Between SR-88 and Jack Tone Road		280	316	354	390
	Between Jack Tone Road and Landfill Entrance		195	231	218	254
	Between Landfill Entrance and Clements Road		87	91	109	113
	East of Clements Road		16	16	16	16
SR-88	North of East Harney Lane		579	581	1,002	1,004
	South of East Harney Lane		575	597	931	953
Jack Tone Road	North of East Harney Lane		244	244	568	568
	South of East Harney Lane		237	237	514	514
Landfill Entrance	South of East Harney Lane		76	116	76	116
Clements Road	North of East Harney Lane		153	155	298	300
	South of East Harney Lane		165	167	312	314
East Harney Lane	West of SR-88	Truck	13	16	19	22
	Between SR-88 and Jack Tone Road		23	31	26	34
	Between Jack Tone Road and Landfill Entrance		26	34	30	38
	Between Landfill Entrance and Clements Road		10	11	13	14
	East of Clements Road		1	1	1	1
SR-88	North of East Harney Lane		54	54	89	89
	South of East Harney Lane		52	57	82	87
Jack Tone Road	North of East Harney Lane		19	19	42	42
	South of East Harney Lane		16	16	35	35
Landfill Entrance	South of East Harney Lane		15	24	15	24
Clements Road	North of East Harney Lane		12	12	21	21
	South of East Harney Lane		9	10	18	19

Project-Generated Trip Distribution Assumption

Route		Percent	AM Trips			
			Inbound		Outbound	
			Passenger	Truck	Passenger	Truck
Landfill Entrance	South of East Harney Lane	100%	18	5	13	4
East Harney Lane	Between Landfill Entrance and Clements Road	10%	2	1	1	0
	Between Jack Tone Road and Landfill Entrance	90%	16	4	12	4
	Between SR-88 and Jack Tone Road	90%	16	4	12	4
	West of SR-88	30%	5	2	4	1
SR-88	North of East Harney Lane	5%	1	0	1	0
	South of East Harney Lane	55%	10	2	7	3
Clements Road	North of East Harney Lane	5%	1	0	1	0
	South of East Harney Lane	5%	1	1	0	0

Existing AM - Total (visitor/worker commute vehicles)

INTID	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	SR-88 and E Harney Ln	18	179	22	11	299	51	22	78	24	33	137	17
2	Jack Tone Rd and E Harney Ln	34	78	16	17	70	39	15	62	13	26	98	25
3	17720 E Harney Ln Dwy and E Harney Ln	29	0	3	0	0	0	0	31	39	5	47	0
4	Clements Rd and E Harney Ln	32	47	3	2	65	18	19	5	14	4	0	2

Cumulative AM - Total (visitor/worker commute vehicles+ trucks)

INTID	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	SR-88 and E Harney Ln	19	302	22	11	502	87	65	82	44	42	180	35
2	Jack Tone Rd and E Harney Ln	58	239	16	21	162	83	21	62	13	26	98	42
3	17720 E Harney Ln Dwy and E Harney Ln	29	0	3	0	0	0	0	37	39	5	66	0
4	Clements Rd and E Harney Ln	39	89	3	2	160	24	21	5	17	4	0	2

Existing and Cumulative AM - Truck Percent

It was assumed that the truck percentages for the existing and cumulative conditions would be the same

INTID	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	SR-88 and E Harney Ln	0%	11%	23%	36%	8%	6%	5%	5%	0%	9%	4%	12%
2	Jack Tone Rd and E Harney Ln	0%	8%	13%	18%	7%	0%	13%	15%	15%	4%	10%	12%
3	17720 E Harney Ln Dwy and E Harney Ln	21%	0%	0%	0%	0%	0%	0%	10%	23%	0%	13%	0%
4	Clements Rd and E Harney Ln	9%	4%	0%	0%	6%	22%	11%	20%	0%	0%	0%	0%

Existing AM - Truck

INTID	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	SR-88 and E Harney Ln	0	20	5	4	24	3	1	4	0	3	5	2
2	Jack Tone Rd and E Harney Ln	0	6	2	3	5	0	2	9	2	1	10	3
3	17720 E Harney Ln Dwy and E Harney Ln	6	0	0	0	0	0	0	3	9	0	6	0
4	Clements Rd and E Harney Ln	3	2	0	0	4	4	2	1	0	0	0	0

Cumulative AM - Truck

INTID	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	SR-88 and E Harney Ln	0	33	5	4	40	5	3	4	0	4	7	4
2	Jack Tone Rd and E Harney Ln	0	19	2	4	11	0	3	9	2	1	10	5
3	17720 E Harney Ln Dwy and E Harney Ln	6	0	0	0	0	0	0	4	9	0	9	0
4	Clements Rd and E Harney Ln	4	4	0	0	10	5	2	1	0	0	0	0

Project Trip Generation - Vistor/Worker Commute Trips

INTID	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	SR-88 and E Harney Ln			10	1				5		7	4	1
2	Jack Tone Rd and E Harney Ln								16			12	
3	17720 E Harney Ln Dwy and E Harney Ln	12		1						16	2		
4	Clements Rd and E Harney Ln	1					1	1		0			

Project Trip Generation - Haul Truck Trips

INTID	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	SR-88 and E Harney Ln			2	0				2		3	1	0
2	Jack Tone Rd and E Harney Ln								4			4	
3	17720 E Harney Ln Dwy and E Harney Ln	4		0						4	1		
4	Clements Rd and E Harney Ln	1					0	0		0			

Existing AM plus Project- Total (visitor/worker commute vehicles+ trucks)

INTID	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	SR-88 and E Harney Ln	18	179	34	12	299	51	22	85	24	43	142	18
2	Jack Tone Rd and E Harney Ln	34	78	16	17	70	39	15	82	13	26	114	25
3	17720 E Harney Ln Dwy and E Harney Ln	45	0	4	0	0	0	0	31	59	8	47	0
4	Clements Rd and E Harney Ln	34	47	3	2	65	19	20	5	14	4	0	2

Cumulative AM plus Project- Total (visitor/worker commute vehicles+ trucks)

INTID	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	SR-88 and E Harney Ln	19	302	34	12	502	87	65	89	44	52	185	36
2	Jack Tone Rd and E Harney Ln	58	239	16	21	162	83	21	82	13	26	114	42
3	17720 E Harney Ln Dwy and E Harney Ln	45	0	4	0	0	0	0	37	59	8	66	0
4	Clements Rd and E Harney Ln	41	89	3	2	160	25	22	5	17	4	0	2

Existing AM plus Project - Truck

INTID	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	SR-88 and E Harney Ln	0	20	7	4	24	3	1	6	0	6	6	2
2	Jack Tone Rd and E Harney Ln	0	6	2	3	5	0	2	13	2	1	14	3
3	17720 E Harney Ln Dwy and E Harney Ln	10	0	0	0	0	0	0	3	13	1	6	0
4	Clements Rd and E Harney Ln	4	2	0	0	4	4	2	1	0	0	0	0

Cumulative AM plus Project - Truck

INTID	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	SR-88 and E Harney Ln	0	33	7	4	40	5	3	6	0	7	8	4
2	Jack Tone Rd and E Harney Ln	0	19	2	4	11	0	3	13	2	1	14	5
3	17720 E Harney Ln Dwy and E Harney Ln	10	0	0	0	0	0	0	4	13	1	9	0
4	Clements Rd and E Harney Ln	5	4	0	0	10	5	2	1	0	0	0	0

Baseline Environmental Consulting **25 February 2025**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21202-23**
RUN: **North County Landfill Permit Amendment**

Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
E Harney Ln, West of SR-88 E	point1	1	317	55	0	0	13	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting		25 February 2025
Baseline Env		TNM 2.5
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	21202-23	
RUN:	North County Landfill Permit Amendment	
BARRIER DESIGN:	INPUT HEIGHTS	Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH	

Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	66.2	65	66.2	3	Snd Lvl	66.2	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting **25 February 2025**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21202-23**
RUN: **North County Landfill Permit Amendment**

Roadway	Points												
Name	**Name**	**No.**	**Segment**										
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**		
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
E Harney Ln, West of SR-88 E+P	point1	1	326	55	0	0	16	55	0	0	0	0	
	point2	2											

Baseline Environmental Consulting		25 February 2025
Baseline Env		TNM 2.5
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	21202-23	
RUN:	North County Landfill Permit Amendment	
BARRIER DESIGN:	INPUT HEIGHTS	Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH	

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	No Barrier Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	66.5	65	66.5	3	Snd Lvl	66.5	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting			**25 February 2025**									
Baseline Env			**TNM 2.5**									
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**21202-23**											
RUN:	**North County Landfill Permit Amendment**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
E Harney Ln, West of SR-88 C	point1	1	458	55	0	0	19	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting — **25 February 2025**
Baseline Env — **TNM 2.5**
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21202-23
RUN: North County Landfill Permit Amendment
BARRIER DESIGN: INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver												
Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type	With Barrier Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	67.8	65	67.8	3	Snd Lvl	67.8	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting **25 February 2025**

Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes

PROJECT/CONTRACT: **21202-23**

RUN: **North County Landfill Permit Amendment**

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
E Harney Ln, West of SR-88 C+P	point1	1	467	55	0	0	22	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting		**25 February 2025**
Baseline Env		**TNM 2.5**
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	**21202-23**	
RUN:	**North County Landfill Permit Amendment**	
BARRIER DESIGN:	**INPUT HEIGHTS**	**Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.**
ATMOSPHERICS:	**68 deg F, 50% RH**	

Receiver												
Name	**No.**	**#DUs**	**Existing LAeq1h**	**No Barrier LAeq1h**					**With Barrier**			
						Increase over existing		**Type**	**Calculated**	**Noise Reduction**		
				Calculated	**Crit'n**	**Calculated**	**Crit'n Sub'l Inc**	**Impact**	**LAeq1h**	**Calculated**	**Goal**	**Calculated minus Goal**
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	68.0	65	68.0	3	Snd Lvl	68.0	0.0	0	0.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting **25 February 2025**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21202-23**
RUN: **North County Landfill Permit Amendment**

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
E Harney Ln, SR-88 E& Jack Tone E	point1	1	257	55	0	0	23	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting		**25 February 2025**
Baseline Env		**TNM 2.5**
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	**21202-23**	
RUN:	**North County Landfill Permit Amendment**	
BARRIER DESIGN:	**INPUT HEIGHTS**	**Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.**
ATMOSPHERICS:	**68 deg F, 50% RH**	

Receiver													
Name	**No.**	**#DUs**	**Existing**	**No Barrier**					**With Barrier**				
			LAeq1h	**LAeq1h**		**Increase over existing**		**Type**	**Calculated**	**Noise Reduction**			
				Calculated	**Crit'n**	**Calculated**	**Crit'n**	**Impact**	**LAeq1h**	**Calculated**	**Goal**	**Calculated**	
							Sub'l Inc					**minus**	
												Goal	
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB	
Receiver1	1	1	0.0	66.4	65	66.4	3	Snd Lvl	66.4	0.0	0	0.0	

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting				**25 February 2025**								
Baseline Env				**TNM 2.5**								
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**21202-23**											
RUN:	**North County Landfill Permit Amendment**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
E Harney Ln, SR-88 E& Jack Tone E+P	point1	1	285	55	0	0	31	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting — **25 February 2025**
Baseline Env — **TNM 2.5**
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21202-23
RUN: North County Landfill Permit Amendment
BARRIER DESIGN: INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	67.3	65	67.3	3	Snd Lvl	67.3	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting				**25 February 2025**								
Baseline Env				**TNM 2.5**								
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**21202-23**											
RUN:	**North County Landfill Permit Amendment**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
E Harney Ln, SR-88 E& Jack Tone C	point1	1	328	55	0	0	26	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting		25 February 2025
Baseline Env		TNM 2.5
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	21202-23	
RUN:	North County Landfill Permit Amendment	
BARRIER DESIGN:	INPUT HEIGHTS	Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH	

Receiver												
Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h					With Barrier			
						Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	68.0	65	68.0	3	Snd Lvl	68.0	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting 25 February 2025
Baseline Env TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: 21202-23
RUN: North County Landfill Permit Amendment

Roadway	Points												
Name	Name	No.	Segment										
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
E Harney Ln, SR-88 E& Jack Tone C+P	point1	1	356	55	0	0	34	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting — 25 February 2025
Baseline Env — TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21202-23
RUN: North County Landfill Permit Amendment
BARRIER DESIGN: INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver												
Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type	With Barrier Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	67.3	65	67.3	3	Snd Lvl	67.3	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting — **25 February 2025**
Baseline Env — **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21202-23**
RUN: **North County Landfill Permit Amendment**

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
E Harney Ln,JTR & Entrance E	point1	1	169	55	0	0	26	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting		25 February 2025
Baseline Env		TNM 2.5
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	21202-23	
RUN:	North County Landfill Permit Amendment	
BARRIER DESIGN:	INPUT HEIGHTS	Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH	

Receiver												
Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type	With Barrier Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	65.8	65	65.8	3	Snd Lvl	65.8	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting **25 February 2025**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21202-23**
RUN: **North County Landfill Permit Amendment**

Roadway	Points												
Name	**Name**	**No.**	**Segment**										
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**		
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
E Harney Ln,JTR & Entrance E+P	point1	1	197	55	0	0	34	55	0	0	0	0	
	point2	2											

Baseline Environmental Consulting		**25 February 2025**
Baseline Env		**TNM 2.5**
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	**21202-23**	
RUN:	**North County Landfill Permit Amendment**	
BARRIER DESIGN:	**INPUT HEIGHTS**	**Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.**
ATMOSPHERICS:	**68 deg F, 50% RH**	

Receiver												
Name	**No.**	**#DUs**	**Existing LAeq1h**	**No Barrier LAeq1h**					**With Barrier**			
						Increase over existing		**Type**	**Calculated**	**Noise Reduction**		
				Calculated	**Crit'n**	**Calculated**	**Crit'n Sub'l Inc**	**Impact**	**LAeq1h**	**Calculated**	**Goal**	**Calculated minus Goal**
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	66.8	65	66.8	3	Snd Lvl	66.8	0.0	0	0.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting			**25 February 2025**									
Baseline Env			**TNM 2.5**									
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**21202-23**											
RUN:	**North County Landfill Permit Amendment**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
E Harney Ln,JTR & Entrance C	point1	1	189	55	0	0	30	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting — **25 February 2025**
Baseline Env — **TNM 2.5**
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21202-23
RUN: North County Landfill Permit Amendment
BARRIER DESIGN: INPUT HEIGHTS

ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver												
Name	**No.**	**#DUs**	**Existing LAeq1h**	**No Barrier LAeq1h**					**With Barrier**			
						Increase over existing		**Type**	**Calculated**	**Noise Reduction**		
				Calculated	**Crit'n**	**Calculated**	**Crit'n Sub'l Inc**	**Impact**	**LAeq1h**	**Calculated**	**Goal**	**Calculated minus Goal**
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	66.4	65	66.4	3	Snd Lvl	66.4	0.0	0	0.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting				**25 February 2025**								
Baseline Env				**TNM 2.5**								
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**21202-23**											
RUN:	**North County Landfill Permit Amendment**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
E Harney Ln,JTR & Entrance C+P	point1	1	217	55	0	0	38	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting		25 February 2025
Baseline Env		TNM 2.5
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	21202-23	
RUN:	North County Landfill Permit Amendment	
BARRIER DESIGN:	INPUT HEIGHTS	Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH	

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	67.2	65	67.2	3	Snd Lvl	67.2	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting **25 February 2025**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21202-23**
RUN: **North County Landfill Permit Amendment**

Roadway	Points												
Name	Name	No.	Segment										
			Autos		MTrucks		HTrucks		Buses		Motorcycles		
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
E Harney Ln, Entrance & Clements E	point1	1	78	55	0	0	10	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting — 25 February 2025
Baseline Env — TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21202-23
RUN: North County Landfill Permit Amendment
BARRIER DESIGN: INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	No Barrier Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	62.0	65	62.0	3	----	62.0	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting **25 February 2025**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21202-23**
RUN: **North County Landfill Permit Amendment**

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
E Harney Ln, Entrance & Clements E+P	point1	1	81	55	0	0	11	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting — 25 February 2025
Baseline Env — TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS

PROJECT/CONTRACT: 21202-23
RUN: North County Landfill Permit Amendment
BARRIER DESIGN: INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Noise Reduction Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	62.3	65	62.3	3	----	62.3	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting			**25 February 2025**									
Baseline Env			**TNM 2.5**									
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**21202-23**											
RUN:	**North County Landfill Permit Amendment**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
E Harney Ln, Entrance & Clements C	point1	1	96	55	0	0	13	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting		25 February 2025	
Baseline Env		TNM 2.5	
		Calculated with TNM 2.5	
RESULTS: SOUND LEVELS			
PROJECT/CONTRACT:	21202-23		
RUN:	North County Landfill Permit Amendment		
BARRIER DESIGN:	INPUT HEIGHTS		Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH		

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	63.1	65	63.1	3	----	63.1	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting **25 February 2025**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21202-23**
RUN: **North County Landfill Permit Amendment**

Roadway	Points												
Name	Name	No.	Segment										
			Autos		MTrucks		HTrucks		Buses		Motorcycles		
			V	S	V	S	V	S	V	S	V	S	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
E Harney Ln, Entrance & Clements C+P	point1	1	99	55	0	0	14	55	0	0	0	0	
	point2	2											

Baseline Environmental Consulting		25 February 2025
Baseline Env		TNM 2.5
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	21202-23	
RUN:	North County Landfill Permit Amendment	
BARRIER DESIGN:	INPUT HEIGHTS	Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH	

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	63.3	65	63.3	3	----	63.3	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting — 25 February 2025

Baseline Env — TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes

PROJECT/CONTRACT: 21202-23

RUN: North County Landfill Permit Amendment

Roadway	Points												
Name	Name	No.	Segment										
			Autos		MTrucks		HTrucks		Buses		Motorcycles		
			V	S	V	S	V	S	V	S	V	S	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
SR 88 South of E Harney Ln E	point1	1	523	55	0	0	52	55	0	0	0	0	
	point2	2											

Baseline Environmental Consulting							**25 February 2025**					
Baseline Env							**TNM 2.5**					
							Calculated with TNM 2.5					
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:		**21202-23**										
RUN:		**North County Landfill Permit Amendment**										
BARRIER DESIGN:		**INPUT HEIGHTS**						**Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.**				
ATMOSPHERICS:		**68 deg F, 50% RH**										

Receiver												
Name	**No.**	**#DUs**	**Existing LAeq1h**	**No Barrier LAeq1h**					**With Barrier**			
						Increase over existing		**Type**	**Calculated**	**Noise Reduction**		
				Calculated	**Crit'n**	**Calculated**	**Crit'n Sub'l Inc**	**Impact**	**LAeq1h**	**Calculated**	**Goal**	**Calculated minus Goal**
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	69.7	65	69.7	3	Snd Lvl	69.7	0.0	0	0.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting — 25 February 2025
Baseline Env — TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: 21202-23
RUN: North County Landfill Permit Amendment

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
SR 88 South of E Harney Ln E+P	point1	1	540	55	0	0	57	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting — **25 February 2025**
Baseline Env — **TNM 2.5**
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21202-23
RUN: North County Landfill Permit Amendment
BARRIER DESIGN: INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	No Barrier Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	70.0	65	70.0	3	Snd Lvl	70.0	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

INPUT: TRAFFIC FOR LAeq1h Volumes **21202-23**

Baseline Environmental Consulting				**25 February 2025**								
Baseline Env				**TNM 2.5**								
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**21202-23**											
RUN:	**North County Landfill Permit Amendment**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
SR 88 South of E Harney Ln C	point1	1	849	55	0	0	82	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting		25 February 2025
Baseline Env		TNM 2.5
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	21202-23	
RUN:	North County Landfill Permit Amendment	
BARRIER DESIGN:	INPUT HEIGHTS	Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH	

Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	71.8	65	71.8	3	Snd Lvl	71.8	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting | 25 February 2025
Baseline Env | TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: 21202-23
RUN: North County Landfill Permit Amendment

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
SR 88 South of E Harney Ln C+P	point1	1	866	55	0	0	87	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting — **25 February 2025**
Baseline Env — **TNM 2.5**
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21202-23
RUN: North County Landfill Permit Amendment
BARRIER DESIGN: INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	No Barrier Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	71.9	65	71.9	3	Snd Lvl	71.9	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting **25 February 2025**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21202-23**
RUN: **North County Landfill Permit Amendment**

Roadway	Points												
Name	Name	No.	Segment										
			Autos		MTrucks		HTrucks		Buses		Motorcycles		
			V	S	V	S	V	S	V	S	V	S	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
SR 88 North of E Harney Ln E	point1	1	525	55	0	0	54	55	0	0	0	0	
	point2	2											

Baseline Environmental Consulting		25 February 2025
Baseline Env		TNM 2.5
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	21202-23	
RUN:	North County Landfill Permit Amendment	
BARRIER DESIGN:	INPUT HEIGHTS	Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH	

Receiver												
Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h					With Barrier			
						Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	69.8	65	69.8	3	Snd Lvl	69.8	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting				**25 February 2025**								
Baseline Env				**TNM 2.5**								
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**21202-23**											
RUN:	**North County Landfill Permit Amendment**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
SR 88 North of E Harney Ln E+P	point1	1	527	55	0	0	54	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting		25 February 2025
Baseline Env		TNM 2.5
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	21202-23	
RUN:	North County Landfill Permit Amendment	
BARRIER DESIGN:	INPUT HEIGHTS	Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH	

Receiver												
Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h					With Barrier			
						Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	69.8	65	69.8	3	Snd Lvl	69.8	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting **25 February 2025**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21202-23**
RUN: **North County Landfill Permit Amendment**

Roadway	Points												
Name	Name	No.	Segment										
			Autos		MTrucks		HTrucks		Buses		Motorcycles		
			V	S	V	S	V	S	V	S	V	S	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
SR 88 North of E Harney Ln C	point1	1	913	55	0	0	89	55	0	0	0	0	
	point2	2											

Baseline Environmental Consulting		**25 February 2025**
Baseline Env		**TNM 2.5**
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	**21202-23**	
RUN:	**North County Landfill Permit Amendment**	
BARRIER DESIGN:	**INPUT HEIGHTS**	**Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.**
ATMOSPHERICS:	**68 deg F, 50% RH**	

Receiver												
Name	**No.**	**#DUs**	**Existing LAeq1h**	**No Barrier LAeq1h Calculated**	**Crit'n**	**Increase over existing Calculated**	**Crit'n Sub'l Inc**	**Type Impact**	**With Barrier Calculated LAeq1h**	**Noise Reduction Calculated**	**Goal**	**Calculated minus Goal**
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	72.1	65	72.1	3	Snd Lvl	72.1	0.0	0	0.0

Dwelling Units	**# DUs**	**Noise Reduction Min**	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting				**25 February 2025**								
Baseline Env				**TNM 2.5**								
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**21202-23**											
RUN:	**North County Landfill Permit Amendment**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
SR 88 North of E Harney Ln C+P	point1	1	915	55	0	0	89	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting		25 February 2025
Baseline Env		TNM 2.5
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	21202-23	
RUN:	North County Landfill Permit Amendment	
BARRIER DESIGN:	INPUT HEIGHTS	Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH	

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	72.1	65	72.1	3	Snd Lvl	72.1	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting **26 February 2025**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21202-23**
RUN: **North County Landfill Permit Amendment**

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Landfill Access Rd E & C	point1	1	61	25	0	0	15	25	0	0	0	0
	point2	2										

Baseline Environmental Consulting		26 February 2025
Baseline Env		TNM 2.5
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	21202-23	
RUN:	North County Landfill Permit Amendment	
BARRIER DESIGN:	INPUT HEIGHTS	Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH	

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	57.4	65	57.4	3	----	57.4	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting			**26 February 2025**									
Baseline Env			**TNM 2.5**									
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**21202-23**											
RUN:	**North County Landfill Permit Amendment**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Landfill Access Rd E+P & C+P	point1	1	92	25	0	0	24	25	0	0	0	0
	point2	2										

Baseline Environmental Consulting		26 February 2025	
Baseline Env		TNM 2.5	
		Calculated with TNM 2.5	
RESULTS: SOUND LEVELS			
PROJECT/CONTRACT:	21202-23		
RUN:	North County Landfill Permit Amendment		
BARRIER DESIGN:	INPUT HEIGHTS		Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH		

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type	With Barrier Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	59.4	65	59.4	3	----	59.4	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting — **26 February 2025**
Baseline Env — **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21202-23**
RUN: **North County Landfill Permit Amendment**

Roadway	Points												
Name	**Name**	**No.**	**Segment**										
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**		
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
Clements Rd North of E Harney Ln E	point1	1	141	55	0	0	12	55	0	0	0	0	
	point2	2											

Baseline Environmental Consulting		26 February 2025
Baseline Env		TNM 2.5
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	21202-23	
RUN:	North County Landfill Permit Amendment	
BARRIER DESIGN:	INPUT HEIGHTS	Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH	

Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	63.7	65	63.7	3	----	63.7	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting **26 February 2025**

Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes

PROJECT/CONTRACT: **21202-23**

RUN: **North County Landfill Permit Amendment**

Roadway	**Points**												
Name	**Name**	**No.**	**Segment**										
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**		
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**	
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	
Clements Rd North of E Harney Ln E+P	point1	1	143	55	0	0	12	55	0	0	0	0	
	point2	2											

Baseline Environmental Consulting		**26 February 2025**
Baseline Env		**TNM 2.5**
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	**21202-23**	
RUN:	**North County Landfill Permit Amendment**	
BARRIER DESIGN:	**INPUT HEIGHTS**	**Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.**
ATMOSPHERICS:	**68 deg F, 50% RH**	

Receiver												
Name	**No.**	**#DUs**	**Existing LAeq1h**	**No Barrier LAeq1h**		**Increase over existing**		**Type**	**With Barrier**			
				Calculated	**Crit'n**	**Calculated**	**Crit'n Sub'l Inc**	**Impact**	**Calculated LAeq1h**	**Noise Reduction Calculated**	**Goal**	**Calculated minus Goal**
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	63.8	65	63.8	3	----	63.8	0.0	0	0.0

Dwelling Units	**# DUs**	**Noise Reduction Min**	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

INPUT: TRAFFIC FOR LAeq1h Volumes 21202-23

Baseline Environmental Consulting **26 February 2025**

Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes

PROJECT/CONTRACT: **21202-23**

RUN: **North County Landfill Permit Amendment**

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Clements Rd North of E Harney Ln C	point1	1	277	55	0	0	21	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting		26 February 2025
Baseline Env		TNM 2.5
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	21202-23	
RUN:	North County Landfill Permit Amendment	
BARRIER DESIGN:	INPUT HEIGHTS	Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH	

Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing		Type	Calculated	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc	Impact	LAeq1h	Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	66.5	65	66.5	3	Snd Lvl	66.5	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting **26 February 2025**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21202-23**
RUN: **North County Landfill Permit Amendment**

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Clements Rd North of E Harney Ln C+P	point1	1	279	55	0	0	21	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting		**26 February 2025**
Baseline Env		**TNM 2.5**
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	**21202-23**	
RUN:	**North County Landfill Permit Amendment**	
BARRIER DESIGN:	**INPUT HEIGHTS**	**Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.**
ATMOSPHERICS:	**68 deg F, 50% RH**	

Receiver												
Name	**No.**	**#DUs**	**Existing LAeq1h**	**No Barrier LAeq1h**					**With Barrier**			
						Increase over existing		**Type**	**Calculated**	**Noise Reduction**		
				Calculated	**Crit'n**	**Calculated**	**Crit'n Sub'l Inc**	**Impact**	**LAeq1h**	**Calculated**	**Goal**	**Calculated minus Goal**
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	66.5	65	66.5	3	Snd Lvl	66.5	0.0	0	0.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

INPUT: TRAFFIC FOR LAeq1h Volumes 21202-23

Baseline Environmental Consulting			**26 February 2025**									
Baseline Env			**TNM 2.5**									
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**21202-23**											
RUN:	**North County Landfill Permit Amendment**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Clements Rd South of E Harney Ln E	point1	1	156	55	0	0	9	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting		26 February 2025
Baseline Env		TNM 2.5
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	21202-23	
RUN:	North County Landfill Permit Amendment	
BARRIER DESIGN:	INPUT HEIGHTS	Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH	

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	63.5	65	63.5	3	----	63.5	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting				**26 February 2025**								
Baseline Env				**TNM 2.5**								
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	**21202-23**											
RUN:	**North County Landfill Permit Amendment**											
Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Clements Rd South of E Harney Ln E+P	point1	1	157	55	0	0	10	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting		**26 February 2025**
Baseline Env		**TNM 2.5**
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	**21202-23**	
RUN:	**North County Landfill Permit Amendment**	
BARRIER DESIGN:	**INPUT HEIGHTS**	**Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.**
ATMOSPHERICS:	**68 deg F, 50% RH**	

Receiver												
Name	**No.**	**#DUs**	**Existing LAeq1h**	**No Barrier LAeq1h**					**With Barrier**			
						Increase over existing		**Type**	**Calculated**	**Noise Reduction**		
				Calculated	**Crit'n**	**Calculated**	**Crit'n Sub'l Inc**	**Impact**	**LAeq1h**	**Calculated**	**Goal**	**Calculated minus Goal**
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	63.7	65	63.7	3	----	63.7	0.0	0	0.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

INPUT: TRAFFIC FOR LAeq1h Volumes 21202-23

Baseline Environmental Consulting 26 February 2025

Baseline Env TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Volumes

PROJECT/CONTRACT: 21202-23

RUN: North County Landfill Permit Amendment

Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Clements Rd South of E Harney Ln C	point1	1	294	55	0	0	18	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting		26 February 2025
Baseline Env		TNM 2.5
		Calculated with TNM 2.5
RESULTS: SOUND LEVELS		
PROJECT/CONTRACT:	21202-23	
RUN:	North County Landfill Permit Amendment	
BARRIER DESIGN:	INPUT HEIGHTS	Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.
ATMOSPHERICS:	68 deg F, 50% RH	

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	66.4	65	66.4	3	Snd Lvl	66.4	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

Baseline Environmental Consulting **26 February 2025**
Baseline Env **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes
PROJECT/CONTRACT: **21202-23**
RUN: **North County Landfill Permit Amendment**

Roadway	Points		Segment									
Name	Name	No.	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Clements Rd South of E Harney Ln C+P	point1	1	295	55	0	0	19	55	0	0	0	0
	point2	2										

Baseline Environmental Consulting — **26 February 2025**
Baseline Env — **TNM 2.5**
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 21202-23
RUN: North County Landfill Permit Amendment
BARRIER DESIGN: INPUT HEIGHTS

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

ATMOSPHERICS: 68 deg F, 50% RH

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	No Barrier LAeq1h Crit'n	Increase over existing Calculated	Increase over existing Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	66.5	65	66.5	3	Snd Lvl	66.5	0.0	0	0.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	1	0.0	0.0	0.0
All that meet NR Goal	1	0.0	0.0	0.0

APPENDIX C. TRANSPORTATION IMPACT STUDY

March 6, 2025

Mr. Rob Carnachan
WRA, Inc.
2169-G East Francisco Blvd
San Rafael, CA 94901

Transportation Impact Analysis for the North County Recycling Center and Sanitary Landfill Project

Dear Mr. Carnachan;

As requested, W-Trans has prepared a transportation impact analysis for the North County Recycling Center and Sanitary Landfill (North County Landfill) project in the County of San Joaquin. The purpose of this letter is to address potential transportation-related operational effects and environmental impacts associated with expanding the permitted capacity of this existing landfill located at 17720 East Harney Lane, approximately nine miles east of SR-99 and the City of Lodi.

Project Description

The proposed project would increase the permitted usage of the North County Landfill from 1,200 tons and 850 vehicles per day to 4,000 tons and 1,200 vehicles per day. It should be noted that the current traffic to the site is approximately 450 vehicles per day and the project as proposed does not include plans to expand the existing facilities on site. As part of the project, six new full-time employee positions would be added to the current roster of 35 full-time and 13 part-time employee positions. The existing Foothill Landfill would be closed and the North County Landfill would absorb its 51 haul trucks per day, which would result in 109 total haul trucks per day to the North County Landfill.

Study Area

The study area consists of the project site frontage and access, and the following intersections and roadway segments.

Study Intersections

1. East Harney Lane/SR-88
2. East Harney Lane/Jack Tone Road
3. East Harney Lane/Site Access
4. East Harney Lane/Clements Road

Study Segments

1. East Harney Lane between SR-99 and SR-88
2. East Harney Lane between Jake Tone Road and Site Access Road
3. SR-88 between East Harney Lane and Eight Mile Road

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 a.m. and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 p.m. and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute. Peak hour counts were obtained for the study intersections and 24-hour counts were obtained for the study segments and site access road on Tuesday, November 19, 2024; both types include heavy vehicle counts while the segment volumes also contain speed data. Copies of the traffic counts are enclosed.

Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is July 1, 2019, through June 30, 2024.

As presented in Table 1, the calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2022 Collision Data on California State Highways*, California Department of Transportation (Caltrans). These average rates statewide are for intersections in the same environment (urban, suburban, or rural), with the same number of approaches (three or four), and the same controls (all-way stop, two-way stop, or traffic signal). The calculated collision rates for the study intersections are less than or equal to the statewide averages for similar facilities, except for East Harney Lane/Clements Road, which is higher than the statewide average. Records at this intersection were further reviewed as detailed below. The collision rate calculations are enclosed.

Table 1 – Collision Rates for the Study Intersections

Study Intersection	Number of Collisions (2019-2024)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. E Harney Ln/SR-88	10	0.52	0.74
2. E Harney Ln/Jack Tone Rd	3	0.31	0.59
3. E Harney Ln/Site Access	1	0.29	0.29
4. E Harney Ln/Clements Rd	5	**1.25**	0.36

Note: c/mve = collisions per million vehicles entering; **Bold** text = collision rate exceeds statewide average

Collision rates for the study segments and comparisons to the statewide averages for similar facilities are indicated in Table 2, with collision rate calculations enclosed.

Table 2 – Collision Rates for the Study Segments

Study Roadway Segments	Number of Collisions (2019-2024)	Calculated Collision Rate (c/mvm)	Statewide Average Collision Rate (c/mvm)
1. E Harney Ln between SR-99 and SR-88	42	**1.19**	1.09
2. E Harney Ln between Jack Tone Rd and Site	8	0.78	1.09
3. SR-88 between E Harney Ln and Eight Mile Rd	29	0.62	1.09

Note: c/mvm = collisions per million vehicles miles; **Bold** text = collision rate exceeds statewide average

At the intersection of East Harney Lane/Clements Road there were five reported collisions during the study period, all of which were broadside collisions. Three of the five broadside collisions cited right-of-way violations as the primary collision factor, one to driving under the influence and one to driving on the wrong side of the road. There are no projects identified at this unsignalized intersection in the *San Joaquin County Local Roadway Safety Plan* (LRSP). However, typical low-cost upgrades at unsignalized intersections mentioned in the LRSP that the County could consider implementing include double stop signs, larger stop signs, traffic islands on stop approaches, and striping stop bars.

The reported collisions along the roadway segment of East Harney Lane between SR-99 and SR-88 included 18 broadside, six head-on, six hit-object, three sideswipe, three rear-end, three other/unknown, two vehicle-pedestrian and one overturned vehicle. The three most common primary collision factors included right-of-way violations for 16 collisions, improper turning leading to seven collisions, and speeding with six crashes. The most common location for right-of-way violations was Harney Lane/Beckman Road. Similar to East Harney Lane/Clements Road, this location is not identified as a priority intersection in the LRSP; however, various techniques such as oversized stop signs and other visual enhancements may reduce this collision type.

Pedestrian Safety

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue for pedestrians. Collision records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports were reviewed for the most current five-year period available, which was July 1, 2019, through June 30, 2024, at the time of the analysis. During the five-year study period there were no reported collisions involving pedestrians on East Harney Lane within a mile of the project site.

Bicyclist Safety

Collision records for the study area were reviewed to determine if there had been any bicyclist-involved crashes. There were no bicyclist-involved collisions reported on East Harney Lane within a mile of the project site during the study period.

Project Trip Generation and Distribution

Trip Generation

The anticipated trip generation for the proposed project was estimated based on existing vehicle counts into and out of the project site, as well as the projected increase in permitted visitors (i.e., landfill customers including private citizens and contractors), full-time employees and haul trucks. The permitted number of visitors would increase from 850 to 1200, an increase of 41 percent. For employees, the current 35 full-time employees would increase to 41, or 17 percent. For haul trucks, the count would increase from 58 movements per day to 109, or an 88-percent increase. Because the site is currently occupied by the existing North County Landfill, trip generation of the existing landfill was considered.

During the 24-hour data collection period, there were 872 visitor vehicle entries and exits from the site, including 76 during the a.m. peak hour and 20 during the p.m. peak hour. As site traffic activity is predominantly associated with visitors, increasing the overall site traffic by 41 percent (the permitted increase in visitors) would net an additional 361 daily trips, including 31 trips during the a.m. peak hour and 8 trips during the p.m. peak hour. For employees, given that the proposed increase of 17 percent is lower than the visitor increase of 41 percent and the existing site traffic counts include employees as well, it would appear to be conservative to consider the 41-percent increase in site activity to include employees.

Haul trucks were considered separately even though some haul truck trips would be captured in the 41-percent site activity increase. There would be 51 added haul trucks per day, for 102 new daily trips (one trip in and one trip out per haul truck). The ratio of a.m. peak hour trips to daily trips is nine percent, which would translate to nine new haul truck trips during the a.m. peak hour with five trips in and four trips out assuming an approximately even split between inbound and outbound. During the p.m. peak hour, there were 20 outbound movements and zero inbound. Given this is only two percent of the daily total volume with no inbound traffic, zero added haul trucks were assumed during the p.m. peak hour.

The proposed project is expected to generate an average of 461 new trips per day (359 visitor and employee trips and 102 haul truck trips), including 40 trips during the a.m. peak hour (31 visitor and employee trips and nine haul truck trips) and eight visitor and employee trips during the p.m. peak hour (no haul truck trips) as indicated in Table 3. These new trips represent the increase in traffic associated with the project compared to existing volumes.

Table 3 – Trip Generation Summary								
Scenario	**Permitted Visitors**	**Daily Trips**	**AM Peak Hour**			**PM Peak Hour**		
			Trips	**In**	**Out**	**Trips**	**In**	**Out**
Existing	850	872	76	44	32	20	0	20
Proposed	1,200	1,333	116	67	49	28	0	28
Visitors/Employees	-	*359*	*31*	*18*	*13*	*8*	*0*	*8*
Haul Trucks	-	*102*	*9*	*5*	*4*	*0*	*0*	*0*
Net New Total	**350**	**461**	**40**	**23**	**17**	**8**	**0**	**8**

Trip Distribution

In developing the applied trip distribution it was assumed that the general public traffic would follow a similar distribution to the haul trucks since the haul truck service area likely coincides with the same catchment area as public use. The applied trip distribution assumptions and resulting trips are shown in Table 4, which are based on the directionality of the 109 daily haul trucks that would visit the site rounded to the nearest five percent.

Table 4 – Trip Distribution Assumptions				
Route	**Percent**	**Daily Trips**	**AM Trips**	**PM Trips**
SR-88 North of E Harney Ln	5%	23	2	0
SR-88 South of E Harney Ln	55%	254	22	6
E Harney Ln West of SR-88	30%	138	12	2
Clements Rd North of E Harney Ln	5%	23	2	0
Clements Rd South of E Harney Ln	5%	23	2	0
TOTAL	**100%**	**461**	**40**	**8**

Operational Analysis

Level of Service (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, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

Operational Standard

The *San Joaquin County General Plan*, 2016, states that the County's standard is LOS C in general, or LOS D for minor arterials or roadways designated in the *Congestion Management Plan* (CMP), San Joaquin Council of Governments (SJCOG), as well as for Caltrans facilities such as SR-88. East Harney Lane, Jack Tone Road and Clements Road are classified as major collectors per the *General Plan* Figure TM-1. SR-88 is classified as a major arterial and both SR-88 and Jack Tone Road are designated CMP roadways. Therefore, a standard of LOS D was applied to East Harney Lane/SR-88 and East Harney Lane/Jack Tone Road, while a standard of LOS C was applied to the remaining study intersections. Additionally, LOS D is considered acceptable for the study segment of SR-88 between East Harney Lane and Eight Mile Road, while LOS C is considered acceptable for the two East Harney Lane study segments.

Intersection Level of Service Methodologies

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual* (HCM), *6th Edition*, Transportation Research Board, 2016. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The Levels of Service for the intersections with side street stop controls, or those which are unsignalized and have one or two approaches stop controlled (East Harney Lane/Site Access and East Harney Lane/ Clements Road), were analyzed using the "Two-Way Stop-Controlled" intersection capacity method from the HCM. This methodology determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements together with the weighted overall average delay for the intersection.

The study intersection with stop signs on all approaches (East Harney Lane/Jack Tone Road) was analyzed using the "All-Way Stop-Controlled" intersection methodology from the HCM. This methodology evaluates delay for each approach based on turning movements, opposing and conflicting traffic volumes, and the number of lanes. Average vehicle delay is computed for the intersection as a whole, and is then related to a Level of Service.

The study intersection that is currently controlled by a traffic signal (East Harney Lane/SR-88) was evaluated using the signalized methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using signal timing obtained from Caltrans.

The ranges of delay associated with the various levels of service are indicated in Table 5.

Table 5 – Intersection Level of Service Criteria

LOS	Two-Way Stop-Controlled	All-Way Stop-Controlled	Signalized
A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach, and wait for vehicle to clear from one or more approaches prior to entering the intersection.	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.
F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.	Delay of more than 50 seconds. Drivers enter long queues on all approaches.	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

Reference: *Highway Capacity Manual, 6th Edition,* Transportation Research Board, 2016

Intersection Existing and Existing plus Project Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the weekday a.m. and p.m. peak periods. This condition does not include project-generated traffic volumes. Under existing volumes, the study intersections operate acceptably at LOS B or better. Upon the addition of project-related traffic to the existing volumes, the study intersections would be expected to continue operating acceptably at the same Levels of Service as without it. A summary of the intersection LOS calculations is contained in Table 6. Copies of the calculations for all evaluated scenarios are enclosed.

Table 6 – Existing and Existing plus Project Peak Hour Intersection Levels of Service

Study Intersection		Existing Conditions				Existing plus Project			
	Approach	**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**	
		Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1.	E Harney Ln/SR-88	11.6	B	12.2	B	11.9	B	12.2	B
2.	E Harney Ln/Jack Tone Rd	9.2	A	9.5	A	9.4	A	9.6	A
3.	E Harney Ln/Site Access	2.2	A	1.6	A	2.7	A	2.1	A
	Northbound (Site Access) Approach	*9.3*	*A*	*9.1*	*A*	*9.6*	*A*	*9.2*	*A*
4.	E Harney Ln/Clements Rd	3.3	A	3.1	A	3.4	A	3.1	A
	Eastbound (E Harney) Approach	*10.0*	*B*	*9.6*	*A*	*10.0*	*B*	*9.6*	*A*
	Westbound (E Harney) Approach	*9.7*	*A*	*10.3*	*B*	*9.7*	*A*	*10.3*	*B*

Note: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

Segment Level of Service Methodology

The roadway segment Level of Service methodology found in Chapter 15, "Two-Lane Highways," of the *Highway Capacity Manual* is the basis of the automobile LOS analysis. The methodology considers traffic volumes, terrain, roadway cross-section, the proportion of heavy vehicles, and the availability of passing zones. There are two different sets of LOS criteria for two-lane highways based on the posted speed limit, including higher-speed highways with a posted speed limit of 50 miles per hour (mph) or more and lower-speed highways with a posted speed limit of less than 50 mph. The measure of effectiveness by which LOS is determined is follower density, which is a function of density and the percentage of vehicles that are part of a platoon following a slower driver. As both East Harney Lane and SR-88 have a posted speed limit of 55 mph along the study segments, LOS criteria for higher-speed highways were applied.

A summary of the LOS criteria is presented in Table 7.

Table 7 – Segment Level of Service Criteria

LOS	Higher-Speed Highways Posted Speed Limit ≥ 50 mi/h Follower Density (followers/mi/lane)
A	≤ 2.0
B	> 2.0 - 4.0
C	> 4.0 - 8.0
D	> 8.0 - 12.0
E	> 12

Reference: *Highway Capacity Manual*, Transportation Research Board, 7th Edition, 2022

Segment Existing and Existing plus Project Conditions

The study segments operate acceptably at LOS B or better in both directions under existing volumes. With traffic associated with the project added to these existing volumes, the study segments would be expected to continue operating at the same Levels of Service in both directions as without project-related traffic. A summary of the roadway segment level of service calculations is presented in Table 8 and copies of the calculations are enclosed.

Table 8 – Existing and Existing plus Project Peak Hour Roadway Segment Levels of Service

Study Segment *Direction*	**Existing Conditions**				**Existing plus Project**			
	AM Peak		**PM Peak**		**AM Peak**		**PM Peak**	
	FD	**LOS**	**FD**	**LOS**	**FD**	**LOS**	**FD**	**LOS**
1. E Harney Ln - SR-88 to SR-99								
Eastbound	0.5	A	1.3	A	0.5	A	1.3	A
Westbound	1.3	A	0.8	A	1.3	A	0.8	A
2. E Harney Ln - Jack Tone Rd to Site								
Eastbound	0.2	A	0.1	A	0.2	A	0.1	A
Westbound	0.2	A	0.2	A	0.2	A	0.2	A
3. SR-88 - E Harney Ln to Eight Mile Rd								
Northbound	3.3	B	2.9	B	3.5	B	2.9	B
Southbound	1.5	A	3.7	B	1.6	A	3.8	B

Note: FD = Follower Density, measured in followers per lane per mile; LOS = Level of Service

Future and Future plus Project Conditions

Segment volumes for the horizon year of 2046 were obtained from the SJCOG travel demand model and translated to turning movement volumes at each of the study intersections using the "Furness" method. This is an iterative process that employs existing turn movement data, existing link volumes and future link volumes to project likely turning future movement volumes at intersections.

Under the anticipated future volumes, and with no changes to existing geometrics or controls, all of the study intersections are expected to continue operating acceptably during both peak hours. Upon the addition of project-generated traffic to the anticipated future volumes, the study intersections would continue operating acceptably. Operating conditions are summarized in Table 9.

Table 9 – Future and Future plus Project Peak Hour Intersection Levels of Service									
Study Intersection		**Future Conditions**				**Future plus Project**			
	Approach	**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**	
		Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1.	E Harney Ln/SR-88	13.7	B	13.2	B	14.1	B	13.1	B
2.	E Harney Ln/Jack Tone Rd	11.6	B	10.1	B	12.1	B	10.1	B
3.	E Harney Ln/Site Access	1.9	A	1.2	A	2.4	A	1.6	A
	Northbound (Site Access) Approach	*9.4*	*A*	*9.2*	*A*	*9.6*	*A*	*9.3*	*A*
4.	E Harney Ln/Clements Rd	*2.3*	*A*	2.8	A	2.4	A	2.8	A
	Eastbound (E Harney) Approach	*10.8*	*B*	10.1	B	*10.8*	*B*	*10.1*	*B*
	Westbound (E Harney) Approach	*10.5*	*B*	11.0	B	*10.5*	*B*	*11.0*	*B*

Note: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

It should be noted that with the addition of future traffic volumes, average delay at the intersections of East Harney Lane/Site Access and East Harney Lane/Clements Road is shown as decreasing during both peak hours. While this is counter-intuitive, this condition occurs when volumes are added to movements that are currently underutilized or have delays that are below the intersection average, resulting in a better balance between approaches and lower overall average delay. In this case, future traffic would be primarily added to the uncontrolled through movement, which has an average delay of zero, resulting in a slight reduction in the overall average delay of the intersection.

Likewise, the addition of project traffic to future traffic volumes is shown as resulting in a minor decrease of 0.1 seconds to the average p.m. peak hour delay at East Harney Lane/SR-88. This is because the project traffic would be added to the westbound approach, which has a lower delay than the overall average for the intersection. The conclusion could incorrectly be drawn that the project actually improves operation based on this data alone; however, it is more appropriate to conclude that the project trips are expected to make use of excess capacity, so drivers will experience little, if any, change in conditions as a result of the project.

Segment Future and Future plus Project Conditions

The assumed growth rates in intersection volumes was also applied to the study segment existing volumes to estimate future segment volumes. It was determined that the study segments would continue to operate acceptably under these future volumes, without or with the addition of project-generated traffic. A summary of the future roadway segment Level of Service calculations is presented in Table 10.

Table 10 – Future and Future plus Project Peak Hour Roadway Segment Levels of Service								
Study Segment	**Future Conditions**				**Future plus Project**			
Direction	**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**	
	FD	**LOS**	**FD**	**LOS**	**FD**	**LOS**	**FD**	**LOS**
1. E Harney Ln - SR-88 to SR-99								
Eastbound	1.0	A	1.6	A	1.1	A	1.6	A
Westbound	2.2	B	0.8	A	2.3	B	0.8	A
2. E Harney Ln - Jack Tone Rd to Site								
Eastbound	0.2	A	0.1	A	0.3	A	0.1	A
Westbound	0.2	A	0.2	A	0.3	A	0.2	A
3. SR-88 - E Harney Ln to Eight Mile Rd								
Northbound	5.2	C	3.9	B	5.4	C	3.9	B
Southbound	2.6	B	4.5	C	2.7	B	4.6	C

Note: FD = Follower Density, measured in followers per lane per mile; LOS = Level of Service

Finding – The study intersections and segments would operate acceptably at the same Levels of Service with the addition of project traffic as without it, including under existing or future volumes during both peak hours.

Pedestrian, Bicycle and Transit Facilities

The first transportation bullet point on the CEQA checklist relates to the potential for a project to conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

There are no pedestrian, bicycle, or transit facilities within the study area, and no pedestrian or bicycle movements were recorded during the peak period traffic volume collection. East Harney Lane in the vicinity of the project site is not planned for future bicycle facilities per the *San Joaquin County Bicycle Master Plan Update*, 2010, or the *Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan*, San Joaquin Council of Governments, 2012. The nearest transit route is GrapeLine Route 5 in the City of Lodi, over nine miles away. Further, the project does not include modifications to the site or frontage; rather it would simply increase the permitted traffic at the site.

Finding – The project would not conflict with adopted policies regarding pedestrian, bicycle, or transit facilities.

Vehicle Miles Traveled

The potential for the project to conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b) was evaluated based the project’s anticipated Vehicle Miles Traveled (VMT).

The *CEQA Transportation Analysis Manual*, County of San Joaquin, 2020, prescribes thresholds for determining VMT impacts under CEQA. Per Table 1 of the *Manual*, public services are to be considered using the “Retail and Other Projects” threshold of significance, which states that the project would be within the threshold of significance (result in a less-than-significant impact) if it would not increase VMT. Data provided by the County of San Joaquin Department of Public Works indicates that the current split in operations between the Foothill Landfill and North County Landfill results in an average VMT of 5,690 vehicle-miles per weekday for the haul trucks. As shown in Table 11, consolidation of haul routes to the more centrally located North County Landfill would result in a decrease in VMT of 297 vehicle miles per day, to a daily average of 5,393 vehicle-miles.

Table 11 – Vehicle Miles Traveled						
Activity Origin	**Landfill Destination**	**Average Round Trip Distance (Miles)**	**Round Trips per Day**		**VMT per Day (Vehicle-Miles)**	
			Existing	**Proposed**	**Existing**	**Proposed**
Tracy	Foothill	96	22	0	2,112	0
Lovelace TS	Foothill	62	25	0	1,550	0
Lovelace TS	Forward	16	4	0	64	0
Tracy	North County	86	0	22	0	1,892
Lovelace TS	North County	53	12	41	636	2,173
Lodi TS	North County	23	12	12	276	276
Stockton Scavenger	North County	34	8	8	272	272
Area F/Galt	North County	30	13	13	390	390
Regional	North County	30	13	13	390	390
Total VMT					**5,690**	**5,393**

Source: County of San Joaquin Department of Public Works
Note: VMT = vehicle miles traveled, TS = transfer station

While Table 11 demonstrates that there would be a decrease in haul truck VMT with this project, the *Technical Advisory on Evaluating Transprotation Impacts in CEQA*, Office of Planning and Research, 2018, which lays the statewide groundwork for VMT analysis, specifies that VMT should be considered for automobiles only, where "automobiles" is defined as inclusive of passenger cars and light trucks. The County's *CEQA Transportation Analysis Manual* recites this definition. Haul trucks are classified as "heavy trucks" for which VMT thresholds do not apply; nonetheless the potential reduction in haul truck VMT is assumed to be similar to the potential reduction in automobile VMT given that employees and visitors in automobiles would likely have a similar distribution as the haul trucks, as defined previously under Trip Distribution.

Finding – As the North County Landfill is more centrally located to its userbase than the Foothill Landfill, the consolidation of activity among the two landfills to just the North County location would reduce VMT and therefore this project would be presumed to have a less-than-significant impact to VMT.

Safety

The potential for the project to impact safety was evaluated in terms of the adequacy of sight distance and need for turn lanes at the project access as well as the adequacy of stacking space at the study intersections to accommodate additional queuing due to adding project-generated trips. This section addresses the third transportation bullet on the CEQA checklist which is whether or not the project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Site Access

Sight Distance

Sight distances along East Harney Lane were evaluated based on sight distance criteria contained in the *Highway Design Manual* (HDM), Caltrans, 2020. The HDM requires adequate corner sight distance to be available for drivers entering from the driveway of traffic on the cross street, as well as stopping sight distance for a driver on the cross street following another motorist that is slowing to turn into the site. Per speed data collected on East Harney Lane in the vicinity of the North County Landfill during the November 2024 counts, the 85th percentile (or "critical") speed was measured as 66 mph, which was rounded up to 70 mph for the purpose of this analysis. The HDM lists the design vehicle to use for rural intersections as the "passenger car." However, the more conservative "single-unit truck" design vehicle was selected given the prevalence of truck traffic using the site.

With a 70-mph design speed and single-unit-truck design vehicle, corner sight distances for motorists on the driveway approach of 980 feet to the left and 875 feet to the right are required. For drivers turning into the site from the road, a stopping sight distance of 750 is prescribed. During a field visit conducted in January 2025, sight lines were established to be in excess of 1,000 feet in all directions.

Finding – There is sufficient sight distance in all directions at the existing site driveway on East Harney Lane, resulting in a less-than-significant impact of the project on safety via sight distance.

Turn Lane Warrants

The need for a left-turn lane on East Harney Lane was evaluated based on criteria contained in the *Intersection Channelization Design Guide*, National Cooperative Highway Research Program (NCHRP) Report No. 279, Transportation Research Board, 1985, as well as an update of the methodology developed by the Washington State Department of Transportation and published in the *Method For Prioritizing Intersection Improvements*, 1997. The NCHRP report references a methodology developed by M. D. Harmelink that includes equations that can be applied to expected or actual traffic volumes to determine the need for a left-turn pocket based on safety issues.

Under future volumes with the addition of traffic associated with the project to the a.m. peak hour, a left-turn lane into the project site from East Harney Lane would not be warranted. As all other scenarios have lower traffic volumes, by inspection a left-turn lane would not be warranted under these other scenarios as well. The worksheet for the turn lane warrant assessment is enclosed.

Finding – A left-turn lane into the project site would not be warranted under any volume scenario assessed, so the project would have a less-than-significant impact on the safety of site access.

Queuing

Under each scenario, the projected maximum queues approaching each intersection along with the maximum queues estimated for the two left-turn pockets at East Harney Lane/SR-88 were determined using the SIMTRAFFIC application of Synchro and averaging the maximum projected queue for each of ten runs. Summarized in Table 12 are the predicted queue lengths, for which copies of the SIMTRAFFIC projections are enclosed.

Table 12 – Maximum Queues

Study Intersection *Approach or Lane*	Available Storage[1]	Maximum Queues							
		AM Peak Hour				PM Peak Hour			
		E	E+P	F	F+P	E	E+P	F	F+P
1. E Harney Ln/SR-88									
Eastbound	5,220	78	88	147	170	125	129	167	156
Westbound	3,230	113	129	169	223	92	98	102	110
Northbound Left-Turn Lane	125	30	32	37	45	30	33	41	41
Northbound	1,860	89	98	121	152	118	108	174	180
Southbound Left-Turn Lane	140	50	44	48	48	48	49	64	59
Southbound	5,430	131	131	237	238	119	116	139	134
2. E Harney Ln/Jack Tone Rd									
Eastbound	1,240	60	70	64	76	48	47	54	55
Westbound	1,550	68	84	81	88	50	53	55	56
Northbound	3,780	47	47	96	104	48	48	67	66
Southbound	5,380	49	50	73	81	52	50	61	60
3. E Harney Ln/Site Access									
Westbound	660	2	NA	NA	3	NA	NA	NA	NA
Northbound	1,890	56	68	54	68	35	39	35	40
4. E Harney Ln/Clements Rd									
Eastbound	5,230	49	50	50	56	43	43	53	54
Westbound	5,100	21	18	21	21	11	11	9	9
Northbound	10,560	21	18	32	30	14	13	19	18
Southbound	5,280	NA	3	4	5	NA	NA	NA	NA

Note: Maximum Queue based on the average of the maximum value from ten SIMTRAFFIC runs; all distances are measured in feet; E = Existing Conditions; E+P = Existing plus Project Conditions; F = Future Conditions; F+P = Future plus Project Conditions; NA = queue length not calculated due to low incidence of queues forming
[1] Storage capacity is measured as the distance to the next upstream intersection for intersection approaches, turn pocket length for turn lanes, and on-site throat length for the Site Access approach to East Harney Lane

As shown, without or with project traffic under either existing or future volumes, the queues on each intersection approach would be within 200 feet, well within the distance to the next upstream intersection. Likewise, the maximum queue distances for the two left-turn pockets at East Harney Lane/SR-88 would be shorter than the available storage for each lane under all scenarios assessed.

Finding – The addition of traffic associated with the project would result in a less-than-significant impact to safety in the form of queuing, as stacking distance on intersection approaches would not extend to upstream intersections and would be contained within existing turn pockets.

Emergency Access

The final transportation bullet on the CEQA checklist requires an evaluation as to whether the project would result in inadequate emergency access or not.

As shown by the operational analysis, the addition of project traffic to the study area would increase intersection delays by less than one second per scenario and study intersection, with most increases below one-half second. Further, since all roadway users must yield the right-of-way to emergency vehicles when using their sirens and lights, the added project-generated traffic is expected to have a less-than-significant impact on emergency response.

Significance Finding – The proposed project would not impede emergency responders, resulting in a less-than-significant impact on emergency response.

Conclusions and Recommendations

- The proposed project would increase the visitors permitted to the North County Landfill from 850 vehicles per day to 1,200 vehicles per day. This would be expected to increase the daily volume by an average of 461 trips, including 40 net new trips during the a.m. peak hour and eight additional trips during the p.m. peak hour.

- The four study intersections and three study segments would operate acceptably at LOS C or better under existing and future volumes without or with the addition of project-generated trips.

- The project would not conflict with adopted policies regarding pedestrian, bicycle, or transit facilities, resulting in a less-than-significant impact.

- The consolidation of activity from the Foothill Landfill to the North County Landfill would reduce VMT, resulting in a less-than-significant impact to VMT per County standards for public facilities.

- There is adequate sight distance at the project driveway connection to East Harney Lane, a left-turn lane into the site is not warranted at this time, and queues at the study intersections would be acceptable without or with project traffic added to existing and future volumes. Therefore, the project's impact to transportation safety would be less than significant.

- The project impact on emergency access would be less than significant given the minimal effect of the project on intersection delay.

Thank you for giving W-Trans the opportunity to provide these services. Please call if you have any questions.

Sincerely,

Alyssa Labrador, EIT
Assistant Engineer

Kevin Carstens, PE (Civil, Traffic)
Traffic Engineer

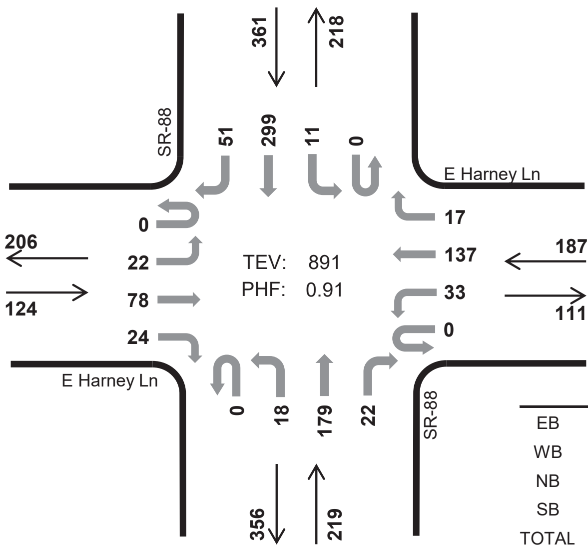
Zack Matley, AICP
Principal

ZM/krc-agl/SJX015.L1

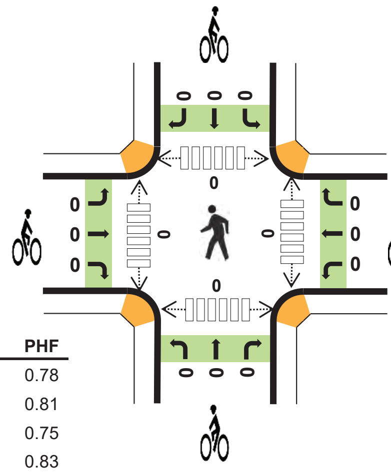
Enclosures: Traffic Count Data, Collision Rate Calculations, Intersection Level of Service Calculations, Segment Level of Service Calculations, Turn Lane Warrant Worksheet, Queuing Calculations

SR-88
E Harney Ln

Peak Hour



Date: 11/19/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM



	HV %:	PHF
EB	4.0%	0.78
WB	5.3%	0.81
NB	11.4%	0.75
SB	8.6%	0.83
TOTAL	8.0%	0.91

Two-Hour Count Summaries

Interval Start		E Harney Ln Eastbound				E Harney Ln Westbound				SR-88 Northbound				SR-88 Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	3	16	3	0	4	22	2	0	4	48	3	0	1	68	10	184	0
7:15 AM		**0**	**2**	**22**	**8**	**0**	**7**	**33**	**5**	**0**	**8**	**45**	**2**	**0**	**3**	**80**	**10**	**225**	0
7:30 AM		**0**	**7**	**20**	**4**	**0**	**15**	**39**	**4**	**0**	**4**	**37**	**5**	**0**	**2**	**90**	**17**	**244**	0
7:45 AM		**0**	**6**	**12**	**3**	**0**	**9**	**42**	**4**	**0**	**4**	**60**	**9**	**0**	**6**	**69**	**12**	**236**	889
8:00 AM		**0**	**7**	**24**	**9**	**0**	**2**	**23**	**4**	**0**	**2**	**37**	**6**	**0**	**0**	**60**	**12**	**186**	**891**
8:15 AM		0	6	17	3	0	2	32	6	0	4	28	2	0	3	70	7	180	846
8:30 AM		0	11	14	8	0	8	19	3	0	3	48	5	0	16	86	11	232	834
8:45 AM		0	6	13	4	0	5	18	3	0	4	35	5	0	9	46	9	157	755
Count Total		0	48	138	42	0	52	228	31	0	33	338	37	0	40	569	88	1,644	0
Peak Hour	**All**	**0**	**22**	**78**	**24**	**0**	**33**	**137**	**17**	**0**	**18**	**179**	**22**	**0**	**11**	**299**	**51**	**891**	**0**
	HV	**0**	**1**	**4**	**0**	**0**	**3**	**5**	**2**	**0**	**0**	**20**	**5**	**0**	**4**	**24**	**3**	**71**	**0**
	HV%	**-**	**5%**	**5%**	**0%**	**-**	**9%**	**4%**	**12%**	**-**	**0%**	**11%**	**23%**	**-**	**36%**	**8%**	**6%**	**8%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	1	0	13	9	*23*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**2**	**2**	**5**	**14**	***23***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**1**	**4**	**8**	**4**	***17***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**2**	**1**	**4**	**3**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**3**	**8**	**10**	***21***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:15 AM	1	4	5	8	*18*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	2	2	3	17	*24*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	1	1	4	9	*15*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	10	17	50	74	*151*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**5**	**10**	**25**	**31**	***71***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Harney Ln Eastbound UT	LT	TH	RT	E Harney Ln Westbound UT	LT	TH	RT	SR-88 Northbound UT	LT	TH	RT	SR-88 Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	1	0	0	0	0	0	0	0	12	1	0	0	9	0	23	0
7:15 AM	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**5**	**0**	**0**	**2**	**11**	**1**	**23**	0
7:30 AM	**0**	**0**	**1**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**8**	**0**	**0**	**1**	**2**	**1**	**17**	0
7:45 AM	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**2**	**0**	**1**	**2**	**0**	**10**	73
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**5**	**3**	**0**	**0**	**9**	**1**	**21**	**71**
8:15 AM	0	0	1	0	0	0	2	2	0	0	5	0	0	0	8	0	18	66
8:30 AM	0	0	0	2	0	2	0	0	0	0	3	0	0	4	12	1	24	73
8:45 AM	0	1	0	0	0	1	0	0	0	0	4	0	0	1	8	0	15	78
Count Total	0	2	6	2	0	6	7	4	0	0	44	6	0	9	61	4	151	0
Peak Hour	**0**	**1**	**4**	**0**	**0**	**3**	**5**	**2**	**0**	**0**	**20**	**5**	**0**	**4**	**24**	**3**	**71**	**0**

Two-Hour Count Summaries - Bikes

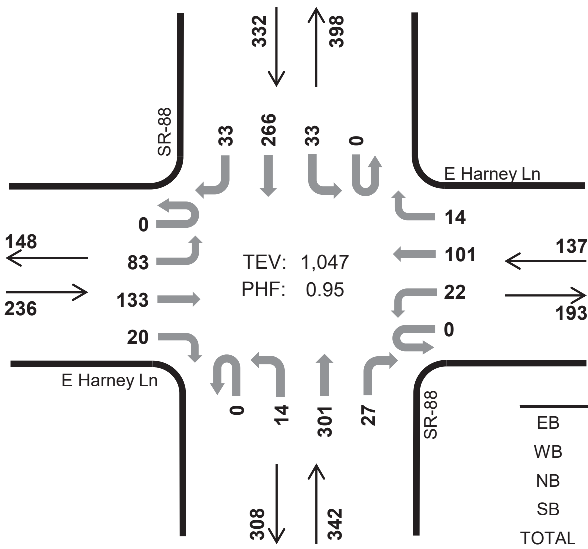
Interval Start	E Harney Ln Eastbound LT	TH	RT	E Harney Ln Westbound LT	TH	RT	SR-88 Northbound LT	TH	RT	SR-88 Southbound LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

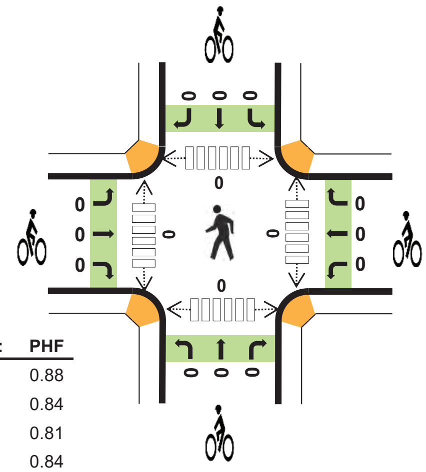
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

SR-88
E Harney Ln

Date: 11/19/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM

Peak Hour





	HV %:	PHF
EB	0.8%	0.88
WB	1.5%	0.84
NB	2.0%	0.81
SB	6.0%	0.84
TOTAL	3.0%	0.95

Two-Hour Count Summaries

Interval Start		E Harney Ln Eastbound UT	LT	TH	RT	E Harney Ln Westbound UT	LT	TH	RT	SR-88 Northbound UT	LT	TH	RT	SR-88 Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM		0	21	32	4	0	9	27	6	0	2	73	6	0	6	70	13	269	0
4:15 PM		0	20	21	4	0	8	27	9	0	3	87	9	0	4	46	4	242	0
4:30 PM		**0**	**21**	**36**	**3**	**0**	**6**	**29**	**2**	**0**	**5**	**65**	**7**	**0**	**9**	**59**	**11**	**253**	0
4:45 PM		**0**	**24**	**23**	**1**	**0**	**4**	**22**	**2**	**0**	**1**	**78**	**5**	**0**	**8**	**87**	**4**	**259**	1,023
5:00 PM		**0**	**17**	**37**	**7**	**0**	**8**	**29**	**4**	**0**	**5**	**68**	**3**	**0**	**9**	**62**	**11**	**260**	1,014
5:15 PM		**0**	**21**	**37**	**9**	**0**	**4**	**21**	**6**	**0**	**3**	**90**	**12**	**0**	**7**	**58**	**7**	**275**	**1,047**
5:30 PM		0	11	29	3	0	7	20	4	0	2	57	2	0	9	59	13	216	1,010
5:45 PM		0	12	22	2	0	5	10	3	0	4	66	7	0	4	56	7	198	949
Count Total		0	147	237	33	0	51	185	36	0	25	584	51	0	56	497	70	1,972	0
Peak Hour	**All**	**0**	**83**	**133**	**20**	**0**	**22**	**101**	**14**	**0**	**14**	**301**	**27**	**0**	**33**	**266**	**33**	**1,047**	**0**
	HV	**0**	**0**	**2**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**6**	**1**	**0**	**2**	**18**	**0**	**31**	**0**
	HV%	**-**	**0%**	**2%**	**0%**	**-**	**5%**	**1%**	**0%**	**-**	**0%**	**2%**	**4%**	**-**	**6%**	**7%**	**0%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	1	1	4	2	*8*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	1	10	1	*12*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	**0**	**2**	**2**	**5**	***9***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**1**	**0**	**1**	**7**	***9***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**1**	**0**	**1**	**4**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**3**	**4**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:30 PM	0	1	1	3	*5*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	1	2	4	1	*8*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	4	7	26	27	*64*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**2**	**2**	**7**	**20**	***31***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Harney Ln Eastbound UT	LT	TH	RT	E Harney Ln Westbound UT	LT	TH	RT	SR-88 Northbound UT	LT	TH	RT	SR-88 Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	0	0	1	0	0	1	0	0	0	4	0	0	0	2	0	8	0
4:15 PM	0	0	0	0	0	0	1	0	0	1	9	0	0	0	1	0	12	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**5**	**0**	**9**	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**6**	**0**	**9**	38
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**6**	36
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**1**	**3**	**0**	**7**	**31**
5:30 PM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	1	5	27
5:45 PM	0	0	1	0	0	0	2	0	0	0	3	1	0	0	1	0	8	26
Count Total	0	0	3	1	0	1	6	0	0	1	23	2	0	2	24	1	64	0
Peak Hour	**0**	**0**	**2**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**6**	**1**	**0**	**2**	**18**	**0**	**31**	**0**

Two-Hour Count Summaries - Bikes

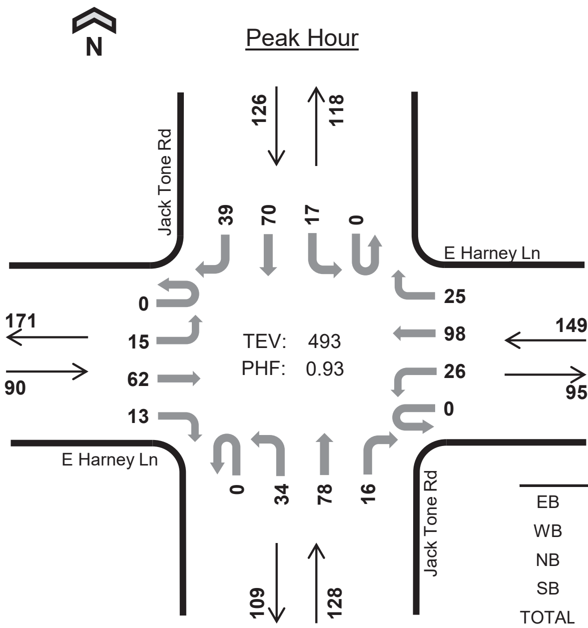
Interval Start	E Harney Ln Eastbound LT	TH	RT	E Harney Ln Westbound LT	TH	RT	SR-88 Northbound LT	TH	RT	SR-88 Southbound LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

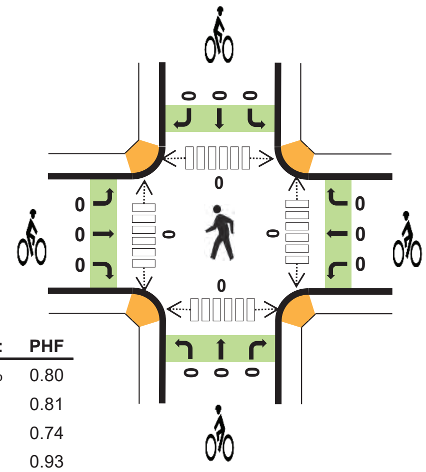
Jack Tone Rd
E Harney Ln

Date: 11/19/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM

Peak Hour



	HV %:	PHF
EB	14.4%	0.80
WB	9.4%	0.81
NB	6.3%	0.74
SB	6.3%	0.93
TOTAL	8.7%	0.93



Two-Hour Count Summaries

Interval Start	E Harney Ln				E Harney Ln				Jack Tone Rd				Jack Tone Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	2	15	5	0	3	14	3	0	7	9	7	0	1	15	4	85	0
7:15 AM	**0**	**1**	**18**	**4**	**0**	**5**	**26**	**5**	**0**	**11**	**17**	**5**	**0**	**6**	**19**	**9**	**126**	0
7:30 AM	**0**	**3**	**12**	**3**	**0**	**3**	**25**	**9**	**0**	**8**	**30**	**5**	**0**	**3**	**18**	**12**	**131**	0
7:45 AM	**0**	**7**	**13**	**1**	**0**	**10**	**30**	**6**	**0**	**7**	**21**	**5**	**0**	**5**	**17**	**10**	**132**	474
8:00 AM	**0**	**4**	**19**	**5**	**0**	**8**	**17**	**5**	**0**	**8**	**10**	**1**	**0**	**3**	**16**	**8**	**104**	**493**
8:15 AM	0	1	14	6	0	3	16	7	0	7	15	2	0	2	13	4	90	457
8:30 AM	0	3	14	7	0	4	22	4	0	9	21	4	0	4	13	4	109	435
8:45 AM	0	2	13	7	0	3	14	7	0	4	12	8	0	3	12	1	86	389
Count Total	0	23	118	38	0	39	164	46	0	61	135	37	0	27	123	52	863	0
Peak Hour All	**0**	**15**	**62**	**13**	**0**	**26**	**98**	**25**	**0**	**34**	**78**	**16**	**0**	**17**	**70**	**39**	**493**	**0**
Peak Hour HV	**0**	**2**	**9**	**2**	**0**	**1**	**10**	**3**	**0**	**0**	**6**	**2**	**0**	**3**	**5**	**0**	**43**	**0**
Peak Hour HV%	**-**	**13%**	**15%**	**15%**	**-**	**4%**	**10%**	**12%**	**-**	**0%**	**8%**	**13%**	**-**	**18%**	**7%**	**0%**	**9%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	0	1	1	*4*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**4**	**5**	**2**	**0**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**2**	**4**	**4**	**0**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**4**	**1**	**2**	**4**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**3**	**4**	**0**	**4**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:15 AM	1	3	3	1	*8*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	4	4	4	1	*13*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	2	0	4	1	*7*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	22	21	20	12	*75*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**13**	**14**	**8**	**8**	***43***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Harney Ln				E Harney Ln				Jack Tone Rd				Jack Tone Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	4	0
7:15 AM	**0**	**0**	**3**	**1**	**0**	**1**	**3**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**11**	0
7:30 AM	**0**	**0**	**1**	**1**	**0**	**0**	**2**	**2**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**10**	0
7:45 AM	**0**	**1**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**2**	**0**	**11**	36
8:00 AM	**0**	**1**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**0**	**11**	**43**
8:15 AM	0	0	1	0	0	1	2	0	0	0	2	1	0	0	1	0	8	40
8:30 AM	0	0	2	2	0	1	3	0	0	0	3	1	0	0	1	0	13	43
8:45 AM	0	0	2	0	0	0	0	0	0	1	0	3	0	0	1	0	7	39
Count Total	0	2	16	4	0	3	15	3	0	1	12	7	0	3	9	0	75	0
Peak Hour	**0**	**2**	**9**	**2**	**0**	**1**	**10**	**3**	**0**	**0**	**6**	**2**	**0**	**3**	**5**	**0**	**43**	**0**

Two-Hour Count Summaries - Bikes

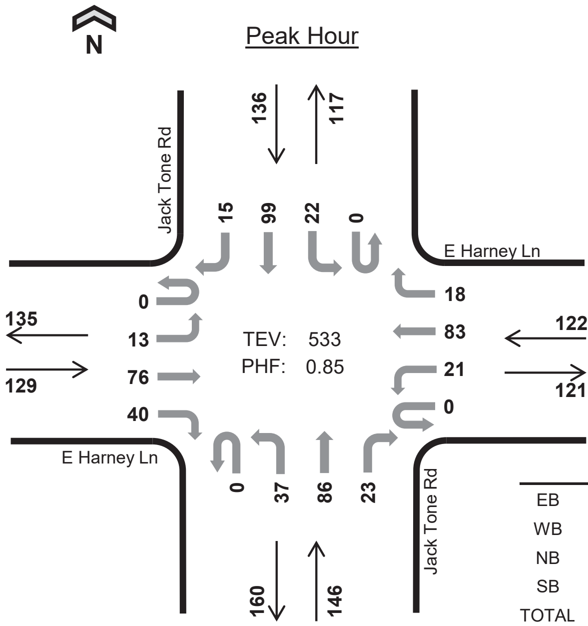
Interval Start	E Harney Ln			E Harney Ln			Jack Tone Rd			Jack Tone Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

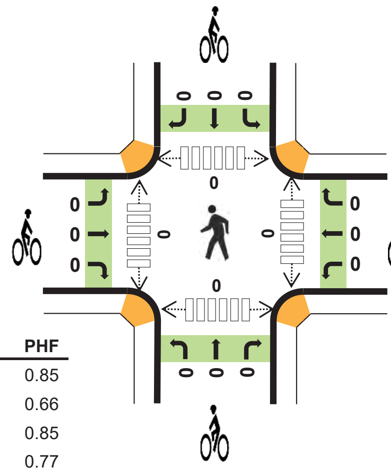
Jack Tone Rd
E Harney Ln

Date: 11/19/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM

Peak Hour



	HV %:	PHF
EB	1.6%	0.85
WB	2.5%	0.66
NB	4.8%	0.85
SB	4.4%	0.77
TOTAL	3.4%	0.85



Two-Hour Count Summaries

Interval Start	E Harney Ln Eastbound UT	LT	TH	RT	E Harney Ln Westbound UT	LT	TH	RT	Jack Tone Rd Northbound UT	LT	TH	RT	Jack Tone Rd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	3	20	8	0	8	30	8	0	8	21	7	0	4	37	3	157	0
4:15 PM	0	3	19	10	0	3	18	8	0	13	23	7	0	7	23	4	138	0
4:30 PM	0	6	20	12	0	5	24	0	0	7	20	4	0	5	23	3	129	0
4:45 PM	0	1	17	10	0	5	11	2	0	9	22	5	0	6	16	5	109	533
5:00 PM	0	5	22	14	0	5	22	2	0	11	15	5	0	10	21	7	139	515
5:15 PM	0	6	23	16	0	1	12	2	0	7	22	3	0	3	29	4	128	505
5:30 PM	0	2	16	9	0	1	11	4	0	6	29	2	0	4	17	1	102	478
5:45 PM	0	5	15	10	0	3	6	7	0	3	17	4	0	4	14	0	88	457
Count Total	0	31	152	89	0	31	134	33	0	64	169	37	0	43	180	27	990	0
Peak Hour All	0	13	76	40	0	21	83	18	0	37	86	23	0	22	99	15	533	0
Peak Hour HV	0	1	0	1	0	0	2	1	0	0	4	3	0	0	6	0	18	0
Peak Hour HV%	-	8%	0%	3%	-	0%	2%	6%	-	0%	5%	13%	-	0%	6%	0%	3%	0

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	0	1	1	2	*4*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	1	3	3	*7*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	0	1	2	1	*4*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	2	0	1	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
5:00 PM	0	0	1	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	2	0	1	1	*4*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	2	1	0	0	*3*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	6	4	9	9	*28*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	2	3	7	6	*18*	0	0	0	0	*0*	0	0	0	0	*0*

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Harney Ln				E Harney Ln				Jack Tone Rd				Jack Tone Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**4**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**3**	**0**	**7**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**4**	0
4:45 PM	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**18**
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	16
5:15 PM	0	1	0	1	0	0	0	0	0	0	1	0	0	0	1	0	4	13
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	10
5:45 PM	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	3	10
Count Total	0	3	1	2	0	0	3	1	0	1	5	3	0	1	8	0	28	0
Peak Hour	**0**	**1**	**0**	**1**	**0**	**0**	**2**	**1**	**0**	**0**	**4**	**3**	**0**	**0**	**6**	**0**	**18**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	E Harney Ln			E Harney Ln			Jack Tone Rd			Jack Tone Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

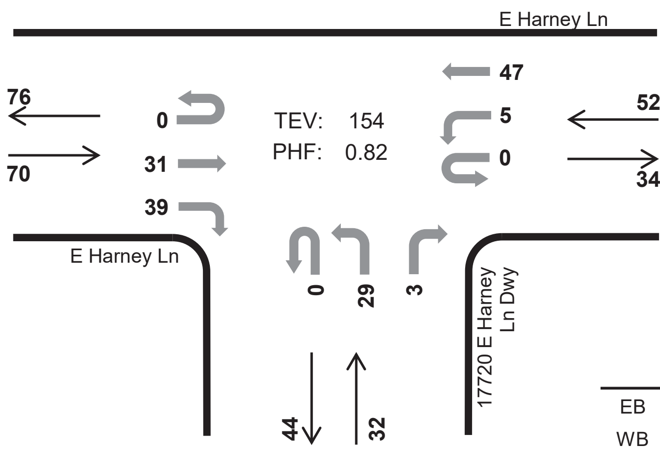
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

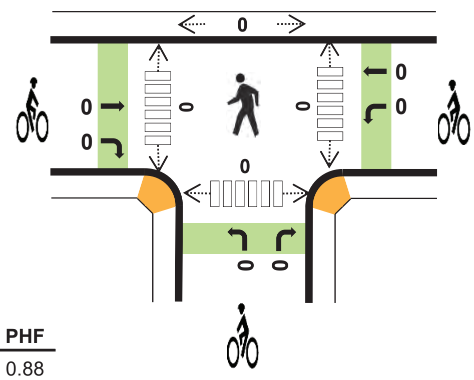
17720 E Harney Ln Dwy
E Harney Ln

N

Peak Hour

Date: 11/19/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV %:	PHF
EB	17.1%	0.88
WB	11.5%	0.81
NB	18.8%	0.50
SB	-	-
TOTAL	15.6%	0.82

Two-Hour Count Summaries

Interval Start	E Harney Ln Eastbound UT	LT	TH	RT	E Harney Ln Westbound UT	LT	TH	RT	17720 E Harney Ln Dwy Northbound UT	LT	TH	RT	n/a Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	8	9	0	0	10	0	0	1	0	0	0	0	0	0	28	0
7:15 AM	**0**	**0**	**5**	**14**	**0**	**2**	**10**	**0**	**0**	**13**	**0**	**3**	**0**	**0**	**0**	**0**	**47**	0
7:30 AM	**0**	**0**	**13**	**7**	**0**	**1**	**15**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**44**	0
7:45 AM	**0**	**0**	**8**	**6**	**0**	**1**	**12**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**31**	150
8:00 AM	**0**	**0**	**5**	**12**	**0**	**1**	**10**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**32**	**154**
8:15 AM	0	0	11	5	0	0	6	0	0	10	0	1	0	0	0	0	33	140
8:30 AM	0	0	5	12	0	1	9	0	0	8	0	1	0	0	0	0	36	132
8:45 AM	0	0	5	13	0	0	9	0	0	4	0	1	0	0	0	0	32	133
Count Total	0	0	60	78	0	6	81	0	0	52	0	6	0	0	0	0	283	0
Peak Hour All	**0**	**0**	**31**	**39**	**0**	**5**	**47**	**0**	**0**	**29**	**0**	**3**	**0**	**0**	**0**	**0**	**154**	**0**
Peak Hour HV	**0**	**0**	**3**	**9**	**0**	**0**	**6**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**24**	**0**
Peak Hour HV%	**-**	**-**	**10%**	**23%**	**-**	**0%**	**13%**	**-**	**-**	**21%**	**-**	**0%**	**-**	**-**	**-**	**-**	**16%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	1	0	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**3**	**1**	**4**	**0**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**4**	**3**	**1**	**0**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**2**	**1**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**3**	**1**	**1**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:15 AM	2	0	3	0	*5*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	2	0	2	0	*4*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	6	0	0	0	*6*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	23	6	11	0	*40*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hr	**12**	**6**	**6**	**0**	***24***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Project Manager: (415) 310-6469

project.manager.ca@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Harney Ln				E Harney Ln				17720 E Harney Ln Dwy				n/a				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	0
7:30 AM	**0**	**0**	**2**	**2**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	0
7:45 AM	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	20
8:00 AM	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**24**
8:15 AM	0	0	0	2	0	0	0	0	0	3	0	0	0	0	0	0	5	21
8:30 AM	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	4	17
8:45 AM	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6	20
Count Total	0	0	3	20	0	0	6	0	0	11	0	0	0	0	0	0	40	0
Peak Hour	**0**	**0**	**3**	**9**	**0**	**0**	**6**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**24**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	E Harney Ln			E Harney Ln			17720 E Harney Ln Dwy			n/a			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

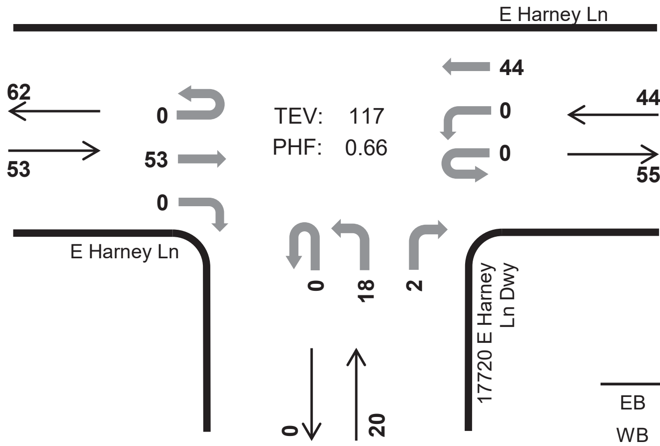
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

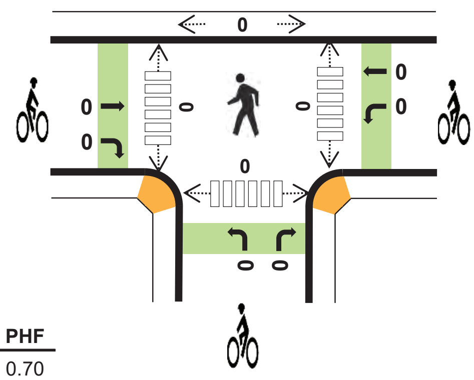
17720 E Harney Ln Dwy
E Harney Ln

N

Peak Hour

Date: 11/19/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM





	HV %:	PHF
EB	0.0%	0.70
WB	0.0%	0.79
NB	0.0%	0.42
SB	-	-
TOTAL	0.0%	0.66

Two-Hour Count Summaries

Interval Start		E Harney Ln Eastbound UT	LT	TH	RT	E Harney Ln Westbound UT	LT	TH	RT	17720 E Harney Ln Dwy Northbound UT	LT	TH	RT	n/a Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM		0	0	19	0	0	0	18	0	0	5	0	0	0	0	0	0	42	0
4:15 PM		**0**	**0**	**12**	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**26**	0
4:30 PM		**0**	**0**	**13**	**0**	**0**	**0**	**8**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**28**	0
4:45 PM		**0**	**0**	**9**	**0**	**0**	**0**	**9**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	115
5:00 PM		**0**	**0**	**19**	**0**	**0**	**0**	**13**	**0**	**0**	**10**	**0**	**2**	**0**	**0**	**0**	**0**	**44**	**117**
5:15 PM		0	0	16	0	0	0	4	0	0	0	0	0	0	0	0	0	20	111
5:30 PM		0	0	15	0	0	0	7	0	0	0	0	0	0	0	0	0	22	105
5:45 PM		0	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	11	97
Count Total		0	0	109	0	0	0	78	0	0	23	0	2	0	0	0	0	212	0
Peak Hour	**All**	**0**	**0**	**53**	**0**	**0**	**0**	**44**	**0**	**0**	**18**	**0**	**2**	**0**	**0**	**0**	**0**	**117**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	HV%	**-**	**-**	**0%**	**-**	**-**	**-**	**0%**	**-**	**-**	**0%**	**-**	**0%**	**-**	**-**	**-**	**-**	**0%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:30 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	1	1	0	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	1	1	0	0	2	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hr	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Project Manager: (415) 310-6469

project.manager.ca@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Harney Ln				E Harney Ln				17720 E Harney Ln Dwy				n/a				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	2
Count Total	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Two-Hour Count Summaries - Bikes

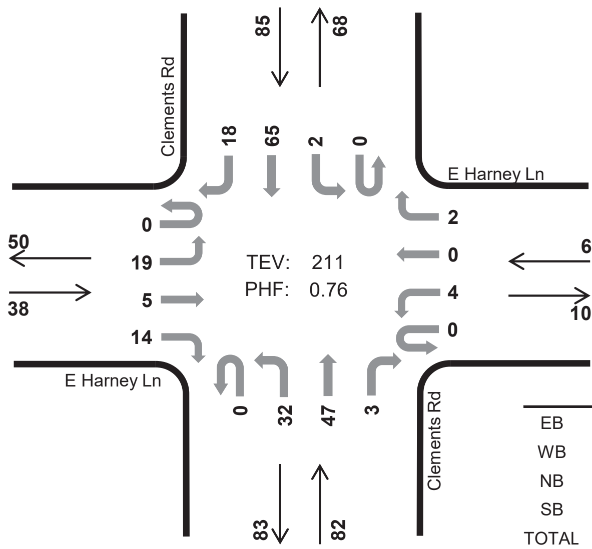
Interval Start	E Harney Ln			E Harney Ln			17720 E Harney Ln Dwy			n/a			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

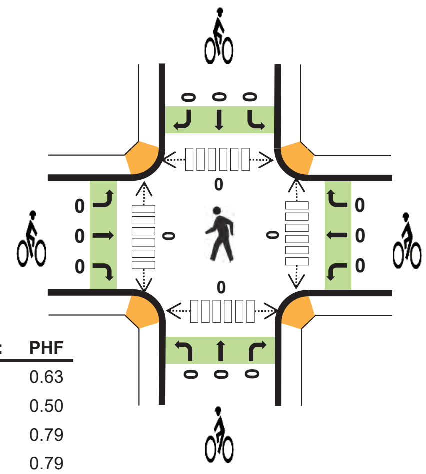
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Clements Rd
E Harney Ln

Date: 11/19/2024
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM

Peak Hour





	HV %:	PHF
EB	7.9%	0.63
WB	0.0%	0.50
NB	6.1%	0.79
SB	9.4%	0.79
TOTAL	7.6%	0.76

Two-Hour Count Summaries

Interval Start		E Harney Ln Eastbound UT	LT	TH	RT	E Harney Ln Westbound UT	LT	TH	RT	Clements Rd Northbound UT	LT	TH	RT	Clements Rd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM		0	4	0	3	0	0	1	0	0	4	12	1	0	1	12	4	42	0
7:15 AM		**0**	**4**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**10**	**8**	**0**	**0**	**1**	**17**	**3**	**47**	0
7:30 AM		**0**	**7**	**2**	**6**	**0**	**1**	**0**	**0**	**0**	**11**	**14**	**1**	**0**	**1**	**19**	**7**	**69**	0
7:45 AM		**0**	**4**	**1**	**1**	**0**	**1**	**0**	**1**	**0**	**8**	**13**	**1**	**0**	**0**	**19**	**2**	**51**	209
8:00 AM		**0**	**4**	**2**	**3**	**0**	**2**	**0**	**1**	**0**	**3**	**12**	**1**	**0**	**0**	**10**	**6**	**44**	**211**
8:15 AM		0	4	1	4	0	1	0	1	0	5	15	0	0	0	10	1	42	206
8:30 AM		0	3	2	1	0	0	0	0	0	8	8	1	0	0	8	4	35	172
8:45 AM		0	3	0	5	0	0	0	0	0	6	6	0	0	0	10	2	32	153
Count Total		0	33	8	27	0	5	1	3	0	55	88	5	0	3	105	29	362	0
Peak Hour	**All**	**0**	**19**	**5**	**14**	**0**	**4**	**0**	**2**	**0**	**32**	**47**	**3**	**0**	**2**	**65**	**18**	**211**	**0**
	HV	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**2**	**0**	**0**	**0**	**4**	**4**	**16**	**0**
	HV%	**-**	**11%**	**20%**	**0%**	**-**	**0%**	**-**	**0%**	**-**	**9%**	**4%**	**0%**	**-**	**0%**	**6%**	**22%**	**8%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	0	0	1	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:30 AM	**2**	**0**	**2**	**5**	***9***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**1**	**0**	**2**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:15 AM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	0	0	1	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	0	0	1	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	3	0	8	9	*20*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**3**	**0**	**5**	**8**	***16***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Harney Ln				E Harney Ln				Clements Rd				Clements Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	0
7:30 AM	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**3**	**9**	0
7:45 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	15
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**2**	**16**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	15
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	7
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	5
Count Total	0	2	1	0	0	0	0	0	0	3	5	0	0	0	5	4	20	0
Peak Hour	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**2**	**0**	**0**	**0**	**4**	**4**	**16**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	E Harney Ln			E Harney Ln			Clements Rd			Clements Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

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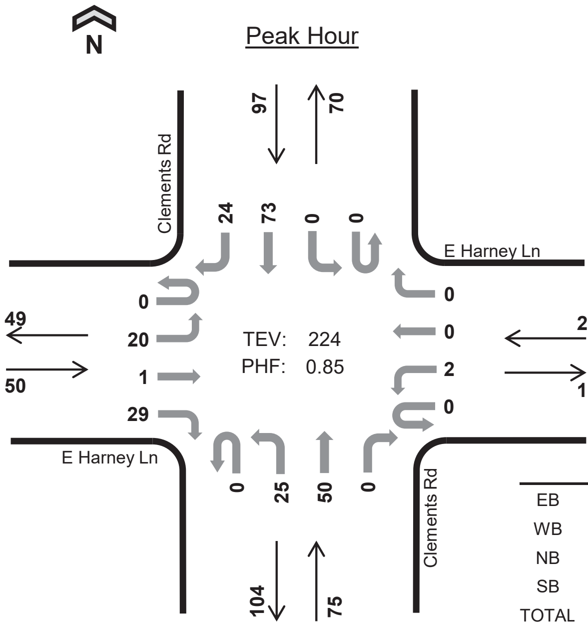
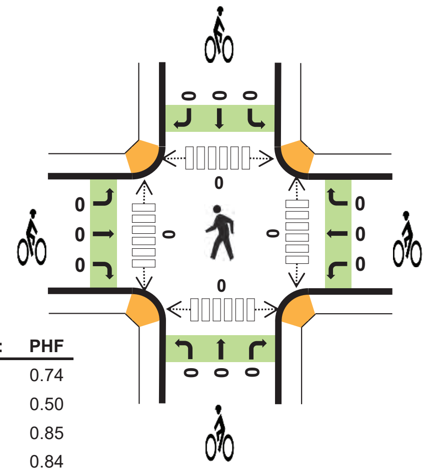
Clements Rd
E Harney Ln

Date: 11/19/2024
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM





	HV %:	PHF
EB	0.0%	0.74
WB	0.0%	0.50
NB	0.0%	0.85
SB	1.0%	0.84
TOTAL	0.4%	0.85

Two-Hour Count Summaries

Interval Start		E Harney Ln Eastbound UT	LT	TH	RT	E Harney Ln Westbound UT	LT	TH	RT	Clements Rd Northbound UT	LT	TH	RT	Clements Rd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM		**0**	**5**	**1**	**11**	**0**	**1**	**0**	**0**	**0**	**7**	**12**	**0**	**0**	**0**	**19**	**10**	**66**	0
4:15 PM		**0**	**7**	**0**	**5**	**0**	**1**	**0**	**0**	**0**	**9**	**12**	**0**	**0**	**0**	**16**	**5**	**55**	0
4:30 PM		**0**	**5**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**5**	**8**	**0**	**0**	**0**	**22**	**3**	**50**	0
4:45 PM		**0**	**3**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**4**	**18**	**0**	**0**	**0**	**16**	**6**	**53**	**224**
5:00 PM		0	9	2	8	0	0	0	0	0	6	7	1	0	0	15	4	52	210
5:15 PM		0	3	0	15	0	0	0	0	0	2	9	0	0	0	12	2	43	198
5:30 PM		0	5	2	9	0	1	1	0	0	7	11	0	0	1	20	1	58	206
5:45 PM		0	3	0	2	0	0	0	0	0	3	12	0	0	0	15	1	36	189
Count Total		0	40	5	63	0	3	1	0	0	43	89	1	0	1	135	32	413	0
Peak Hour	**All**	**0**	**20**	**1**	**29**	**0**	**2**	**0**	**0**	**0**	**25**	**50**	**0**	**0**	**0**	**73**	**24**	**224**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**
	HV%	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**-**	**-**	**-**	**0%**	**0%**	**-**	**-**	**-**	**0%**	**4%**	**0%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:15 PM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:30 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:00 PM	0	0	0	1	*1*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	1	0	0	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	1	0	0	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	0	0	1	0	*1*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	2	0	1	3	*6*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	E Harney Ln				E Harney Ln				Clements Rd				Clements Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
5:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2
5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2	4
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	5
Count Total	0	0	0	2	0	0	0	0	0	1	0	0	0	1	1	1	6	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	E Harney Ln			E Harney Ln			Clements Rd			Clements Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Vehicle Classification Report Summary

Location: E Harney Ln, Between SR-99 & SR-88

Count Direction: Eastbound / Westbound

Date Range: 11/19/2024 to 11/19/2024

Site Code: 01

Direction	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
Eastbound	3	1,396	600	12	139	9	0	0	17	0	3	0	1	**2,180**
	0.1%	64.0%	27.5%	0.6%	6.4%	0.4%	0.0%	0.0%	0.8%	0.0%	0.1%	0.0%	0.0%	
Westbound	1	1,316	602	11	141	7	0	2	22	0	2	0	0	**2,104**
	0.0%	62.5%	28.6%	0.5%	6.7%	0.3%	0.0%	0.1%	1.0%	0.0%	0.1%	0.0%	0.0%	
Total	4	2,712	1,202	23	280	16	0	2	39	0	5	0	1	**4,284**
	0.1%	63.3%	28.1%	0.5%	6.5%	0.4%	0.0%	0.0%	0.9%	0.0%	0.1%	0.0%	0.0%	

FHWA Vehicle Classification	
Class 1 - Motorcycles	Class 8 - Four or Fewer Axle Single-Trailer Trucks
Class 2 - Passenger Cars	Class 9 - Five-Axle Single-Trailer Trucks
Class 3 - Other Two-Axle, Four-Tire Single Unit Vehicles	Class 10 - Six or More Axle Single-Trailer Trucks
Class 4 - Buses	Class 11 - Five or fewer Axle Multi-Trailer Trucks
Class 5 - Two-Axle, Six-Tire, Single-Unit Trucks	Class 12 - Six-Axle Multi-Trailer Trucks
Class 6 - Three-Axle Single-Unit Trucks	Class 13 - Seven or More Axle Multi-Trailer Trucks
Class 7 - Four or More Axle Single-Unit Trucks	

Project Manager: (415) 310-6469
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Location: E Harney Ln, Between SR-99 & SR-88
Date Range: 11/19/2024 to 11/19/2024
Site Code: 01

Tuesday, November 19, 2024
Eastbound

Time	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
12:00 AM	0	0	2	0	0	0	0	0	0	0	1	0	0	**3**
1:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	**2**
2:00 AM	0	4	2	0	0	0	0	0	0	0	0	0	0	**6**
3:00 AM	0	3	0	0	0	0	0	0	0	0	1	0	0	**4**
4:00 AM	0	7	2	0	1	0	0	0	0	0	0	0	0	**10**
5:00 AM	0	25	13	0	2	0	0	0	0	0	0	0	0	**40**
6:00 AM	0	50	24	0	8	2	0	0	3	0	1	0	0	**88**
7:00 AM	0	65	25	1	7	0	0	0	0	0	0	0	0	**98**
8:00 AM	1	68	46	1	4	1	0	0	1	0	0	0	0	**122**
9:00 AM	0	49	29	2	9	2	0	0	2	0	0	0	0	**93**
10:00 AM	1	55	37	0	10	1	0	0	2	0	0	0	1	**107**
11:00 AM	0	83	48	1	11	1	0	0	2	0	0	0	0	**146**
12:00 PM	0	86	42	0	11	0	0	0	2	0	0	0	0	**141**
1:00 PM	0	109	48	4	8	0	0	0	2	0	0	0	0	**171**
2:00 PM	0	115	52	2	14	0	0	0	2	0	0	0	0	**185**
3:00 PM	1	140	61	0	9	1	0	0	0	0	0	0	0	**212**
4:00 PM	0	148	57	0	13	0	0	0	1	0	0	0	0	**219**
5:00 PM	0	140	52	0	15	0	0	0	0	0	0	0	0	**207**
6:00 PM	0	81	17	0	4	0	0	0	0	0	0	0	0	**102**
7:00 PM	0	62	16	0	7	0	0	0	0	0	0	0	0	**85**
8:00 PM	0	44	18	1	4	1	0	0	0	0	0	0	0	**68**
9:00 PM	0	28	6	0	2	0	0	0	0	0	0	0	0	**36**
10:00 PM	0	23	1	0	0	0	0	0	0	0	0	0	0	**24**
11:00 PM	0	10	1	0	0	0	0	0	0	0	0	0	0	**11**
Total	**3**	**1,396**	**600**	**12**	**139**	**9**	**0**	**0**	**17**	**0**	**3**	**0**	**1**	**2,180**
	0.1%	**64.0%**	**27.5%**	**0.6%**	**6.4%**	**0.4%**	**0.0%**	**0.0%**	**0.8%**	**0.0%**	**0.1%**	**0.0%**	**0.0%**	

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Location: E Harney Ln, Between SR-99 & SR-88
Date Range: 11/19/2024 to 11/19/2024
Site Code: 01

Tuesday, November 19, 2024
Westbound

Time	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
12:00 AM	0	2	0	0	1	0	0	0	0	0	0	0	0	3
1:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	1
2:00 AM	0	2	2	0	0	0	0	0	1	0	0	0	0	5
3:00 AM	0	7	0	0	0	0	0	0	0	0	0	0	0	7
4:00 AM	0	15	5	0	2	0	0	0	0	0	1	0	0	23
5:00 AM	0	22	16	1	6	0	0	1	1	0	0	0	0	47
6:00 AM	0	56	31	0	6	0	0	0	1	0	0	0	0	94
7:00 AM	0	135	60	0	18	2	0	0	2	0	0	0	0	217
8:00 AM	0	103	46	1	10	1	0	0	4	0	0	0	0	165
9:00 AM	0	81	51	1	5	0	0	0	3	0	0	0	0	141
10:00 AM	0	73	46	0	13	1	0	0	3	0	0	0	0	136
11:00 AM	0	82	43	1	12	0	0	0	1	0	0	0	0	139
12:00 PM	0	83	40	1	12	2	0	0	1	0	0	0	0	139
1:00 PM	0	85	43	0	11	1	0	0	0	0	0	0	0	140
2:00 PM	0	130	66	1	13	0	0	1	1	0	0	0	0	212
3:00 PM	0	123	47	3	11	0	0	0	1	0	0	0	0	185
4:00 PM	0	109	44	1	6	0	0	0	1	0	0	0	0	161
5:00 PM	1	92	36	0	4	0	0	0	2	0	0	0	0	135
6:00 PM	0	44	9	0	4	0	0	0	0	0	0	0	0	57
7:00 PM	0	30	6	0	4	0	0	0	0	0	0	0	0	40
8:00 PM	0	20	6	1	1	0	0	0	0	0	0	0	0	28
9:00 PM	0	12	2	0	1	0	0	0	0	0	0	0	0	15
10:00 PM	0	8	2	0	1	0	0	0	0	0	0	0	0	11
11:00 PM	0	2	1	0	0	0	0	0	0	0	0	0	0	3
Total	1	1,316	602	11	141	7	0	2	22	0	2	0	0	2,104
	0.0%	62.5%	28.6%	0.5%	6.7%	0.3%	0.0%	0.1%	1.0%	0.0%	0.1%	0.0%	0.0%	

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Location: E Harney Ln, Between SR-99 & SR-88
Date Range: 11/19/2024 to 11/19/2024
Site Code: 01

Total Study Average
Eastbound

Time	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
12:00 AM	0	0	2	0	0	0	0	0	0	0	1	0	0	**3**
1:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	**2**
2:00 AM	0	4	2	0	0	0	0	0	0	0	0	0	0	**6**
3:00 AM	0	3	0	0	0	0	0	0	0	0	1	0	0	**4**
4:00 AM	0	7	2	0	1	0	0	0	0	0	0	0	0	**10**
5:00 AM	0	25	13	0	2	0	0	0	0	0	0	0	0	**40**
6:00 AM	0	50	24	0	8	2	0	0	3	0	1	0	0	**88**
7:00 AM	0	65	25	1	7	0	0	0	0	0	0	0	0	**98**
8:00 AM	1	68	46	1	4	1	0	0	1	0	0	0	0	**122**
9:00 AM	0	49	29	2	9	2	0	0	2	0	0	0	0	**93**
10:00 AM	1	55	37	0	10	1	0	0	2	0	0	0	1	**107**
11:00 AM	0	83	48	1	11	1	0	0	2	0	0	0	0	**146**
12:00 PM	0	86	42	0	11	0	0	0	2	0	0	0	0	**141**
1:00 PM	0	109	48	4	8	0	0	0	2	0	0	0	0	**171**
2:00 PM	0	115	52	2	14	0	0	0	2	0	0	0	0	**185**
3:00 PM	1	140	61	0	9	1	0	0	0	0	0	0	0	**212**
4:00 PM	0	148	57	0	13	0	0	0	1	0	0	0	0	**219**
5:00 PM	0	140	52	0	15	0	0	0	0	0	0	0	0	**207**
6:00 PM	0	81	17	0	4	0	0	0	0	0	0	0	0	**102**
7:00 PM	0	62	16	0	7	0	0	0	0	0	0	0	0	**85**
8:00 PM	0	44	18	1	4	1	0	0	0	0	0	0	0	**68**
9:00 PM	0	28	6	0	2	0	0	0	0	0	0	0	0	**36**
10:00 PM	0	23	1	0	0	0	0	0	0	0	0	0	0	**24**
11:00 PM	0	10	1	0	0	0	0	0	0	0	0	0	0	**11**
Total	**3**	**1,396**	**600**	**12**	**139**	**9**	**0**	**0**	**17**	**0**	**3**	**0**	**1**	**2,180**
	0.1%	**64.0%**	**27.5%**	**0.6%**	**6.4%**	**0.4%**	**0.0%**	**0.0%**	**0.8%**	**0.0%**	**0.1%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Project Manager: (415) 310-6469
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Location: E Harney Ln, Between SR-99 & SR-88
Date Range: 11/19/2024 to 11/19/2024
Site Code: 01

Total Study Average
Westbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	2	0	0	1	0	0	0	0	0	0	0	0	**3**
1:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	**1**
2:00 AM	0	2	2	0	0	0	0	0	1	0	0	0	0	**5**
3:00 AM	0	7	0	0	0	0	0	0	0	0	0	0	0	**7**
4:00 AM	0	15	5	0	2	0	0	0	0	0	1	0	0	**23**
5:00 AM	0	22	16	1	6	0	0	1	1	0	0	0	0	**47**
6:00 AM	0	56	31	0	6	0	0	0	1	0	0	0	0	**94**
7:00 AM	0	135	60	0	18	2	0	0	2	0	0	0	0	**217**
8:00 AM	0	103	46	1	10	1	0	0	4	0	0	0	0	**165**
9:00 AM	0	81	51	1	5	0	0	0	3	0	0	0	0	**141**
10:00 AM	0	73	46	0	13	1	0	0	3	0	0	0	0	**136**
11:00 AM	0	82	43	1	12	0	0	0	1	0	0	0	0	**139**
12:00 PM	0	83	40	1	12	2	0	0	1	0	0	0	0	**139**
1:00 PM	0	85	43	0	11	1	0	0	0	0	0	0	0	**140**
2:00 PM	0	130	66	1	13	0	0	1	1	0	0	0	0	**212**
3:00 PM	0	123	47	3	11	0	0	0	1	0	0	0	0	**185**
4:00 PM	0	109	44	1	6	0	0	0	1	0	0	0	0	**161**
5:00 PM	1	92	36	0	4	0	0	0	2	0	0	0	0	**135**
6:00 PM	0	44	9	0	4	0	0	0	0	0	0	0	0	**57**
7:00 PM	0	30	6	0	4	0	0	0	0	0	0	0	0	**40**
8:00 PM	0	20	6	1	1	0	0	0	0	0	0	0	0	**28**
9:00 PM	0	12	2	0	1	0	0	0	0	0	0	0	0	**15**
10:00 PM	0	8	2	0	1	0	0	0	0	0	0	0	0	**11**
11:00 PM	0	2	1	0	0	0	0	0	0	0	0	0	0	**3**
Total	**1**	**1,316**	**602**	**11**	**141**	**7**	**0**	**2**	**22**	**0**	**2**	**0**	**0**	**2,104**
	0.0%	**62.5%**	**28.6%**	**0.5%**	**6.7%**	**0.3%**	**0.0%**	**0.1%**	**1.0%**	**0.0%**	**0.1%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

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Vehicle Speed Report Summary

IDAX DATA SOLUTIONS

Location: E Harney Ln, Between SR-99 & SR-88
Direction: Eastbound / Westbound
Date Range: 11/19/2024 to 11/19/2024
Site Code: 01

Direction	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
Eastbound	0	3	1	1	2	9	39	116	372	604	622	306	76	14	13	2	0	2,180
	0.0%	0.1%	0.0%	0.0%	0.1%	0.4%	1.8%	5.3%	17.1%	27.7%	28.5%	14.0%	3.5%	0.6%	0.6%	0.1%	0.0%	
Westbound	0	0	1	1	4	19	45	93	188	442	618	428	181	51	25	7	1	2,104
	0.0%	0.0%	0.0%	0.0%	0.2%	0.9%	2.1%	4.4%	8.9%	21.0%	29.4%	20.3%	8.6%	2.4%	1.2%	0.3%	0.0%	
Total	0	3	2	2	6	28	84	209	560	1,046	1,240	734	257	65	38	9	1	4,284
	0.0%	0.1%	0.0%	0.0%	0.1%	0.7%	2.0%	4.9%	13.1%	24.4%	28.9%	17.1%	6.0%	1.5%	0.9%	0.2%	0.0%	

Total Study Percentile Speed Summary			Total Study Speed Statistics		
Eastbound			**Eastbound**		
50th Percentile (Median)	54.6	mph	Mean (Average) Speed	54.3	mph
85th Percentile	61.1	mph	10 mph Pace	50.2 - 60.2	mph
95th Percentile	64.8	mph	Percent in Pace	56.2	%
Westbound			**Westbound**		
50th Percentile (Median)	57.2	mph	Mean (Average) Speed	56.7	mph
85th Percentile	64.2	mph	10 mph Pace	51.7 - 61.7	mph
95th Percentile	68.9	mph	Percent in Pace	52.9	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: E Harney Ln, Between SR-99 & SR-88
Date Range: 11/19/2024 to 11/19/2024
Site Code: 01

idax DATA SOLUTIONS

Tuesday, November 19, 2024
Eastbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	**3**
1:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	**2**
2:00 AM	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	0	0	**6**
3:00 AM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	**4**
4:00 AM	0	0	0	0	0	0	0	0	2	1	2	3	0	0	2	0	0	**10**
5:00 AM	0	0	0	0	0	0	1	1	5	9	8	9	4	1	1	1	0	**40**
6:00 AM	0	0	0	0	0	0	3	2	8	20	28	17	7	2	1	0	0	**88**
7:00 AM	0	0	0	0	0	0	0	9	15	22	25	25	2	0	0	0	0	**98**
8:00 AM	0	0	0	0	0	0	4	4	23	31	38	19	3	0	0	0	0	**122**
9:00 AM	0	0	0	0	0	0	0	5	18	23	30	8	8	1	0	0	0	**93**
10:00 AM	0	0	0	1	0	1	1	6	19	36	26	14	3	0	0	0	0	**107**
11:00 AM	0	0	0	0	0	1	1	6	32	45	40	17	2	1	1	0	0	**146**
12:00 PM	0	0	0	0	1	1	4	11	30	32	36	22	3	0	1	0	0	**141**
1:00 PM	0	0	1	0	0	1	8	14	23	45	53	16	9	1	0	0	0	**171**
2:00 PM	0	0	0	0	0	1	2	10	38	49	59	21	3	1	1	0	0	**185**
3:00 PM	0	0	0	0	0	0	1	11	34	58	70	29	6	1	1	1	0	**212**
4:00 PM	0	0	0	0	0	1	1	7	18	70	77	36	9	0	0	0	0	**219**
5:00 PM	0	3	0	0	0	1	5	11	53	78	43	12	1	0	0	0	0	**207**
6:00 PM	0	0	0	0	0	1	4	3	24	30	28	10	0	1	1	0	0	**102**
7:00 PM	0	0	0	0	0	0	1	5	15	27	21	9	6	1	0	0	0	**85**
8:00 PM	0	0	0	0	0	0	1	4	4	16	17	15	9	1	1	0	0	**68**
9:00 PM	0	0	0	0	0	0	1	2	5	5	10	10	0	2	1	0	0	**36**
10:00 PM	0	0	0	0	1	0	1	5	3	3	5	5	0	0	1	0	0	**24**
11:00 PM	0	0	0	0	0	0	0	0	2	2	2	5	0	0	0	0	0	**11**
Total	**0**	**3**	**1**	**1**	**2**	**9**	**39**	**116**	**372**	**604**	**622**	**306**	**76**	**14**	**13**	**2**	**0**	**2,180**
	0.0%	**0.1%**	**0.0%**	**0.0%**	**0.1%**	**0.4%**	**1.8%**	**5.3%**	**17.1%**	**27.7%**	**28.5%**	**14.0%**	**3.5%**	**0.6%**	**0.6%**	**0.1%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	54.6	mph	Mean (Average) Speed	54.3	mph
85th Percentile	61.1	mph	10 mph Pace	50.2 - 60.2	mph
95th Percentile	64.8	mph	Percent in Pace	56.2	%

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Location: E Harney Ln, Between SR-99 & SR-88
Date Range: 11/19/2024 to 11/19/2024
Site Code: 01

IDAX DATA SOLUTIONS

Tuesday, November 19, 2024
Westbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	**3**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	**1**
2:00 AM	0	0	0	0	0	0	1	0	0	0	4	0	0	0	0	0	0	**5**
3:00 AM	0	0	0	0	0	0	1	1	0	0	0	1	3	1	0	0	0	**7**
4:00 AM	0	0	0	0	0	0	0	0	0	5	8	3	5	1	0	1	0	**23**
5:00 AM	0	0	0	0	0	0	1	0	4	9	10	13	2	3	2	3	0	**47**
6:00 AM	0	0	0	0	0	0	2	1	7	17	28	20	11	7	1	0	0	**94**
7:00 AM	0	0	0	0	0	1	1	12	17	37	54	56	25	9	5	0	0	**217**
8:00 AM	0	0	0	0	0	2	1	3	6	25	58	39	24	6	0	1	0	**165**
9:00 AM	0	0	0	0	1	1	2	4	9	29	45	32	13	2	2	0	1	**141**
10:00 AM	0	0	0	0	0	2	3	5	17	24	41	32	9	3	0	0	0	**136**
11:00 AM	0	0	0	0	1	2	0	8	10	36	51	21	9	0	1	0	0	**139**
12:00 PM	0	0	0	0	0	4	2	5	19	23	37	31	7	6	5	0	0	**139**
1:00 PM	0	0	1	0	0	2	3	2	16	32	33	31	16	3	1	0	0	**140**
2:00 PM	0	0	0	1	0	1	8	16	18	44	72	36	13	1	2	0	0	**212**
3:00 PM	0	0	0	0	0	3	5	16	11	55	49	35	10	0	0	1	0	**185**
4:00 PM	0	0	0	0	0	0	5	6	27	42	44	22	12	3	0	0	0	**161**
5:00 PM	0	0	0	0	0	0	4	4	17	30	42	25	10	2	0	1	0	**135**
6:00 PM	0	0	0	0	0	0	1	1	5	12	16	15	4	0	3	0	0	**57**
7:00 PM	0	0	0	0	0	1	1	3	1	11	16	2	3	1	1	0	0	**40**
8:00 PM	0	0	0	0	0	0	1	4	1	5	6	9	0	1	1	0	0	**28**
9:00 PM	0	0	0	0	1	0	1	1	1	4	2	2	2	1	0	0	0	**15**
10:00 PM	0	0	0	0	1	0	2	0	1	2	0	2	2	1	0	0	0	**11**
11:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	**3**
Total	**0**	**0**	**1**	**1**	**4**	**19**	**45**	**93**	**188**	**442**	**618**	**428**	**181**	**51**	**25**	**7**	**1**	**2,104**
	0.0%	**0.0%**	**0.0%**	**0.0%**	**0.2%**	**0.9%**	**2.1%**	**4.4%**	**8.9%**	**21.0%**	**29.4%**	**20.3%**	**8.6%**	**2.4%**	**1.2%**	**0.3%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	57.2	mph	Mean (Average) Speed	56.7	mph
85th Percentile	64.2	mph	10 mph Pace	51.7 - 61.7	mph
95th Percentile	68.9	mph	Percent in Pace	52.9	%

Location: E Harney Ln, Between SR-99 & SR-88
Date Range: 11/19/2024 to 11/19/2024
Site Code: 01

IDAX DATA SOLUTIONS

Total Study Average
Eastbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	**3**
1:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	**2**
2:00 AM	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	0	0	**6**
3:00 AM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	**4**
4:00 AM	0	0	0	0	0	0	0	0	2	1	2	3	0	0	2	0	0	**10**
5:00 AM	0	0	0	0	0	0	1	1	5	9	8	9	4	1	1	1	0	**40**
6:00 AM	0	0	0	0	0	0	3	2	8	20	28	17	7	2	1	0	0	**88**
7:00 AM	0	0	0	0	0	0	0	9	15	22	25	25	2	0	0	0	0	**98**
8:00 AM	0	0	0	0	0	0	4	4	23	31	38	19	3	0	0	0	0	**122**
9:00 AM	0	0	0	0	0	0	0	5	18	23	30	8	8	1	0	0	0	**93**
10:00 AM	0	0	0	1	0	1	1	6	19	36	26	14	3	0	0	0	0	**107**
11:00 AM	0	0	0	0	0	1	1	6	32	45	40	17	2	1	1	0	0	**146**
12:00 PM	0	0	0	0	1	1	4	11	30	32	36	22	3	0	1	0	0	**141**
1:00 PM	0	0	1	0	0	1	8	14	23	45	53	16	9	1	0	0	0	**171**
2:00 PM	0	0	0	0	0	1	2	10	38	49	59	21	3	1	1	0	0	**185**
3:00 PM	0	0	0	0	0	0	1	11	34	58	70	29	6	1	1	1	0	**212**
4:00 PM	0	0	0	0	0	1	1	7	18	70	77	36	9	0	0	0	0	**219**
5:00 PM	0	3	0	0	0	1	5	11	53	78	43	12	1	0	0	0	0	**207**
6:00 PM	0	0	0	0	0	1	4	3	24	30	28	10	0	1	1	0	0	**102**
7:00 PM	0	0	0	0	0	0	1	5	15	27	21	9	6	1	0	0	0	**85**
8:00 PM	0	0	0	0	0	0	1	4	4	16	17	15	9	1	1	0	0	**68**
9:00 PM	0	0	0	0	0	0	1	2	5	5	10	10	0	2	1	0	0	**36**
10:00 PM	0	0	0	0	1	0	1	5	3	3	5	5	0	0	1	0	0	**24**
11:00 PM	0	0	0	0	0	0	0	0	2	2	2	5	0	0	0	0	0	**11**
Total	**0**	**3**	**1**	**1**	**2**	**9**	**39**	**116**	**372**	**604**	**622**	**306**	**76**	**14**	**13**	**2**	**0**	**2,180**
	0.0%	**0.1%**	**0.0%**	**0.0%**	**0.1%**	**0.4%**	**1.8%**	**5.3%**	**17.1%**	**27.7%**	**28.5%**	**14.0%**	**3.5%**	**0.6%**	**0.6%**	**0.1%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary		
50th Percentile (Median)	54.6	mph
85th Percentile	61.1	mph
95th Percentile	64.8	mph

Total Study Speed Statistics		
Mean (Average) Speed	54.3	mph
10 mph Pace	50.2 - 60.2	mph
Percent in Pace	56.2	%

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Location: E Harney Ln, Between SR-99 & SR-88
Date Range: 11/19/2024 to 11/19/2024
Site Code: 01

Total Study Average
Westbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	**3**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	**1**
2:00 AM	0	0	0	0	0	0	1	0	0	0	4	0	0	0	0	0	0	**5**
3:00 AM	0	0	0	0	0	0	1	1	0	0	0	1	3	1	0	0	0	**7**
4:00 AM	0	0	0	0	0	0	0	0	0	5	8	3	5	1	0	1	0	**23**
5:00 AM	0	0	0	0	0	0	1	0	4	9	10	13	2	3	2	3	0	**47**
6:00 AM	0	0	0	0	0	0	2	1	7	17	28	20	11	7	1	0	0	**94**
7:00 AM	0	0	0	0	0	1	1	12	17	37	54	56	25	9	5	0	0	**217**
8:00 AM	0	0	0	0	0	2	1	3	6	25	58	39	24	6	0	1	0	**165**
9:00 AM	0	0	0	0	1	1	2	4	9	29	45	32	13	2	2	0	1	**141**
10:00 AM	0	0	0	0	0	2	3	5	17	24	41	32	9	3	0	0	0	**136**
11:00 AM	0	0	0	0	1	2	0	8	10	36	51	21	9	0	1	0	0	**139**
12:00 PM	0	0	0	0	0	4	2	5	19	23	37	31	7	6	5	0	0	**139**
1:00 PM	0	0	1	0	0	2	3	2	16	32	33	31	16	3	1	0	0	**140**
2:00 PM	0	0	0	1	0	1	8	16	18	44	72	36	13	1	2	0	0	**212**
3:00 PM	0	0	0	0	0	3	5	16	11	55	49	35	10	0	0	1	0	**185**
4:00 PM	0	0	0	0	0	0	5	6	27	42	44	22	12	3	0	0	0	**161**
5:00 PM	0	0	0	0	0	0	4	4	17	30	42	25	10	2	0	1	0	**135**
6:00 PM	0	0	0	0	0	0	1	1	5	12	16	15	4	0	3	0	0	**57**
7:00 PM	0	0	0	0	0	1	1	3	1	11	16	2	3	1	1	0	0	**40**
8:00 PM	0	0	0	0	0	0	1	4	1	5	6	9	0	1	1	0	0	**28**
9:00 PM	0	0	0	0	1	0	1	1	1	4	2	2	2	1	0	0	0	**15**
10:00 PM	0	0	0	0	1	0	2	0	1	2	0	2	2	1	0	0	0	**11**
11:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	**3**
Total	**0**	**0**	**1**	**1**	**4**	**19**	**45**	**93**	**188**	**442**	**618**	**428**	**181**	**51**	**25**	**7**	**1**	**2,104**
	0.0%	**0.0%**	**0.0%**	**0.0%**	**0.2%**	**0.9%**	**2.1%**	**4.4%**	**8.9%**	**21.0%**	**29.4%**	**20.3%**	**8.6%**	**2.4%**	**1.2%**	**0.3%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	57.2	mph	Mean (Average) Speed	56.7	mph
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Location: E Harney Ln, Between SR-99 & SR-88
Date Range: 11/19/2024 - 11/25/2024
Site Code: 01

Time	Tuesday 11/19/2024			Wednesday 11/20/2024			Thursday 11/21/2024			Friday 11/22/2024			Saturday 11/23/2024			Sunday 11/24/2024			Monday 11/25/2024			Mid-Week Average		
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total
12:00 AM	3	3	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	6
1:00 AM	2	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	3
2:00 AM	6	5	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	5	11
3:00 AM	4	7	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	7	11
4:00 AM	10	23	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	23	33
5:00 AM	40	47	87	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	47	87
6:00 AM	88	94	182	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88	94	182
7:00 AM	98	**217**	**315**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	98	**217**	**315**
8:00 AM	122	165	287	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	122	165	287
9:00 AM	93	141	234	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	93	141	234
10:00 AM	107	136	243	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	107	136	243
11:00 AM	**146**	139	285	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**146**	139	285
12:00 PM	141	139	280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	141	139	280
1:00 PM	171	140	311	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	171	140	311
2:00 PM	185	**212**	**397**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	185	**212**	**397**
3:00 PM	212	185	**397**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	212	185	**397**
4:00 PM	**219**	161	380	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**219**	161	380
5:00 PM	207	135	342	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	207	135	342
6:00 PM	102	57	159	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	102	57	159
7:00 PM	85	40	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85	40	125
8:00 PM	68	28	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	28	96
9:00 PM	36	15	51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36	15	51
10:00 PM	24	11	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	11	35
11:00 PM	11	3	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	3	14
Total	**2,180**	**2,104**	**4,284**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**2,180**	**2,104**	**4,284**
Percent	**51%**	**49%**		-	-		-	-		-	-		-	-		-	-		-	-		**51%**	**49%**	
AM Peak	11:00	07:00	07:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11:00	07:00	07:00
Vol.	146	217	315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	146	217	315
PM Peak	16:00	14:00	14:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16:00	14:00	14:00
Vol.	219	212	397	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	219	212	397

1. Mid-week average includes data between Tuesday and Thursday.

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Vehicle Classification Report Summary

Location: E Harney Ln, Between Jack Tone Rd & 17720 E Harney Ln Dwy

Count Direction: Eastbound / Westbound

Date Range: 11/19/2024 to 11/19/2024

Site Code: 02

Direction	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
Eastbound	1	418	423	10	95	30	0	4	37	0	3	0	0	1,021
	0.1%	40.9%	41.4%	1.0%	9.3%	2.9%	0.0%	0.4%	3.6%	0.0%	0.3%	0.0%	0.0%	
Westbound	2	388	392	10	78	33	0	5	38	0	3	1	0	950
	0.2%	40.8%	41.3%	1.1%	8.2%	3.5%	0.0%	0.5%	4.0%	0.0%	0.3%	0.1%	0.0%	
Total	3	806	815	20	173	63	0	9	75	0	6	1	0	1,971
	0.2%	40.9%	41.3%	1.0%	8.8%	3.2%	0.0%	0.5%	3.8%	0.0%	0.3%	0.1%	0.0%	

FHWA Vehicle Classification	
Class 1 - Motorcycles	Class 8 - Four or Fewer Axle Single-Trailer Trucks
Class 2 - Passenger Cars	Class 9 - Five-Axle Single-Trailer Trucks
Class 3 - Other Two-Axle, Four-Tire Single Unit Vehicles	Class 10 - Six or More Axle Single-Trailer Trucks
Class 4 - Buses	Class 11 - Five or fewer Axle Multi-Trailer Trucks
Class 5 - Two-Axle, Six-Tire, Single-Unit Trucks	Class 12 - Six-Axle Multi-Trailer Trucks
Class 6 - Three-Axle Single-Unit Trucks	Class 13 - Seven or More Axle Multi-Trailer Trucks
Class 7 - Four or More Axle Single-Unit Trucks	

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: E Harney Ln, Between Jack Tone Rd & 17720 E Harney Ln Dwy
Date Range: 11/19/2024 to 11/19/2024
Site Code: 02

Tuesday, November 19, 2024
Eastbound

Time	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
3:00 AM	0	1	2	1	0	0	0	0	0	0	0	0	0	**4**
4:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	**3**
5:00 AM	0	18	9	0	1	0	0	0	2	0	0	0	0	**30**
6:00 AM	0	79	31	0	1	4	0	0	4	0	0	0	0	**119**
7:00 AM	0	21	30	0	12	2	0	0	4	0	0	0	0	**69**
8:00 AM	0	18	35	0	5	3	0	1	4	0	0	0	0	**66**
9:00 AM	0	17	29	2	10	3	0	0	2	0	2	0	0	**65**
10:00 AM	0	13	37	1	11	7	0	0	7	0	0	0	0	**76**
11:00 AM	0	17	48	0	7	2	0	0	2	0	1	0	0	**77**
12:00 PM	0	12	30	3	10	4	0	0	4	0	0	0	0	**63**
1:00 PM	0	29	35	1	5	3	0	0	6	0	0	0	0	**79**
2:00 PM	1	33	50	1	9	2	0	0	2	0	0	0	0	**98**
3:00 PM	0	36	32	1	10	0	0	1	0	0	0	0	0	**80**
4:00 PM	0	27	25	0	3	0	0	0	0	0	0	0	0	**55**
5:00 PM	0	36	16	0	4	0	0	1	0	0	0	0	0	**57**
6:00 PM	0	15	4	0	3	0	0	1	0	0	0	0	0	**23**
7:00 PM	0	9	3	0	2	0	0	0	0	0	0	0	0	**14**
8:00 PM	0	11	4	0	1	0	0	0	0	0	0	0	0	**16**
9:00 PM	0	8	2	0	1	0	0	0	0	0	0	0	0	**11**
10:00 PM	0	7	0	0	0	0	0	0	0	0	0	0	0	**7**
11:00 PM	0	7	1	0	0	0	0	0	0	0	0	0	0	**8**
Total	**1**	**418**	**423**	**10**	**95**	**30**	**0**	**4**	**37**	**0**	**3**	**0**	**0**	**1,021**
	0.1%	**40.9%**	**41.4%**	**1.0%**	**9.3%**	**2.9%**	**0.0%**	**0.4%**	**3.6%**	**0.0%**	**0.3%**	**0.0%**	**0.0%**	

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: E Harney Ln, Between Jack Tone Rd & 17720 E Harney Ln Dwy
Date Range: 11/19/2024 to 11/19/2024
Site Code: 02

Tuesday, November 19, 2024
Westbound

Time	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
12:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	**1**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
3:00 AM	0	3	1	0	0	0	0	0	0	0	0	1	0	**5**
4:00 AM	0	3	1	0	0	0	0	1	0	0	0	0	0	**5**
5:00 AM	0	12	7	0	2	0	0	1	0	0	0	0	0	**22**
6:00 AM	0	9	5	0	1	0	0	0	2	0	0	0	0	**17**
7:00 AM	0	32	29	0	4	4	0	0	4	0	0	0	0	**73**
8:00 AM	1	20	26	1	9	2	0	1	5	0	0	0	0	**65**
9:00 AM	0	22	41	2	3	4	0	0	7	0	0	0	0	**79**
10:00 AM	0	26	37	0	11	5	0	0	5	0	1	0	0	**85**
11:00 AM	0	20	39	1	6	4	0	0	2	0	0	0	0	**72**
12:00 PM	0	23	44	0	8	3	0	0	4	0	2	0	0	**84**
1:00 PM	0	19	30	2	7	5	0	0	4	0	0	0	0	**67**
2:00 PM	0	29	41	1	7	4	0	0	3	0	0	0	0	**85**
3:00 PM	0	82	50	3	9	1	0	0	2	0	0	0	0	**147**
4:00 PM	0	39	25	0	3	1	0	1	0	0	0	0	0	**69**
5:00 PM	1	25	11	0	2	0	0	1	0	0	0	0	0	**40**
6:00 PM	0	9	3	0	1	0	0	0	0	0	0	0	0	**13**
7:00 PM	0	2	2	0	2	0	0	0	0	0	0	0	0	**6**
8:00 PM	0	5	0	0	1	0	0	0	0	0	0	0	0	**6**
9:00 PM	0	5	0	0	0	0	0	0	0	0	0	0	0	**5**
10:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	**2**
11:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	**2**
Total	**2**	**388**	**392**	**10**	**78**	**33**	**0**	**5**	**38**	**0**	**3**	**1**	**0**	**950**
	0.2%	**40.8%**	**41.3%**	**1.1%**	**8.2%**	**3.5%**	**0.0%**	**0.5%**	**4.0%**	**0.0%**	**0.3%**	**0.1%**	**0.0%**	

Project Manager: (415) 310-6469
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Location: E Harney Ln, Between Jack Tone Rd & 17720 E Harney Ln Dwy
Date Range: 11/19/2024 to 11/19/2024
Site Code: 02

Total Study Average
Eastbound

Time	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
3:00 AM	0	1	2	1	0	0	0	0	0	0	0	0	0	**4**
4:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	**3**
5:00 AM	0	18	9	0	1	0	0	0	2	0	0	0	0	**30**
6:00 AM	0	79	31	0	1	4	0	0	4	0	0	0	0	**119**
7:00 AM	0	21	30	0	12	2	0	0	4	0	0	0	0	**69**
8:00 AM	0	18	35	0	5	3	0	1	4	0	0	0	0	**66**
9:00 AM	0	17	29	2	10	3	0	0	2	0	2	0	0	**65**
10:00 AM	0	13	37	1	11	7	0	0	7	0	0	0	0	**76**
11:00 AM	0	17	48	0	7	2	0	0	2	0	1	0	0	**77**
12:00 PM	0	12	30	3	10	4	0	0	4	0	0	0	0	**63**
1:00 PM	0	29	35	1	5	3	0	0	6	0	0	0	0	**79**
2:00 PM	1	33	50	1	9	2	0	0	2	0	0	0	0	**98**
3:00 PM	0	36	32	1	10	0	0	1	0	0	0	0	0	**80**
4:00 PM	0	27	25	0	3	0	0	0	0	0	0	0	0	**55**
5:00 PM	0	36	16	0	4	0	0	1	0	0	0	0	0	**57**
6:00 PM	0	15	4	0	3	0	0	1	0	0	0	0	0	**23**
7:00 PM	0	9	3	0	2	0	0	0	0	0	0	0	0	**14**
8:00 PM	0	11	4	0	1	0	0	0	0	0	0	0	0	**16**
9:00 PM	0	8	2	0	1	0	0	0	0	0	0	0	0	**11**
10:00 PM	0	7	0	0	0	0	0	0	0	0	0	0	0	**7**
11:00 PM	0	7	1	0	0	0	0	0	0	0	0	0	0	**8**
Total	**1**	**418**	**423**	**10**	**95**	**30**	**0**	**4**	**37**	**0**	**3**	**0**	**0**	**1,021**
	0.1%	**40.9%**	**41.4%**	**1.0%**	**9.3%**	**2.9%**	**0.0%**	**0.4%**	**3.6%**	**0.0%**	**0.3%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Location: E Harney Ln, Between Jack Tone Rd & 17720 E Harney Ln Dwy
Date Range: 11/19/2024 to 11/19/2024
Site Code: 02

Total Study Average
Westbound

Time	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
12:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	**1**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
3:00 AM	0	3	1	0	0	0	0	0	0	0	0	1	0	**5**
4:00 AM	0	3	1	0	0	0	0	1	0	0	0	0	0	**5**
5:00 AM	0	12	7	0	2	0	0	1	0	0	0	0	0	**22**
6:00 AM	0	9	5	0	1	0	0	0	2	0	0	0	0	**17**
7:00 AM	0	32	29	0	4	4	0	0	4	0	0	0	0	**73**
8:00 AM	1	20	26	1	9	2	0	1	5	0	0	0	0	**65**
9:00 AM	0	22	41	2	3	4	0	0	7	0	0	0	0	**79**
10:00 AM	0	26	37	0	11	5	0	0	5	0	1	0	0	**85**
11:00 AM	0	20	39	1	6	4	0	0	2	0	0	0	0	**72**
12:00 PM	0	23	44	0	8	3	0	0	4	0	2	0	0	**84**
1:00 PM	0	19	30	2	7	5	0	0	4	0	0	0	0	**67**
2:00 PM	0	29	41	1	7	4	0	0	3	0	0	0	0	**85**
3:00 PM	0	82	50	3	9	1	0	0	2	0	0	0	0	**147**
4:00 PM	0	39	25	0	3	1	0	1	0	0	0	0	0	**69**
5:00 PM	1	25	11	0	2	0	0	1	0	0	0	0	0	**40**
6:00 PM	0	9	3	0	1	0	0	0	0	0	0	0	0	**13**
7:00 PM	0	2	2	0	2	0	0	0	0	0	0	0	0	**6**
8:00 PM	0	5	0	0	1	0	0	0	0	0	0	0	0	**6**
9:00 PM	0	5	0	0	0	0	0	0	0	0	0	0	0	**5**
10:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	**2**
11:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	**2**
Total	**2**	**388**	**392**	**10**	**78**	**33**	**0**	**5**	**38**	**0**	**3**	**1**	**0**	**950**
	0.2%	**40.8%**	**41.3%**	**1.1%**	**8.2%**	**3.5%**	**0.0%**	**0.5%**	**4.0%**	**0.0%**	**0.3%**	**0.1%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Vehicle Speed Report Summary

idax DATA SOLUTIONS

Location: E Harney Ln, Between Jack Tone Rd & 17720 E Harney Ln Dwy

Direction: Eastbound / Westbound

Date Range: 11/19/2024 to 11/19/2024

Site Code: 02

Direction	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
Eastbound	0	0	4	2	9	15	19	36	85	197	288	206	97	42	13	7	1	1,021
	0.0%	0.0%	0.4%	0.2%	0.9%	1.5%	1.9%	3.5%	8.3%	19.3%	28.2%	20.2%	9.5%	4.1%	1.3%	0.7%	0.1%	
Westbound	0	3	1	2	2	8	9	24	64	177	269	233	98	39	6	8	7	950
	0.0%	0.3%	0.1%	0.2%	0.2%	0.8%	0.9%	2.5%	6.7%	18.6%	28.3%	24.5%	10.3%	4.1%	0.6%	0.8%	0.7%	
Total	0	3	5	4	11	23	28	60	149	374	557	439	195	81	19	15	8	1,971
	0.0%	0.2%	0.3%	0.2%	0.6%	1.2%	1.4%	3.0%	7.6%	19.0%	28.3%	22.3%	9.9%	4.1%	1.0%	0.8%	0.4%	

Total Study Percentile Speed Summary			Total Study Speed Statistics		
Eastbound			**Eastbound**		
50th Percentile (Median)	57.7	mph	Mean (Average) Speed	57.0	mph
85th Percentile	65.3	mph	10 mph Pace	53.6 - 63.6	mph
95th Percentile	71.1	mph	Percent in Pace	51.8	%
Westbound			**Westbound**		
50th Percentile (Median)	58.0	mph	Mean (Average) Speed	58.2	mph
85th Percentile	65.9	mph	10 mph Pace	53.1 - 63.1	mph
95th Percentile	71.2	mph	Percent in Pace	55.3	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: E Harney Ln, Between Jack Tone Rd & 17720 E Harney Ln Dwy
Date Range: 11/19/2024 to 11/19/2024
Site Code: 02

Tuesday, November 19, 2024
Eastbound

Time	Speed Range (mph)																	Total
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	Volume
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	**1**
3:00 AM	0	0	0	0	0	0	0	0	1	0	2	0	0	0	1	0	0	**4**
4:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	**3**
5:00 AM	0	0	0	0	0	0	0	0	1	3	10	8	4	2	0	1	1	**30**
6:00 AM	0	0	0	0	2	3	2	2	7	18	23	25	20	12	2	3	0	**119**
7:00 AM	0	0	2	0	3	0	4	1	10	9	16	14	6	3	0	1	0	**69**
8:00 AM	0	0	0	0	0	1	2	4	6	16	19	11	2	4	1	0	0	**66**
9:00 AM	0	0	0	0	0	0	2	2	6	17	20	14	4	0	0	0	0	**65**
10:00 AM	0	0	0	0	1	1	2	4	14	21	18	11	4	0	0	0	0	**76**
11:00 AM	0	0	1	1	0	0	1	1	6	18	32	11	3	3	0	0	0	**77**
12:00 PM	0	0	0	0	0	0	0	7	4	13	21	11	6	1	0	0	0	**63**
1:00 PM	0	0	0	0	0	2	2	1	7	16	21	24	4	1	1	0	0	**79**
2:00 PM	0	0	0	0	0	4	3	8	9	11	35	17	8	0	2	1	0	**98**
3:00 PM	0	0	1	1	1	4	1	2	8	21	18	13	8	2	0	0	0	**80**
4:00 PM	0	0	0	0	0	0	0	3	1	4	11	16	13	6	0	1	0	**55**
5:00 PM	0	0	0	0	1	0	0	0	4	13	20	10	5	1	3	0	0	**57**
6:00 PM	0	0	0	0	1	0	0	0	0	4	6	6	3	2	1	0	0	**23**
7:00 PM	0	0	0	0	0	0	0	1	1	5	3	3	1	0	0	0	0	**14**
8:00 PM	0	0	0	0	0	0	0	0	0	2	4	4	5	1	0	0	0	**16**
9:00 PM	0	0	0	0	0	0	0	0	0	0	4	4	0	1	2	0	0	**11**
10:00 PM	0	0	0	0	0	0	0	0	0	1	2	2	1	1	0	0	0	**7**
11:00 PM	0	0	0	0	0	0	0	0	0	5	1	2	0	0	0	0	0	**8**
Total	**0**	**0**	**4**	**2**	**9**	**15**	**19**	**36**	**85**	**197**	**288**	**206**	**97**	**42**	**13**	**7**	**1**	**1,021**
	0.0%	**0.0%**	**0.4%**	**0.2%**	**0.9%**	**1.5%**	**1.9%**	**3.5%**	**8.3%**	**19.3%**	**28.2%**	**20.2%**	**9.5%**	**4.1%**	**1.3%**	**0.7%**	**0.1%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	57.7	mph	Mean (Average) Speed	57.0	mph
85th Percentile	65.3	mph	10 mph Pace	53.6 - 63.6	mph
95th Percentile	71.1	mph	Percent in Pace	51.8	%

Location: E Harney Ln, Between Jack Tone Rd & 17720 E Harney Ln Dwy
Date Range: 11/19/2024 to 11/19/2024
Site Code: 02

Tuesday, November 19, 2024
Westbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	**1**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
3:00 AM	0	0	0	0	0	0	0	0	0	1	1	0	2	1	0	0	0	**5**
4:00 AM	0	0	0	0	0	0	0	0	1	1	2	0	0	1	0	0	0	**5**
5:00 AM	0	0	0	0	0	0	0	0	0	3	3	3	9	1	0	2	1	**22**
6:00 AM	0	0	0	0	1	0	0	0	1	0	6	2	6	1	0	0	0	**17**
7:00 AM	0	0	0	1	0	0	1	4	5	18	16	18	7	1	0	1	1	**73**
8:00 AM	0	0	0	0	0	1	0	1	2	11	19	16	8	6	1	0	0	**65**
9:00 AM	0	0	0	0	0	0	0	0	4	18	21	22	8	5	0	0	1	**79**
10:00 AM	0	0	0	0	0	0	1	4	10	12	29	17	10	1	1	0	0	**85**
11:00 AM	0	0	0	0	0	1	1	5	6	17	18	19	5	0	0	0	0	**72**
12:00 PM	0	0	0	0	0	0	0	1	4	15	30	25	6	0	1	2	0	**84**
1:00 PM	0	3	1	0	0	0	0	1	5	9	23	17	5	1	2	0	0	**67**
2:00 PM	0	0	0	0	0	2	2	2	4	27	25	17	4	2	0	0	0	**85**
3:00 PM	0	0	0	1	1	1	2	5	15	32	38	27	10	10	0	2	3	**147**
4:00 PM	0	0	0	0	0	1	1	1	3	5	21	24	8	5	0	0	0	**69**
5:00 PM	0	0	0	0	0	2	1	0	4	6	8	10	6	2	1	0	0	**40**
6:00 PM	0	0	0	0	0	0	0	0	0	1	7	3	1	0	0	1	0	**13**
7:00 PM	0	0	0	0	0	0	0	0	0	0	1	2	2	1	0	0	0	**6**
8:00 PM	0	0	0	0	0	0	0	0	0	1	0	5	0	0	0	0	0	**6**
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	**5**
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	**2**
11:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	**2**
Total	**0**	**3**	**1**	**2**	**2**	**8**	**9**	**24**	**64**	**177**	**269**	**233**	**98**	**39**	**6**	**8**	**7**	**950**
	0.0%	**0.3%**	**0.1%**	**0.2%**	**0.2%**	**0.8%**	**0.9%**	**2.5%**	**6.7%**	**18.6%**	**28.3%**	**24.5%**	**10.3%**	**4.1%**	**0.6%**	**0.8%**	**0.7%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	58.0	mph	Mean (Average) Speed	58.2	mph
85th Percentile	65.9	mph	10 mph Pace	53.1 - 63.1	mph
95th Percentile	71.2	mph	Percent in Pace	55.26	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: E Harney Ln, Between Jack Tone Rd & 17720 E Harney Ln Dwy
Date Range: 11/19/2024 to 11/19/2024
Site Code: 02

Total Study Average
Eastbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	**1**
3:00 AM	0	0	0	0	0	0	0	0	1	0	2	0	0	0	1	0	0	**4**
4:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	**3**
5:00 AM	0	0	0	0	0	0	0	0	1	3	10	8	4	2	0	1	1	**30**
6:00 AM	0	0	0	0	2	3	2	2	7	18	23	25	20	12	2	3	0	**119**
7:00 AM	0	0	2	0	3	0	4	1	10	9	16	14	6	3	0	1	0	**69**
8:00 AM	0	0	0	0	0	1	2	4	6	16	19	11	2	4	1	0	0	**66**
9:00 AM	0	0	0	0	0	0	2	2	6	17	20	14	4	0	0	0	0	**65**
10:00 AM	0	0	0	0	1	1	2	4	14	21	18	11	4	0	0	0	0	**76**
11:00 AM	0	0	1	1	0	0	1	1	6	18	32	11	3	3	0	0	0	**77**
12:00 PM	0	0	0	0	0	0	0	7	4	13	21	11	6	1	0	0	0	**63**
1:00 PM	0	0	0	0	0	2	2	1	7	16	21	24	4	1	1	0	0	**79**
2:00 PM	0	0	0	0	0	4	3	8	9	11	35	17	8	0	2	1	0	**98**
3:00 PM	0	0	1	1	1	4	1	2	8	21	18	13	8	2	0	0	0	**80**
4:00 PM	0	0	0	0	0	0	0	3	1	4	11	16	13	6	0	1	0	**55**
5:00 PM	0	0	0	0	1	0	0	0	4	13	20	10	5	1	3	0	0	**57**
6:00 PM	0	0	0	0	1	0	0	0	0	4	6	6	3	2	1	0	0	**23**
7:00 PM	0	0	0	0	0	0	0	1	1	5	3	3	1	0	0	0	0	**14**
8:00 PM	0	0	0	0	0	0	0	0	0	2	4	4	5	1	0	0	0	**16**
9:00 PM	0	0	0	0	0	0	0	0	0	0	4	4	0	1	2	0	0	**11**
10:00 PM	0	0	0	0	0	0	0	0	0	1	2	2	1	1	0	0	0	**7**
11:00 PM	0	0	0	0	0	0	0	0	0	5	1	2	0	0	0	0	0	**8**
Total	**0**	**0**	**4**	**2**	**9**	**15**	**19**	**36**	**85**	**197**	**288**	**206**	**97**	**42**	**13**	**7**	**1**	**1,021**
	0.0%	**0.0%**	**0.4%**	**0.2%**	**0.9%**	**1.5%**	**1.9%**	**3.5%**	**8.3%**	**19.3%**	**28.2%**	**20.2%**	**9.5%**	**4.1%**	**1.3%**	**0.7%**	**0.1%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	57.7	mph	Mean (Average) Speed	57.0	mph
85th Percentile	65.3	mph	10 mph Pace	53.6 - 63.6	mph
95th Percentile	71.1	mph	Percent in Pace	51.8	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: E Harney Ln, Between Jack Tone Rd & 17720 E Harney Ln Dwy
Date Range: 11/19/2024 to 11/19/2024
Site Code: 02

idax DATA SOLUTIONS

Total Study Average
Westbound

Time	Speed Range (mph)																	Total
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	Volume
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	**1**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
3:00 AM	0	0	0	0	0	0	0	0	0	1	1	0	2	1	0	0	0	**5**
4:00 AM	0	0	0	0	0	0	0	0	1	1	2	0	0	1	0	0	0	**5**
5:00 AM	0	0	0	0	0	0	0	0	0	3	3	3	9	1	0	2	1	**22**
6:00 AM	0	0	0	0	1	0	0	0	1	0	6	2	6	1	0	0	0	**17**
7:00 AM	0	0	0	1	0	0	1	4	5	18	16	18	7	1	0	1	1	**73**
8:00 AM	0	0	0	0	0	1	0	1	2	11	19	16	8	6	1	0	0	**65**
9:00 AM	0	0	0	0	0	0	0	0	4	18	21	22	8	5	0	0	1	**79**
10:00 AM	0	0	0	0	0	0	1	4	10	12	29	17	10	1	1	0	0	**85**
11:00 AM	0	0	0	0	0	1	1	5	6	17	18	19	5	0	0	0	0	**72**
12:00 PM	0	0	0	0	0	0	0	1	4	15	30	25	6	0	1	2	0	**84**
1:00 PM	0	3	1	0	0	0	0	1	5	9	23	17	5	1	2	0	0	**67**
2:00 PM	0	0	0	0	0	2	2	2	4	27	25	17	4	2	0	0	0	**85**
3:00 PM	0	0	0	1	1	1	2	5	15	32	38	27	10	10	0	2	3	**147**
4:00 PM	0	0	0	0	0	1	1	1	3	5	21	24	8	5	0	0	0	**69**
5:00 PM	0	0	0	0	0	2	1	0	4	6	8	10	6	2	1	0	0	**40**
6:00 PM	0	0	0	0	0	0	0	0	0	1	7	3	1	0	0	1	0	**13**
7:00 PM	0	0	0	0	0	0	0	0	0	0	1	2	2	1	0	0	0	**6**
8:00 PM	0	0	0	0	0	0	0	0	0	1	0	5	0	0	0	0	0	**6**
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	**5**
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	**2**
11:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	**2**
Total	**0**	**3**	**1**	**2**	**2**	**8**	**9**	**24**	**64**	**177**	**269**	**233**	**98**	**39**	**6**	**8**	**7**	**950**
	0.0%	**0.3%**	**0.1%**	**0.2%**	**0.2%**	**0.8%**	**0.9%**	**2.5%**	**6.7%**	**18.6%**	**28.3%**	**24.5%**	**10.3%**	**4.1%**	**0.6%**	**0.8%**	**0.7%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	58.0	mph	Mean (Average) Speed	58.2	mph
85th Percentile	65.9	mph	10 mph Pace	53.1 - 63.1	mph
95th Percentile	71.2	mph	Percent in Pace	55.3	%

Location: E Harney Ln, Between Jack Tone Rd & 17720 E Harney Ln Dwy
Date Range: 11/19/2024 - 11/25/2024
Site Code: 02

Time	Tuesday 11/19/2024			Wednesday 11/20/2024			Thursday 11/21/2024			Friday 11/22/2024			Saturday 11/23/2024			Sunday 11/24/2024			Monday 11/25/2024			Mid-Week Average		
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total
12:00 AM	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	1	1
1:00 AM	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
2:00 AM	1	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	1
3:00 AM	4	5	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	5	9
4:00 AM	3	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	5	8
5:00 AM	30	22	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	22	52
6:00 AM	**119**	17	136	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**119**	17	136
7:00 AM	69	73	142	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	69	73	142
8:00 AM	66	65	131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66	65	131
9:00 AM	65	79	144	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65	79	144
10:00 AM	76	**85**	**161**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76	**85**	**161**
11:00 AM	77	72	149	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77	72	149
12:00 PM	63	84	147	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63	84	147
1:00 PM	79	67	146	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	79	67	146
2:00 PM	**98**	85	183	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**98**	85	183
3:00 PM	80	**147**	**227**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	**147**	**227**
4:00 PM	55	69	124	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55	69	124
5:00 PM	57	40	97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57	40	97
6:00 PM	23	13	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	13	36
7:00 PM	14	6	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	6	20
8:00 PM	16	6	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	6	22
9:00 PM	11	5	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	5	16
10:00 PM	7	2	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	2	9
11:00 PM	8	2	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	2	10
Total	**1,021**	**950**	**1,971**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1,021**	**950**	**1,971**
Percent	**52%**	**48%**		-	-		-	-		-	-		-	-		-	-		-	-		**52%**	**48%**	
AM Peak	06:00	10:00	10:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	06:00	10:00	10:00
Vol.	119	85	161	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	119	85	161
PM Peak	14:00	15:00	15:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14:00	15:00	15:00
Vol.	98	147	227	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	98	147	227

1. Mid-week average includes data between Tuesday and Thursday.

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Vehicle Classification Report Summary

IDAX DATA SOLUTIONS

Location: 17720 E Harney Ln Dwy, S/O E Harney Ln

Count Direction: Northbound / Southbound

Date Range: 11/19/2024 to 11/19/2024

Site Code: 04

Direction	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
Northbound	2	87	248	7	40	36	0	1	18	0	0	0	0	439
	0.5%	19.8%	56.5%	1.6%	9.1%	8.2%	0.0%	0.2%	4.1%	0.0%	0.0%	0.0%	0.0%	
Southbound	2	86	249	9	37	33	0	1	15	1	0	0	0	433
	0.5%	19.9%	57.5%	2.1%	8.5%	7.6%	0.0%	0.2%	3.5%	0.2%	0.0%	0.0%	0.0%	
Total	4	173	497	16	77	69	0	2	33	1	0	0	0	872
	0.5%	19.8%	57.0%	1.8%	8.8%	7.9%	0.0%	0.2%	3.8%	0.1%	0.0%	0.0%	0.0%	

FHWA Vehicle Classification	
Class 1 - Motorcycles	Class 8 - Four or Fewer Axle Single-Trailer Trucks
Class 2 - Passenger Cars	Class 9 - Five-Axle Single-Trailer Trucks
Class 3 - Other Two-Axle, Four-Tire Single Unit Vehicles	Class 10 - Six or More Axle Single-Trailer Trucks
Class 4 - Buses	Class 11 - Five or fewer Axle Multi-Trailer Trucks
Class 5 - Two-Axle, Six-Tire, Single-Unit Trucks	Class 12 - Six-Axle Multi-Trailer Trucks
Class 6 - Three-Axle Single-Unit Trucks	Class 13 - Seven or More Axle Multi-Trailer Trucks
Class 7 - Four or More Axle Single-Unit Trucks	

Location: 17720 E Harney Ln Dwy, S/O E Harney Ln
Date Range: 11/19/2024 to 11/19/2024
Site Code: 04

Tuesday, November 19, 2024
Northbound

Time	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7:00 AM	0	5	17	0	2	4	0	0	1	0	0	0	0	**29**
8:00 AM	1	1	20	0	4	2	0	0	2	0	0	0	0	**30**
9:00 AM	1	10	21	2	1	6	0	0	5	0	0	0	0	**46**
10:00 AM	0	9	28	0	7	6	0	0	2	0	0	0	0	**52**
11:00 AM	0	10	28	1	3	4	0	0	1	0	0	0	0	**47**
12:00 PM	0	3	40	0	6	3	0	0	3	0	0	0	0	**55**
1:00 PM	0	8	22	1	5	5	0	0	2	0	0	0	0	**43**
2:00 PM	0	7	26	1	4	5	0	1	1	0	0	0	0	**45**
3:00 PM	0	19	39	2	5	1	0	0	1	0	0	0	0	**67**
4:00 PM	0	8	2	0	3	0	0	0	0	0	0	0	0	**13**
5:00 PM	0	7	5	0	0	0	0	0	0	0	0	0	0	**12**
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**2**	**87**	**248**	**7**	**40**	**36**	**0**	**1**	**18**	**0**	**0**	**0**	**0**	**439**
	0.5%	**19.8%**	**56.5%**	**1.6%**	**9.1%**	**8.2%**	**0.0%**	**0.2%**	**4.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: 17720 E Harney Ln Dwy, S/O E Harney Ln
Date Range: 11/19/2024 to 11/19/2024
Site Code: 04

Tuesday, November 19, 2024
Southbound

Time	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	1
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	6	1	0	0	0	0	0	0	0	0	0	0	7
6:00 AM	1	12	8	0	0	3	0	0	1	0	0	0	0	25
7:00 AM	0	13	17	0	5	3	0	0	2	0	0	0	0	40
8:00 AM	0	7	25	0	3	2	0	1	4	0	0	0	0	42
9:00 AM	0	8	24	2	4	4	0	0	1	0	0	0	0	43
10:00 AM	0	13	30	1	5	7	0	0	2	1	0	0	0	59
11:00 AM	0	4	37	0	3	2	0	0	2	0	0	0	0	48
12:00 PM	1	2	27	2	8	4	0	0	2	0	0	0	0	46
1:00 PM	0	13	23	0	3	3	0	0	0	0	0	0	0	42
2:00 PM	0	4	36	1	2	3	0	0	1	0	0	0	0	47
3:00 PM	0	4	21	2	4	2	0	0	0	0	0	0	0	33
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	86	249	9	37	33	0	1	15	1	0	0	0	433
	0.5%	19.9%	57.5%	2.1%	8.5%	7.6%	0.0%	0.2%	3.5%	0.2%	0.0%	0.0%	0.0%	

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: 17720 E Harney Ln Dwy, S/O E Harney Ln
Date Range: 11/19/2024 to 11/19/2024
Site Code: 04

Total Study Average
Northbound

Time	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7:00 AM	0	5	17	0	2	4	0	0	1	0	0	0	0	**29**
8:00 AM	1	1	20	0	4	2	0	0	2	0	0	0	0	**30**
9:00 AM	1	10	21	2	1	6	0	0	5	0	0	0	0	**46**
10:00 AM	0	9	28	0	7	6	0	0	2	0	0	0	0	**52**
11:00 AM	0	10	28	1	3	4	0	0	1	0	0	0	0	**47**
12:00 PM	0	3	40	0	6	3	0	0	3	0	0	0	0	**55**
1:00 PM	0	8	22	1	5	5	0	0	2	0	0	0	0	**43**
2:00 PM	0	7	26	1	4	5	0	1	1	0	0	0	0	**45**
3:00 PM	0	19	39	2	5	1	0	0	1	0	0	0	0	**67**
4:00 PM	0	8	2	0	3	0	0	0	0	0	0	0	0	**13**
5:00 PM	0	7	5	0	0	0	0	0	0	0	0	0	0	**12**
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**2**	**87**	**248**	**7**	**40**	**36**	**0**	**1**	**18**	**0**	**0**	**0**	**0**	**439**
	0.5%	**19.8%**	**56.5%**	**1.6%**	**9.1%**	**8.2%**	**0.0%**	**0.2%**	**4.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Location: 17720 E Harney Ln Dwy, S/O E Harney Ln
Date Range: 11/19/2024 to 11/19/2024
Site Code: 04

Total Study Average
Southbound

Time	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
3:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:00 AM	0	6	1	0	0	0	0	0	0	0	0	0	0	**7**
6:00 AM	1	12	8	0	0	3	0	0	1	0	0	0	0	**25**
7:00 AM	0	13	17	0	5	3	0	0	2	0	0	0	0	**40**
8:00 AM	0	7	25	0	3	2	0	1	4	0	0	0	0	**42**
9:00 AM	0	8	24	2	4	4	0	0	1	0	0	0	0	**43**
10:00 AM	0	13	30	1	5	7	0	0	2	1	0	0	0	**59**
11:00 AM	0	4	37	0	3	2	0	0	2	0	0	0	0	**48**
12:00 PM	1	2	27	2	8	4	0	0	2	0	0	0	0	**46**
1:00 PM	0	13	23	0	3	3	0	0	0	0	0	0	0	**42**
2:00 PM	0	4	36	1	2	3	0	0	1	0	0	0	0	**47**
3:00 PM	0	4	21	2	4	2	0	0	0	0	0	0	0	**33**
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**2**	**86**	**249**	**9**	**37**	**33**	**0**	**1**	**15**	**1**	**0**	**0**	**0**	**433**
	0.5%	**19.9%**	**57.5%**	**2.1%**	**8.5%**	**7.6%**	**0.0%**	**0.2%**	**3.5%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Vehicle Speed Report Summary

idax DATA SOLUTIONS

Location: 17720 E Harney Ln Dwy, S/O E Harney Ln

Direction: Northbound / Southbound

Date Range: 11/19/2024 to 11/19/2024

Site Code: 04

Direction	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
Northbound	1	6	13	70	136	132	75	6	0	0	0	0	0	0	0	0	0	439
	0.2%	1.4%	3.0%	15.9%	31.0%	30.1%	17.1%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Southbound	2	8	30	105	169	88	24	5	1	1	0	0	0	0	0	0	0	433
	0.5%	1.8%	6.9%	24.2%	39.0%	20.3%	5.5%	1.2%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Total	3	14	43	175	305	220	99	11	1	1	0	0	0	0	0	0	0	872
	0.3%	1.6%	4.9%	20.1%	35.0%	25.2%	11.4%	1.3%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

Total Study Percentile Speed Summary			Total Study Speed Statistics		
Northbound			**Northbound**		
50th Percentile (Median)	29.8	mph	Mean (Average) Speed	29.5	mph
85th Percentile	35.6	mph	10 mph Pace	23.4 - 33.4	mph
95th Percentile	38.4	mph	Percent in Pace	64.0	%
Southbound			**Southbound**		
50th Percentile (Median)	27.0	mph	Mean (Average) Speed	27.0	mph
85th Percentile	32.6	mph	10 mph Pace	21.1 - 31.1	mph
95th Percentile	36.4	mph	Percent in Pace	66.1	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: 17720 E Harney Ln Dwy, S/O E Harney Ln
Date Range: 11/19/2024 to 11/19/2024
Site Code: 04

DATA SOLUTIONS

Tuesday, November 19, 2024
Northbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7:00 AM	0	0	0	5	10	8	6	0	0	0	0	0	0	0	0	0	0	**29**
8:00 AM	1	1	0	6	7	11	4	0	0	0	0	0	0	0	0	0	0	**30**
9:00 AM	0	0	1	7	15	16	6	1	0	0	0	0	0	0	0	0	0	**46**
10:00 AM	0	1	1	9	15	19	7	0	0	0	0	0	0	0	0	0	0	**52**
11:00 AM	0	1	1	9	17	14	5	0	0	0	0	0	0	0	0	0	0	**47**
12:00 PM	0	0	4	5	17	19	8	2	0	0	0	0	0	0	0	0	0	**55**
1:00 PM	0	0	3	10	13	11	5	1	0	0	0	0	0	0	0	0	0	**43**
2:00 PM	0	2	2	9	14	9	8	1	0	0	0	0	0	0	0	0	0	**45**
3:00 PM	0	0	0	8	23	20	15	1	0	0	0	0	0	0	0	0	0	**67**
4:00 PM	0	0	1	2	2	3	5	0	0	0	0	0	0	0	0	0	0	**13**
5:00 PM	0	1	0	0	3	2	6	0	0	0	0	0	0	0	0	0	0	**12**
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**1**	**6**	**13**	**70**	**136**	**132**	**75**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**439**
	0.2%	**1.4%**	**3.0%**	**15.9%**	**31.0%**	**30.1%**	**17.1%**	**1.4%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	29.8	mph	Mean (Average) Speed	29.5	mph
85th Percentile	35.6	mph	10 mph Pace	23.4 - 33.4	mph
95th Percentile	38.4	mph	Percent in Pace	64.0	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: 17720 E Harney Ln Dwy, S/O E Harney Ln
Date Range: 11/19/2024 to 11/19/2024
Site Code: 04

Tuesday, November 19, 2024
Southbound

Time	Speed Range (mph)																	Total
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	Volume
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
3:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:00 AM	1	1	1	0	2	1	0	0	1	0	0	0	0	0	0	0	0	**7**
6:00 AM	0	4	2	0	7	10	0	2	0	0	0	0	0	0	0	0	0	**25**
7:00 AM	0	1	1	4	15	13	3	2	0	1	0	0	0	0	0	0	0	**40**
8:00 AM	0	0	4	11	16	10	0	1	0	0	0	0	0	0	0	0	0	**42**
9:00 AM	0	1	0	11	20	6	5	0	0	0	0	0	0	0	0	0	0	**43**
10:00 AM	0	0	6	22	25	5	1	0	0	0	0	0	0	0	0	0	0	**59**
11:00 AM	0	0	5	12	20	8	3	0	0	0	0	0	0	0	0	0	0	**48**
12:00 PM	0	0	5	11	21	5	4	0	0	0	0	0	0	0	0	0	0	**46**
1:00 PM	0	0	2	11	17	11	1	0	0	0	0	0	0	0	0	0	0	**42**
2:00 PM	1	0	3	14	12	12	5	0	0	0	0	0	0	0	0	0	0	**47**
3:00 PM	0	0	1	9	14	7	2	0	0	0	0	0	0	0	0	0	0	**33**
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**2**	**8**	**30**	**105**	**169**	**88**	**24**	**5**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**433**
	0.5%	**1.8%**	**6.9%**	**24.2%**	**39.0%**	**20.3%**	**5.5%**	**1.2%**	**0.2%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	27.0	mph	Mean (Average) Speed	27	mph
85th Percentile	32.6	mph	10 mph Pace	21.1 - 31.1	mph
95th Percentile	36.4	mph	Percent in Pace	66.05	%

Location: 17720 E Harney Ln Dwy, S/O E Harney Ln
Date Range: 11/19/2024 to 11/19/2024
Site Code: 04

Total Study Average
Northbound

Time	Speed Range (mph)																	Total
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	Volume
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7:00 AM	0	0	0	5	10	8	6	0	0	0	0	0	0	0	0	0	0	**29**
8:00 AM	1	1	0	6	7	11	4	0	0	0	0	0	0	0	0	0	0	**30**
9:00 AM	0	0	1	7	15	16	6	1	0	0	0	0	0	0	0	0	0	**46**
10:00 AM	0	1	1	9	15	19	7	0	0	0	0	0	0	0	0	0	0	**52**
11:00 AM	0	1	1	9	17	14	5	0	0	0	0	0	0	0	0	0	0	**47**
12:00 PM	0	0	4	5	17	19	8	2	0	0	0	0	0	0	0	0	0	**55**
1:00 PM	0	0	3	10	13	11	5	1	0	0	0	0	0	0	0	0	0	**43**
2:00 PM	0	2	2	9	14	9	8	1	0	0	0	0	0	0	0	0	0	**45**
3:00 PM	0	0	0	8	23	20	15	1	0	0	0	0	0	0	0	0	0	**67**
4:00 PM	0	0	1	2	2	3	5	0	0	0	0	0	0	0	0	0	0	**13**
5:00 PM	0	1	0	0	3	2	6	0	0	0	0	0	0	0	0	0	0	**12**
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**1**	**6**	**13**	**70**	**136**	**132**	**75**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**439**
	0.2%	**1.4%**	**3.0%**	**15.9%**	**31.0%**	**30.1%**	**17.1%**	**1.4%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	29.8	mph	Mean (Average) Speed	29.5	mph
85th Percentile	35.6	mph	10 mph Pace	23.4 - 33.4	mph
95th Percentile	38.4	mph	Percent in Pace	64.0	%

Location: 17720 E Harney Ln Dwy, S/O E Harney Ln
Date Range: 11/19/2024 to 11/19/2024
Site Code: 04

Total Study Average
Southbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
3:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:00 AM	1	1	1	0	2	1	0	0	1	0	0	0	0	0	0	0	0	**7**
6:00 AM	0	4	2	0	7	10	0	2	0	0	0	0	0	0	0	0	0	**25**
7:00 AM	0	1	1	4	15	13	3	2	0	1	0	0	0	0	0	0	0	**40**
8:00 AM	0	0	4	11	16	10	0	1	0	0	0	0	0	0	0	0	0	**42**
9:00 AM	0	1	0	11	20	6	5	0	0	0	0	0	0	0	0	0	0	**43**
10:00 AM	0	0	6	22	25	5	1	0	0	0	0	0	0	0	0	0	0	**59**
11:00 AM	0	0	5	12	20	8	3	0	0	0	0	0	0	0	0	0	0	**48**
12:00 PM	0	0	5	11	21	5	4	0	0	0	0	0	0	0	0	0	0	**46**
1:00 PM	0	0	2	11	17	11	1	0	0	0	0	0	0	0	0	0	0	**42**
2:00 PM	1	0	3	14	12	12	5	0	0	0	0	0	0	0	0	0	0	**47**
3:00 PM	0	0	1	9	14	7	2	0	0	0	0	0	0	0	0	0	0	**33**
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	2	8	30	105	169	88	24	5	1	1	0	0	0	0	0	0	0	433
	0.5%	1.8%	6.9%	24.2%	39.0%	20.3%	5.5%	1.2%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	27.0	mph	Mean (Average) Speed	27.0	mph
85th Percentile	32.6	mph	10 mph Pace	21.1 - 31.1	mph
95th Percentile	36.4	mph	Percent in Pace	66.1	%

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Location: 17720 E Harney Ln Dwy, S/O E Harney Ln
Date Range: 11/19/2024 - 11/25/2024
Site Code: 04

Time	Tuesday 11/19/2024			Wednesday 11/20/2024			Thursday 11/21/2024			Friday 11/22/2024			Saturday 11/23/2024			Sunday 11/24/2024			Monday 11/25/2024			Mid-Week Average		
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
1:00 AM	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
2:00 AM	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
3:00 AM	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	1	1
4:00 AM	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
5:00 AM	0	7	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	7	7
6:00 AM	0	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	25	25
7:00 AM	29	40	69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29	40	69
8:00 AM	30	42	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	42	72
9:00 AM	46	43	89	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46	43	89
10:00 AM	**52**	**59**	**111**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**52**	**59**	**111**
11:00 AM	47	48	95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47	48	95
12:00 PM	55	46	**101**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55	46	**101**
1:00 PM	43	42	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	42	85
2:00 PM	45	**47**	92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45	**47**	92
3:00 PM	**67**	33	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**67**	33	100
4:00 PM	13	0	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	0	13
5:00 PM	12	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	0	12
6:00 PM	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
7:00 PM	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
8:00 PM	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
9:00 PM	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
10:00 PM	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
11:00 PM	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0
Total	**439**	**433**	**872**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**439**	**433**	**872**
Percent	**50%**	**50%**		-	-		-	-		-	-		-	-		-	-		-	-		**50%**	**50%**	
AM Peak	10:00	10:00	10:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10:00	10:00	10:00
Vol.	52	59	111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	59	111
PM Peak	15:00	14:00	12:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15:00	14:00	12:00
Vol.	67	47	101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	67	47	101

1. Mid-week average includes data between Tuesday and Thursday.

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Intersection Collision Rate Worksheet

Foothill and North County Landfills ISMND

Intersection # 1: SR-88 & E Harney Ln
Date of Count: Tuesday, November 19, 2024

Number of Collisions: 10
Number of Injuries: 10
Number of Fatalities: 0
Average Daily Traffic (ADT): 10500
Start Date: July 1, 2019
End Date: June 30, 2024
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Rural

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{10 \quad x \quad 1{,}000{,}000}{10{,}500 \quad x \quad 365 \quad x \quad 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.52 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.74 c/mve**	**0.6%**	**34.2%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2022 Collision Data on California State Highways, Caltrans

Intersection # 2: E Harney Ln & Jake Tone Rd
Date of Count: Tuesday, November 19, 2024

Number of Collisions: 3
Number of Injuries: 3
Number of Fatalities: 0
Average Daily Traffic (ADT): 5300
Start Date: July 1, 2019
End Date: June 30, 2024
Number of Years: 5

Intersection Type: Four-Legged
Control Type: 4 Way Stop
Area: Rural

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{3 \quad x \quad 1{,}000{,}000}{5{,}300 \quad x \quad 365 \quad x \quad 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.31 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.59 c/mve**	**1.0%**	**33.3%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2022 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Worksheet

Foothill and North County Landfills ISMND

Intersection # 3: E Harney Ln & Site Access
Date of Count: Tuesday, November 19, 2024

Number of Collisions: 1
Number of Injuries: 1
Number of Fatalities: 0
Average Daily Traffic (ADT): 1900
Start Date: July 1, 2019
End Date: June 30, 2024
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Rural

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{1 \quad \text{x} \quad 1{,}000{,}000}{1{,}900 \quad \text{x} \quad 365 \quad \text{x} \quad 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.29 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.29 c/mve**	**1.7%**	**39.8%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2022 Collision Data on California State Highways, Caltrans

Intersection # 4: E Harney Ln & Clements Rd
Date of Count: Tuesday, November 19, 2024

Number of Collisions: 5
Number of Injuries: 5
Number of Fatalities: 0
Average Daily Traffic (ADT): 2200
Start Date: July 1, 2019
End Date: June 30, 2024
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Stop & Yield Controls
Area: Rural

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{5 \quad \text{x} \quad 1{,}000{,}000}{2{,}200 \quad \text{x} \quad 365 \quad \text{x} \quad 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**1.25 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.36 c/mve**	**2.4%**	**43.4%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2022 Collision Data on California State Highways, Caltrans

Roadway Segment Collision Rate Worksheet

Foothill and North County Landfills ISMND

Location: E Harney Ln Btwn SR-99 & SR-88

Date of Count: Tuesday, November 19, 2024
Average Daily Traffic (ADT): 4,300

Number of Collisions: 42
Number of Injuries: 41
Number of Fatalities: 0
Start Date: July 1, 2019
End Date: June 30, 2024
Number of Years: 5

Highway Type: Conventional 2 lanes or less
Area: Rural
Design Speed: ≤55
Terrain: Flat

Segment Length: 4.5 miles
Direction: East/West

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Segment Length x Number of Years}}$$

$$\text{Collision Rate} = \frac{42 \times 1{,}000{,}000}{4{,}300 \times 365 \times 4.5 \times 5}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Segment	**1.19**	**c/mvm**	**0.0%**	**97.6%**
Statewide Average*	**1.09**	**c/mvm**	**3.0%**	**40.7%**

Notes
ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2022 Collision Data on California State Highways, Caltrans

Location: E Harney Ln Btwn Jake Tone Rd & Site

Date of Count: Tuesday, November 19, 2024
Average Daily Traffic (ADT): 2,000

Number of Collisions: 8
Number of Injuries: 8
Number of Fatalities: 0
Start Date: July 1, 2019
End Date: June 30, 2024
Number of Years: 5

Highway Type: Conventional 2 lanes or less
Area: Rural
Design Speed: ≤55
Terrain: Flat

Segment Length: 2.8 miles
Direction: East/West

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Segment Length x Number of Years}}$$

$$\text{Collision Rate} = \frac{8 \times 1{,}000{,}000}{2{,}000 \times 365 \times 2.8 \times 5}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Segment	**0.78**	**c/mvm**	**0.0%**	**100.0%**
Statewide Average*	**1.09**	**c/mvm**	**3.0%**	**40.7%**

Notes
ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2022 Collision Data on California State Highways, Caltrans

Roadway Segment Collision Rate Worksheet

Foothill and North County Landfills ISMND

Location: SR-88 Btwn E Harney Ln & Eight Mile Rd

Date of Count: Tuesday, November 19, 2024
Average Daily Traffic (ADT): 8,300

Number of Collisions: 29
Number of Injuries: 29
Number of Fatalities: 29
Start Date: July 1, 2019
End Date: June 30, 2024
Number of Years: 5

Highway Type: Conventional 2 lanes or less
Area: Rural
Design Speed: ≤55
Terrain: Flat

Segment Length: 3.1 miles
Direction: North/South

$$\text{Collision Rate} = \frac{\text{Number of Collisions} \times 1\text{ Million}}{\text{ADT} \times \text{Days per Year} \times \text{Segment Length} \times \text{Number of Years}}$$

$$\text{Collision Rate} = \frac{29 \times 1{,}000{,}000}{8{,}300 \times 365 \times 3.1 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Segment	**0.62 c/mvm**	**100.0%**	**100.0%**
Statewide Average*	**1.09 c/mvm**	**3.0%**	**40.7%**

Notes
ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2022 Collision Data on California State Highways, Caltrans

Location: Site Access Driveway

Date of Count: Tuesday, November 19, 2024
Average Daily Traffic (ADT): 870

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
Start Date: July 1, 2019
End Date: June 30, 2024
Number of Years: 5

Highway Type: Conventional 2 lanes or less
Area: Rural
Design Speed: <=55
Terrain: Flat

Segment Length: 0.4 miles
Direction: North/South

$$\text{Collision Rate} = \frac{\text{Number of Collisions} \times 1\text{ Million}}{\text{ADT} \times \text{Days per Year} \times \text{Segment Length} \times \text{Number of Years}}$$

$$\text{Collision Rate} = \frac{0 \times 1{,}000{,}000}{870 \times 365 \times 0.4 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Segment	**0.00 c/mvm**	**0.0%**	**0.0%**
Statewide Average*	**1.09 c/mvm**	**3.0%**	**40.7%**

Notes
ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2022 Collision Data on California State Highways, Caltrans

HCM 6th Signalized Intersection Summary
1: SR 88 & E Harney Ln

01/02/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	78	24	33	137	17	18	179	22	11	299	51
Future Volume (veh/h)	22	78	24	33	137	17	18	179	22	11	299	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1900	1767	1841	1722	1900	1737	1559	1366	1781	1811
Adj Flow Rate, veh/h	24	86	21	36	151	16	20	197	16	12	329	40
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	5	5	0	9	4	12	0	11	23	36	8	6
Cap, veh/h	164	227	50	166	252	25	46	499	41	21	475	58
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.03	0.31	0.31	0.02	0.31	0.31
Sat Flow, veh/h	190	1252	275	205	1389	136	1810	1585	129	1301	1558	189
Grp Volume(v), veh/h	131	0	0	203	0	0	20	0	213	12	0	369
Grp Sat Flow(s),veh/h/ln	1718	0	0	1730	0	0	1810	0	1714	1301	0	1747
Q Serve(g_s), s	0.0	0.0	0.0	1.4	0.0	0.0	0.4	0.0	3.2	0.3	0.0	6.1
Cycle Q Clear(g_c), s	2.1	0.0	0.0	3.5	0.0	0.0	0.4	0.0	3.2	0.3	0.0	6.1
Prop In Lane	0.18		0.16	0.18		0.08	1.00		0.08	1.00		0.11
Lane Grp Cap(c), veh/h	442	0	0	443	0	0	46	0	539	21	0	533
V/C Ratio(X)	0.30	0.00	0.00	0.46	0.00	0.00	0.44	0.00	0.40	0.58	0.00	0.69
Avail Cap(c_a), veh/h	1136	0	0	1164	0	0	552	0	3137	397	0	3198
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.9	0.0	0.0	12.4	0.0	0.0	15.7	0.0	8.8	16.0	0.0	10.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.7	0.0	0.0	2.4	0.0	0.3	9.4	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.9	0.0	0.0	0.1	0.0	0.6	0.1	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.2	0.0	0.0	13.1	0.0	0.0	18.1	0.0	9.1	25.4	0.0	11.2
LnGrp LOS	B	A	A	B	A	A	B	A	A	C	A	B
Approach Vol, veh/h		131			203			233			381	
Approach Delay, s/veh		12.2			13.1			9.9			11.7	
Approach LOS		B			B			A			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.5	16.3		12.0	4.8	16.0		12.0				
Change Period (Y+Rc), s	4.0	6.0		6.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s	10.0	60.0		20.0	10.0	60.0		20.0				
Max Q Clear Time (g_c+I1), s	2.3	5.2		4.1	2.4	8.1		5.5				
Green Ext Time (p_c), s	0.0	0.9		0.5	0.0	1.6		0.8				
Intersection Summary												
HCM 6th Ctrl Delay			11.6									
HCM 6th LOS			B									

HCM 6th AWSC
2: Jack Tone Rd & E Harney Ln

01/02/2025

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	62	13	26	98	25	34	78	16	17	70	39
Future Vol, veh/h	15	62	13	26	98	25	34	78	16	17	70	39
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	13	15	15	4	10	12	0	8	13	18	7	0
Mvmt Flow	16	67	14	28	105	27	37	84	17	18	75	42
Number of Lanes	0	1	1	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	9.1	9.4	9.3	9
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	30%	0%	19%	0%	21%	0%	20%	0%
Vol Thru, %	70%	0%	81%	0%	79%	0%	80%	0%
Vol Right, %	0%	100%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	112	16	77	13	124	25	87	39
LT Vol	34	0	15	0	26	0	17	0
Through Vol	78	0	62	0	98	0	70	0
RT Vol	0	16	0	13	0	25	0	39
Lane Flow Rate	120	17	83	14	133	27	94	42
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.183	0.023	0.131	0.019	0.204	0.036	0.149	0.055
Departure Headway (Hd)	5.485	4.765	5.714	4.945	5.499	4.792	5.739	4.748
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	652	748	625	720	651	744	623	751
Service Time	3.238	2.517	3.47	2.701	3.248	2.541	3.493	2.501
HCM Lane V/C Ratio	0.184	0.023	0.133	0.019	0.204	0.036	0.151	0.056
HCM Control Delay	9.5	7.6	9.3	7.8	9.7	7.7	9.5	7.8
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.7	0.1	0.4	0.1	0.8	0.1	0.5	0.2

Intersection						
Int Delay, s/veh	2.2					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	31	39	5	47	29	3
Future Vol, veh/h	31	39	5	47	29	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	575	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	10	23	0	13	21	0
Mvmt Flow	36	46	6	55	34	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	82	0	103	36
Stage 1	-	-	-	-	36	-
Stage 2	-	-	-	-	67	-
Critical Hdwy	-	-	4.1	-	6.61	6.2
Critical Hdwy Stg 1	-	-	-	-	5.61	-
Critical Hdwy Stg 2	-	-	-	-	5.61	-
Follow-up Hdwy	-	-	2.2	-	3.689	3.3
Pot Cap-1 Maneuver	-	-	1528	-	851	1042
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	910	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1528	-	848	1042
Mov Cap-2 Maneuver	-	-	-	-	848	-
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	906	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	848	1042	-	-	1528	-
HCM Lane V/C Ratio	0.04	0.003	-	-	0.004	-
HCM Control Delay (s)	9.4	8.5	-	-	7.4	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

Intersection												
Int Delay, s/veh	3.3											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	5	14	4	0	2	32	47	3	2	65	18
Future Vol, veh/h	19	5	14	4	0	2	32	47	3	2	65	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	11	20	0	0	0	0	9	4	0	0	6	22
Mvmt Flow	22	6	16	5	0	2	38	55	4	2	76	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	225	226	87	235	234	57	97	0	0	59	0	0
Stage 1	91	91	-	133	133	-	-	-	-	-	-	-
Stage 2	134	135	-	102	101	-	-	-	-	-	-	-
Critical Hdwy	7.21	6.7	6.2	7.1	6.5	6.2	4.19	-	-	4.1	-	-
Critical Hdwy Stg 1	6.21	5.7	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.21	5.7	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.599	4.18	3.3	3.5	4	3.3	2.281	-	-	2.2	-	-
Pot Cap-1 Maneuver	712	643	977	724	670	1015	1454	-	-	1558	-	-
Stage 1	894	786	-	875	790	-	-	-	-	-	-	-
Stage 2	848	751	-	909	815	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	695	625	977	691	651	1015	1454	-	-	1558	-	-
Mov Cap-2 Maneuver	695	625	-	691	651	-	-	-	-	-	-	-
Stage 1	870	785	-	851	769	-	-	-	-	-	-	-
Stage 2	823	731	-	886	814	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	9.7	2.9	0.2
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1454	-	-	765	773	1558	-	-
HCM Lane V/C Ratio	0.026	-	-	0.058	0.009	0.002	-	-
HCM Control Delay (s)	7.5	0	-	10	9.7	7.3	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	-	-

HCM 6th Signalized Intersection Summary
1: SR 88 & E Harney Ln

01/02/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	133	20	22	101	14	14	301	27	33	266	33
Future Volume (veh/h)	83	133	20	22	101	14	14	301	27	33	266	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1826	1885	1900	1900	1870	1841	1811	1796	1900
Adj Flow Rate, veh/h	87	140	18	23	106	12	15	317	21	35	280	22
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0	5	1	0	0	2	4	6	7	0
Cap, veh/h	239	227	26	154	315	32	35	499	33	71	509	40
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.02	0.29	0.29	0.04	0.31	0.31
Sat Flow, veh/h	466	1076	122	160	1491	154	1810	1735	115	1725	1644	129
Grp Volume(v), veh/h	245	0	0	141	0	0	15	0	338	35	0	302
Grp Sat Flow(s),veh/h/ln	1665	0	0	1805	0	0	1810	0	1850	1725	0	1773
Q Serve(g_s), s	2.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	5.5	0.7	0.0	4.9
Cycle Q Clear(g_c), s	4.6	0.0	0.0	2.3	0.0	0.0	0.3	0.0	5.5	0.7	0.0	4.9
Prop In Lane	0.36		0.07	0.16		0.09	1.00		0.06	1.00		0.07
Lane Grp Cap(c), veh/h	492	0	0	502	0	0	35	0	532	71	0	549
V/C Ratio(X)	0.50	0.00	0.00	0.28	0.00	0.00	0.43	0.00	0.64	0.49	0.00	0.55
Avail Cap(c_a), veh/h	1069	0	0	1125	0	0	520	0	3191	496	0	3059
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	0.0	11.7	0.0	0.0	16.9	0.0	10.8	16.3	0.0	10.0
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.3	0.0	0.0	3.0	0.0	0.9	1.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.6	0.0	0.0	0.1	0.0	1.3	0.2	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.3	0.0	0.0	12.0	0.0	0.0	19.9	0.0	11.7	18.3	0.0	10.6
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		245			141			353			337	
Approach Delay, s/veh		13.3			12.0			12.1			11.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	16.0		13.3	4.7	16.8		13.3
Change Period (Y+Rc), s	4.0	6.0		6.0	4.0	6.0		6.0
Max Green Setting (Gmax), s	10.0	60.0		20.0	10.0	60.0		20.0
Max Q Clear Time (g_c+I1), s	2.7	7.5		6.6	2.3	6.9		4.3
Green Ext Time (p_c), s	0.0	1.4		0.9	0.0	1.2		0.5

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

HCM 6th AWSC
2: Jack Tone Rd & E Harney Ln

01/02/2025

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	76	40	21	83	18	37	86	23	22	99	15
Future Vol, veh/h	13	76	40	21	83	18	37	86	23	22	99	15
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	8	0	3	0	2	6	0	5	13	0	6	0
Mvmt Flow	15	89	47	25	98	21	44	101	27	26	116	18
Number of Lanes	0	1	1	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	9.1	9.5	9.7	9.7
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	30%	0%	15%	0%	20%	0%	18%	0%
Vol Thru, %	70%	0%	85%	0%	80%	0%	82%	0%
Vol Right, %	0%	100%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	123	23	89	40	104	18	121	15
LT Vol	37	0	13	0	21	0	22	0
Through Vol	86	0	76	0	83	0	99	0
RT Vol	0	23	0	40	0	18	0	15
Lane Flow Rate	145	27	105	47	122	21	142	18
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.225	0.036	0.167	0.063	0.192	0.029	0.22	0.024
Departure Headway (Hd)	5.606	4.834	5.752	4.836	5.651	4.878	5.561	4.867
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	635	734	619	734	630	727	641	729
Service Time	3.38	2.608	3.528	2.611	3.427	2.653	3.334	2.64
HCM Lane V/C Ratio	0.228	0.037	0.17	0.064	0.194	0.029	0.222	0.025
HCM Control Delay	10	7.8	9.7	7.9	9.8	7.8	9.9	7.8
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.9	0.1	0.6	0.2	0.7	0.1	0.8	0.1

Intersection						
Int Delay, s/veh	1.6					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	53	0	0	44	18	2
Future Vol, veh/h	53	0	0	44	18	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	575	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	62	0	0	52	21	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	62	0	114	62
Stage 1	-	-	-	-	62	-
Stage 2	-	-	-	-	52	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1554	-	887	1009
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1554	-	887	1009
Mov Cap-2 Maneuver	-	-	-	-	887	-
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	976	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	887	1009	-	-	1554	-
HCM Lane V/C Ratio	0.024	0.002	-	-	-	-
HCM Control Delay (s)	9.2	8.6	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

Intersection												
Int Delay, s/veh	3.1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	1	29	2	0	0	25	50	0	0	73	24
Future Vol, veh/h	20	1	29	2	0	0	25	50	0	0	73	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	4
Mvmt Flow	24	1	34	2	0	0	29	59	0	0	86	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	217	217	100	235	231	59	114	0	0	59	0	0
Stage 1	100	100	-	117	117	-	-	-	-	-	-	-
Stage 2	117	117	-	118	114	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	744	685	961	724	672	1012	1488	-	-	1558	-	-
Stage 1	911	816	-	892	803	-	-	-	-	-	-	-
Stage 2	892	803	-	891	805	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	733	671	961	687	659	1012	1488	-	-	1558	-	-
Mov Cap-2 Maneuver	733	671	-	687	659	-	-	-	-	-	-	-
Stage 1	893	816	-	874	787	-	-	-	-	-	-	-
Stage 2	874	787	-	858	805	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	10.3	2.5	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1488	-	-	848	687	1558	-	-
HCM Lane V/C Ratio	0.02	-	-	0.069	0.003	-	-	-
HCM Control Delay (s)	7.5	0	-	9.6	10.3	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	-	-

HCM 6th Signalized Intersection Summary
1: SR 88 & E Harney Ln

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	82	44	42	180	35	19	302	22	11	502	87
Future Volume (veh/h)	65	82	44	42	180	35	19	302	22	11	502	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1900	1767	1841	1722	1900	1737	1559	1366	1781	1811
Adj Flow Rate, veh/h	65	82	39	42	180	32	19	302	15	11	502	72
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	5	0	9	4	12	0	11	23	36	8	6
Cap, veh/h	200	180	71	135	268	44	43	677	34	19	614	88
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.02	0.41	0.41	0.01	0.40	0.40
Sat Flow, veh/h	432	892	351	185	1331	219	1810	1641	81	1301	1524	219
Grp Volume(v), veh/h	186	0	0	254	0	0	19	0	317	11	0	574
Grp Sat Flow(s),veh/h/ln	1676	0	0	1735	0	0	1810	0	1722	1301	0	1742
Q Serve(g_s), s	0.0	0.0	0.0	1.8	0.0	0.0	0.4	0.0	5.7	0.4	0.0	12.6
Cycle Q Clear(g_c), s	4.0	0.0	0.0	5.8	0.0	0.0	0.4	0.0	5.7	0.4	0.0	12.6
Prop In Lane	0.35		0.21	0.17		0.13	1.00		0.05	1.00		0.13
Lane Grp Cap(c), veh/h	450	0	0	447	0	0	43	0	710	19	0	702
V/C Ratio(X)	0.41	0.00	0.00	0.57	0.00	0.00	0.44	0.00	0.45	0.59	0.00	0.82
Avail Cap(c_a), veh/h	836	0	0	887	0	0	421	0	2402	302	0	2429
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.3	0.0	0.0	16.0	0.0	0.0	20.7	0.0	9.1	21.1	0.0	11.4
Incr Delay (d2), s/veh	0.6	0.0	0.0	1.1	0.0	0.0	2.7	0.0	0.3	10.6	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	1.8	0.0	0.0	0.2	0.0	1.2	0.1	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.9	0.0	0.0	17.1	0.0	0.0	23.4	0.0	9.4	31.6	0.0	13.2
LnGrp LOS	B	A	A	B	A	A	C	A	A	C	A	B
Approach Vol, veh/h		186			254			336			585	
Approach Delay, s/veh		15.9			17.1			10.2			13.6	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	23.7		14.7	5.0	23.3		14.7				
Change Period (Y+Rc), s	4.0	6.0		6.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s	10.0	60.0		20.0	10.0	60.0		20.0				
Max Q Clear Time (g_c+I1), s	2.4	7.7		6.0	2.4	14.6		7.8				
Green Ext Time (p_c), s	0.0	1.3		0.7	0.0	2.7		0.9				
Intersection Summary												
HCM 6th Ctrl Delay			13.7									
HCM 6th LOS			B									

HCM 6th AWSC
2: Jack Tone Rd & E Harney Ln

Intersection	
Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	62	13	26	98	42	58	239	16	21	162	83
Future Vol, veh/h	21	62	13	26	98	42	58	239	16	21	162	83
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	13	15	15	4	10	12	0	8	13	18	7	0
Mvmt Flow	21	62	13	26	98	42	58	239	16	21	162	83
Number of Lanes	0	1	1	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	10.4	10.5	13.4	10.7
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	20%	0%	25%	0%	21%	0%	11%	0%
Vol Thru, %	80%	0%	75%	0%	79%	0%	89%	0%
Vol Right, %	0%	100%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	297	16	83	13	124	42	183	83
LT Vol	58	0	21	0	26	0	21	0
Through Vol	239	0	62	0	98	0	162	0
RT Vol	0	16	0	13	0	42	0	83
Lane Flow Rate	297	16	83	13	124	42	183	83
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.477	0.023	0.156	0.021	0.222	0.067	0.311	0.119
Departure Headway (Hd)	5.784	5.116	6.754	5.949	6.453	5.74	6.114	5.159
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	624	700	531	601	557	624	589	695
Service Time	3.514	2.846	4.497	3.692	4.192	3.479	3.846	2.89
HCM Lane V/C Ratio	0.476	0.023	0.156	0.022	0.223	0.067	0.311	0.119
HCM Control Delay	13.7	8	10.7	8.8	11	8.9	11.6	8.6
HCM Lane LOS	B	A	B	A	B	A	B	A
HCM 95th-tile Q	2.6	0.1	0.5	0.1	0.8	0.2	1.3	0.4

HCM 6th TWSC
3: Site Driveway & E Harney Ln 01/12/2025

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	37	39	5	66	29	3
Future Vol, veh/h	37	39	5	66	29	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	575	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	10	23	0	13	21	0
Mvmt Flow	37	39	5	66	29	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	76	0	113	37
Stage 1	-	-	-	-	37	-
Stage 2	-	-	-	-	76	-
Critical Hdwy	-	-	4.1	-	6.61	6.2
Critical Hdwy Stg 1	-	-	-	-	5.61	-
Critical Hdwy Stg 2	-	-	-	-	5.61	-
Follow-up Hdwy	-	-	2.2	-	3.689	3.3
Pot Cap-1 Maneuver	-	-	1536	-	840	1041
Stage 1	-	-	-	-	939	-
Stage 2	-	-	-	-	901	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1536	-	837	1041
Mov Cap-2 Maneuver	-	-	-	-	837	-
Stage 1	-	-	-	-	939	-
Stage 2	-	-	-	-	898	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	837	1041	-	-	1536	-
HCM Lane V/C Ratio	0.035	0.003	-	-	0.003	-
HCM Control Delay (s)	9.5	8.5	-	-	7.4	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

HCM 6th TWSC
4: Clements Rd & E Harney Ln 01/12/2025

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	5	17	4	0	2	39	89	3	2	160	24
Future Vol, veh/h	21	5	17	4	0	2	39	89	3	2	160	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	11	20	0	0	0	0	9	4	0	0	6	22
Mvmt Flow	21	5	17	4	0	2	39	89	3	2	160	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	346	346	172	356	357	91	184	0	0	92	0	0
Stage 1	176	176	-	169	169	-	-	-	-	-	-	-
Stage 2	170	170	-	187	188	-	-	-	-	-	-	-
Critical Hdwy	7.21	6.7	6.2	7.1	6.5	6.2	4.19	-	-	4.1	-	-
Critical Hdwy Stg 1	6.21	5.7	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.21	5.7	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.599	4.18	3.3	3.5	4	3.3	2.281	-	-	2.2	-	-
Pot Cap-1 Maneuver	592	549	877	603	572	972	1350	-	-	1515	-	-
Stage 1	805	721	-	838	763	-	-	-	-	-	-	-
Stage 2	811	725	-	819	748	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	577	532	877	573	554	972	1350	-	-	1515	-	-
Mov Cap-2 Maneuver	577	532	-	573	554	-	-	-	-	-	-	-
Stage 1	781	720	-	813	740	-	-	-	-	-	-	-
Stage 2	785	703	-	797	747	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	10.5	2.3	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1350	-	-	660	664	1515	-	-
HCM Lane V/C Ratio	0.029	-	-	0.065	0.009	0.001	-	-
HCM Control Delay (s)	7.7	0	-	10.8	10.5	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	-	-

HCM 6th Signalized Intersection Summary
1: SR 88 & E Harney Ln

01/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	138	32	27	101	14	14	437	33	33	348	33
Future Volume (veh/h)	99	138	32	27	101	14	14	437	33	33	348	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1826	1885	1900	1900	1870	1841	1811	1796	1900
Adj Flow Rate, veh/h	99	138	29	27	101	11	14	437	26	33	348	21
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0	5	1	0	0	2	4	6	7	0
Cap, veh/h	236	215	40	153	324	31	33	573	34	67	584	35
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.02	0.33	0.33	0.04	0.35	0.35
Sat Flow, veh/h	493	973	179	191	1468	143	1810	1748	104	1725	1677	101
Grp Volume(v), veh/h	266	0	0	139	0	0	14	0	463	33	0	369
Grp Sat Flow(s),veh/h/ln	1646	0	0	1802	0	0	1810	0	1852	1725	0	1778
Q Serve(g_s), s	3.2	0.0	0.0	0.0	0.0	0.0	0.3	0.0	8.7	0.7	0.0	6.6
Cycle Q Clear(g_c), s	5.7	0.0	0.0	2.4	0.0	0.0	0.3	0.0	8.7	0.7	0.0	6.6
Prop In Lane	0.37		0.11	0.19		0.08	1.00		0.06	1.00		0.06
Lane Grp Cap(c), veh/h	491	0	0	509	0	0	33	0	607	67	0	620
V/C Ratio(X)	0.54	0.00	0.00	0.27	0.00	0.00	0.43	0.00	0.76	0.50	0.00	0.60
Avail Cap(c_a), veh/h	954	0	0	1006	0	0	467	0	2865	445	0	2751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.9	0.0	0.0	12.7	0.0	0.0	18.8	0.0	11.7	18.3	0.0	10.4
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.3	0.0	0.0	3.3	0.0	1.5	2.1	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	0.7	0.0	0.0	0.1	0.0	2.2	0.3	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.8	0.0	0.0	13.0	0.0	0.0	22.1	0.0	13.2	20.4	0.0	11.1
LnGrp LOS	B	A	A	B	A	A	C	A	B	C	A	B
Approach Vol, veh/h		266			139			477			402	
Approach Delay, s/veh		14.8			13.0			13.4			11.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	5.5	18.7	14.6	4.7	19.5	14.6
Change Period (Y+Rc), s	4.0	6.0	6.0	4.0	6.0	6.0
Max Green Setting (Gmax), s	10.0	60.0	20.0	10.0	60.0	20.0
Max Q Clear Time (g_c+I1), s	2.7	10.7	7.7	2.3	8.6	4.4
Green Ext Time (p_c), s	0.0	2.0	1.0	0.0	1.6	0.5

Intersection Summary	
HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

HCM 6th AWSC
2: Jack Tone Rd & E Harney Ln

01/12/2025

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	79	43	21	83	24	39	165	29	30	141	17
Future Vol, veh/h	20	79	43	21	83	24	39	165	29	30	141	17
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	8	0	3	0	2	6	0	5	13	0	6	0
Mvmt Flow	20	79	43	21	83	24	39	165	29	30	141	17
Number of Lanes	0	1	1	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	9.5	9.6	10.5	10.3
HCM LOS	A	A	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	19%	0%	20%	0%	20%	0%	18%	0%
Vol Thru, %	81%	0%	80%	0%	80%	0%	82%	0%
Vol Right, %	0%	100%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	204	29	99	43	104	24	171	17
LT Vol	39	0	20	0	21	0	30	0
Through Vol	165	0	79	0	83	0	141	0
RT Vol	0	29	0	43	0	24	0	17
Lane Flow Rate	204	29	99	43	104	24	171	17
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.314	0.039	0.168	0.062	0.173	0.035	0.27	0.024
Departure Headway (Hd)	5.641	4.924	6.094	5.15	5.977	5.204	5.677	4.985
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	641	732	591	698	602	690	636	721
Service Time	3.341	2.624	3.809	2.862	3.692	2.917	3.383	2.691
HCM Lane V/C Ratio	0.318	0.04	0.168	0.062	0.173	0.035	0.269	0.024
HCM Control Delay	10.9	7.8	10	8.2	9.9	8.1	10.5	7.8
HCM Lane LOS	B	A	A	A	A	A	B	A
HCM 95th-tile Q	1.3	0.1	0.6	0.2	0.6	0.1	1.1	0.1

Intersection						
Int Delay, s/veh	1.2					
Movement	**EBT**	**EBR**	**WBL**	**WBT**	**NBL**	**NBR**
Lane Configurations						
Traffic Vol, veh/h	80	0	0	53	18	2
Future Vol, veh/h	80	0	0	53	18	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	575	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	80	0	0	53	18	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	80	0	133	80
Stage 1	-	-	-	-	80	-
Stage 2	-	-	-	-	53	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1531	-	866	986
Stage 1	-	-	-	-	948	-
Stage 2	-	-	-	-	975	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1531	-	866	986
Mov Cap-2 Maneuver	-	-	-	-	866	-
Stage 1	-	-	-	-	948	-
Stage 2	-	-	-	-	975	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	866	986	-	-	1531	-
HCM Lane V/C Ratio	0.021	0.002	-	-	-	-
HCM Control Delay (s)	9.2	8.7	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

Intersection												
Int Delay, s/veh	2.8											
Movement	**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**
Lane Configurations												
Traffic Vol, veh/h	30	1	41	2	0	0	31	108	0	0	112	24
Future Vol, veh/h	30	1	41	2	0	0	31	108	0	0	112	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	4
Mvmt Flow	30	1	41	2	0	0	31	108	0	0	112	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	294	294	124	315	306	108	136	0	0	108	0	0
Stage 1	124	124	-	170	170	-	-	-	-	-	-	-
Stage 2	170	170	-	145	136	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	662	620	932	642	611	951	1461	-	-	1495	-	-
Stage 1	885	797	-	837	762	-	-	-	-	-	-	-
Stage 2	837	762	-	863	788	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	650	606	932	602	597	951	1461	-	-	1495	-	-
Mov Cap-2 Maneuver	650	606	-	602	597	-	-	-	-	-	-	-
Stage 1	865	797	-	818	744	-	-	-	-	-	-	-
Stage 2	818	744	-	824	788	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	11	1.7	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1461	-	-	784	602	1495	-	-
HCM Lane V/C Ratio	0.021	-	-	0.092	0.003	-	-	-
HCM Control Delay (s)	7.5	0	-	10.1	11	0	-	-
HCM Lane LOS	A	A	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0	0	-	-

HCM 6th Signalized Intersection Summary
1: SR 88 & E Harney Ln

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	85	24	42	142	18	18	179	35	12	299	51
Future Volume (veh/h)	22	85	24	42	142	18	18	179	35	12	299	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1781	1900	1618	1826	1737	1900	1737	1470	1278	1781	1811
Adj Flow Rate, veh/h	24	93	21	46	156	17	20	197	30	13	329	40
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	5	8	0	19	5	11	0	11	29	42	8	6
Cap, veh/h	160	243	50	178	256	26	46	454	69	21	468	57
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.03	0.31	0.31	0.02	0.30	0.30
Sat Flow, veh/h	170	1256	256	245	1323	132	1810	1472	224	1217	1558	189
Grp Volume(v), veh/h	138	0	0	219	0	0	20	0	227	13	0	369
Grp Sat Flow(s),veh/h/ln	1682	0	0	1700	0	0	1810	0	1697	1217	0	1747
Q Serve(g_s), s	0.0	0.0	0.0	1.5	0.0	0.0	0.4	0.0	3.6	0.4	0.0	6.2
Cycle Q Clear(g_c), s	2.3	0.0	0.0	3.9	0.0	0.0	0.4	0.0	3.6	0.4	0.0	6.2
Prop In Lane	0.17		0.15	0.21		0.08	1.00		0.13	1.00		0.11
Lane Grp Cap(c), veh/h	453	0	0	460	0	0	46	0	524	21	0	525
V/C Ratio(X)	0.30	0.00	0.00	0.48	0.00	0.00	0.44	0.00	0.43	0.63	0.00	0.70
Avail Cap(c_a), veh/h	1099	0	0	1129	0	0	543	0	3057	365	0	3149
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	0.0	12.3	0.0	0.0	16.0	0.0	9.2	16.3	0.0	10.3
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.8	0.0	0.0	2.4	0.0	0.4	11.1	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	1.0	0.0	0.0	0.1	0.0	0.7	0.1	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.1	0.0	0.0	13.1	0.0	0.0	18.4	0.0	9.6	27.3	0.0	11.6
LnGrp LOS	B	A	A	B	A	A	B	A	A	C	A	B
Approach Vol, veh/h		138			219			247			382	
Approach Delay, s/veh		12.1			13.1			10.3			12.2	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	16.3		12.5	4.8	16.0		12.5				
Change Period (Y+Rc), s	4.0	6.0		6.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s	10.0	60.0		20.0	10.0	60.0		20.0				
Max Q Clear Time (g_c+I1), s	2.4	5.6		4.3	2.4	8.2		5.9				
Green Ext Time (p_c), s	0.0	0.9		0.5	0.0	1.6		0.8				
Intersection Summary												
HCM 6th Ctrl Delay			11.9									
HCM 6th LOS			B									

HCM 6th AWSC
2: Jack Tone Rd & E Harney Ln

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	83	13	26	113	25	34	78	16	17	70	39
Future Vol, veh/h	15	83	13	26	113	25	34	78	16	17	70	39
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	13	22	15	4	15	12	0	8	13	18	7	0
Mvmt Flow	16	89	14	28	122	27	37	84	17	18	75	42
Number of Lanes	0	1	1	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	9.4	9.6	9.5	9.1
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	30%	0%	15%	0%	19%	0%	20%	0%
Vol Thru, %	70%	0%	85%	0%	81%	0%	80%	0%
Vol Right, %	0%	100%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	112	16	98	13	139	25	87	39
LT Vol	34	0	15	0	26	0	17	0
Through Vol	78	0	83	0	113	0	70	0
RT Vol	0	16	0	13	0	25	0	39
Lane Flow Rate	120	17	105	14	149	27	94	42
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.187	0.023	0.167	0.02	0.229	0.037	0.152	0.057
Departure Headway (Hd)	5.596	4.875	5.722	5.094	5.524	4.914	5.851	4.859
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	637	729	624	698	647	724	610	732
Service Time	3.362	2.64	3.488	2.859	3.284	2.674	3.617	2.624
HCM Lane V/C Ratio	0.188	0.023	0.168	0.02	0.23	0.037	0.154	0.057
HCM Control Delay	9.7	7.8	9.6	8	9.9	7.9	9.7	7.9
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.7	0.1	0.6	0.1	0.9	0.1	0.5	0.2

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	31	60	7	47	44	5
Future Vol, veh/h	31	60	7	47	44	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	575	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	10	30	0	13	30	0
Mvmt Flow	36	71	8	55	52	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	107	0	107	36
Stage 1	-	-	-	-	36	-
Stage 2	-	-	-	-	71	-
Critical Hdwy	-	-	4.1	-	6.7	6.2
Critical Hdwy Stg 1	-	-	-	-	5.7	-
Critical Hdwy Stg 2	-	-	-	-	5.7	-
Follow-up Hdwy	-	-	2.2	-	3.77	3.3
Pot Cap-1 Maneuver	-	-	1497	-	827	1042
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	885	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1497	-	822	1042
Mov Cap-2 Maneuver	-	-	-	-	822	-
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	880	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	822	1042	-	-	1497	-
HCM Lane V/C Ratio	0.063	0.006	-	-	0.006	-
HCM Control Delay (s)	9.7	8.5	-	-	7.4	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	5	15	4	0	2	33	47	3	2	65	19
Future Vol, veh/h	20	5	15	4	0	2	33	47	3	2	65	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	10	20	0	0	0	0	9	4	0	0	6	21
Mvmt Flow	24	6	18	5	0	2	39	55	4	2	76	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	227	228	87	238	237	57	98	0	0	59	0	0
Stage 1	91	91	-	135	135	-	-	-	-	-	-	-
Stage 2	136	137	-	103	102	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.7	6.2	7.1	6.5	6.2	4.19	-	-	4.1	-	-
Critical Hdwy Stg 1	6.2	5.7	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.7	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4.18	3.3	3.5	4	3.3	2.281	-	-	2.2	-	-
Pot Cap-1 Maneuver	712	641	977	721	667	1015	1452	-	-	1558	-	-
Stage 1	897	786	-	873	789	-	-	-	-	-	-	-
Stage 2	848	750	-	908	815	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	695	622	977	687	648	1015	1452	-	-	1558	-	-
Mov Cap-2 Maneuver	695	622	-	687	648	-	-	-	-	-	-	-
Stage 1	872	785	-	849	767	-	-	-	-	-	-	-
Stage 2	822	729	-	884	814	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	9.7	3	0.2
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1452	-	-	767	770	1558	-	-
HCM Lane V/C Ratio	0.027	-	-	0.061	0.009	0.002	-	-
HCM Control Delay (s)	7.5	0	-	10	9.7	7.3	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	-	-

HCM 6th Signalized Intersection Summary
1: SR 88 & E Harney Ln

01/02/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	133	20	28	103	14	14	301	27	33	266	33
Future Volume (veh/h)	83	133	20	28	103	14	14	301	27	33	266	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1841	1885	1900	1900	1870	1841	1811	1796	1900
Adj Flow Rate, veh/h	87	140	18	29	108	12	15	317	21	35	280	22
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0	4	1	0	0	2	4	6	7	0
Cap, veh/h	239	227	26	166	306	31	35	499	33	71	509	40
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.02	0.29	0.29	0.04	0.31	0.31
Sat Flow, veh/h	468	1078	123	202	1449	145	1810	1735	115	1725	1644	129
Grp Volume(v), veh/h	245	0	0	149	0	0	15	0	338	35	0	302
Grp Sat Flow(s),veh/h/ln	1669	0	0	1796	0	0	1810	0	1850	1725	0	1773
Q Serve(g_s), s	2.2	0.0	0.0	0.0	0.0	0.0	0.3	0.0	5.5	0.7	0.0	4.9
Cycle Q Clear(g_c), s	4.6	0.0	0.0	2.4	0.0	0.0	0.3	0.0	5.5	0.7	0.0	4.9
Prop In Lane	0.36		0.07	0.19		0.08	1.00		0.06	1.00		0.07
Lane Grp Cap(c), veh/h	492	0	0	503	0	0	35	0	532	71	0	549
V/C Ratio(X)	0.50	0.00	0.00	0.30	0.00	0.00	0.43	0.00	0.64	0.49	0.00	0.55
Avail Cap(c_a), veh/h	1069	0	0	1118	0	0	520	0	3192	496	0	3059
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	0.0	11.8	0.0	0.0	16.9	0.0	10.8	16.3	0.0	10.0
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.3	0.0	0.0	3.0	0.0	0.9	1.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.6	0.0	0.0	0.1	0.0	1.3	0.2	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.3	0.0	0.0	12.1	0.0	0.0	19.9	0.0	11.7	18.3	0.0	10.6
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		245			149			353			337	
Approach Delay, s/veh		13.3			12.1			12.1			11.4	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	16.0		13.3	4.7	16.8		13.3				
Change Period (Y+Rc), s	4.0	6.0		6.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s	10.0	60.0		20.0	10.0	60.0		20.0				
Max Q Clear Time (g_c+I1), s	2.7	7.5		6.6	2.3	6.9		4.4				
Green Ext Time (p_c), s	0.0	1.4		0.9	0.0	1.2		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			12.2									
HCM 6th LOS			B									

HCM 6th AWSC
2: Jack Tone Rd & E Harney Ln

01/02/2025

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	76	40	21	91	18	37	86	23	22	99	15
Future Vol, veh/h	13	76	40	21	91	18	37	86	23	22	99	15
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	8	0	3	0	2	6	0	5	13	0	6	0
Mvmt Flow	15	89	47	25	107	21	44	101	27	26	116	18
Number of Lanes	0	1	1	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	9.2	9.6	9.7	9.8
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	30%	0%	15%	0%	19%	0%	18%	0%
Vol Thru, %	70%	0%	85%	0%	81%	0%	82%	0%
Vol Right, %	0%	100%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	123	23	89	40	112	18	121	15
LT Vol	37	0	13	0	21	0	22	0
Through Vol	86	0	76	0	91	0	99	0
RT Vol	0	23	0	40	0	18	0	15
Lane Flow Rate	145	27	105	47	132	21	142	18
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.226	0.037	0.168	0.063	0.207	0.029	0.221	0.024
Departure Headway (Hd)	5.632	4.86	5.766	4.849	5.646	4.88	5.586	4.892
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	632	729	618	731	631	726	638	724
Service Time	3.412	2.64	3.547	2.63	3.426	2.659	3.367	2.672
HCM Lane V/C Ratio	0.229	0.037	0.17	0.064	0.209	0.029	0.223	0.025
HCM Control Delay	10.1	7.8	9.7	8	9.9	7.8	10	7.8
HCM Lane LOS	B	A	A	A	A	A	A	A
HCM 95th-tile Q	0.9	0.1	0.6	0.2	0.8	0.1	0.8	0.1

Intersection						
Int Delay, s/veh	2.1					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	53	0	0	44	26	2
Future Vol, veh/h	53	0	0	44	26	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	575	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	62	0	0	52	31	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	62	0	114	62
Stage 1	-	-	-	-	62	-
Stage 2	-	-	-	-	52	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1554	-	887	1009
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1554	-	887	1009
Mov Cap-2 Maneuver	-	-	-	-	887	-
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	976	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	887	1009	-	-	1554	-
HCM Lane V/C Ratio	0.034	0.002	-	-	-	-
HCM Control Delay (s)	9.2	8.6	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

Intersection												
Int Delay, s/veh	3.1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	1	29	2	0	0	25	50	0	0	73	24
Future Vol, veh/h	20	1	29	2	0	0	25	50	0	0	73	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	4
Mvmt Flow	24	1	34	2	0	0	29	59	0	0	86	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	217	217	100	235	231	59	114	0	0	59	0	0
Stage 1	100	100	-	117	117	-	-	-	-	-	-	-
Stage 2	117	117	-	118	114	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	744	685	961	724	672	1012	1488	-	-	1558	-	-
Stage 1	911	816	-	892	803	-	-	-	-	-	-	-
Stage 2	892	803	-	891	805	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	733	671	961	687	659	1012	1488	-	-	1558	-	-
Mov Cap-2 Maneuver	733	671	-	687	659	-	-	-	-	-	-	-
Stage 1	893	816	-	874	787	-	-	-	-	-	-	-
Stage 2	874	787	-	858	805	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	10.3	2.5	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1488	-	-	848	687	1558	-	-
HCM Lane V/C Ratio	0.02	-	-	0.069	0.003	-	-	-
HCM Control Delay (s)	7.5	0	-	9.6	10.3	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	-	-

HCM 6th Signalized Intersection Summary
1: SR 88 & E Harney Ln

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	89	44	51	185	36	19	302	35	12	502	87
Future Volume (veh/h)	65	89	44	51	185	36	19	302	35	12	502	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1781	1900	1633	1826	1737	1900	1737	1470	1278	1781	1811
Adj Flow Rate, veh/h	65	89	39	51	185	33	19	302	28	12	502	72
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	8	0	18	5	11	0	11	29	42	8	6
Cap, veh/h	194	191	70	144	271	44	43	641	59	19	612	88
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.02	0.41	0.41	0.02	0.40	0.40
Sat Flow, veh/h	401	905	331	219	1284	210	1810	1566	145	1217	1524	219
Grp Volume(v), veh/h	193	0	0	269	0	0	19	0	330	12	0	574
Grp Sat Flow(s),veh/h/ln	1636	0	0	1712	0	0	1810	0	1711	1217	0	1742
Q Serve(g_s), s	0.0	0.0	0.0	2.0	0.0	0.0	0.5	0.0	6.2	0.4	0.0	12.9
Cycle Q Clear(g_c), s	4.4	0.0	0.0	6.3	0.0	0.0	0.5	0.0	6.2	0.4	0.0	12.9
Prop In Lane	0.34		0.20	0.19		0.12	1.00		0.08	1.00		0.13
Lane Grp Cap(c), veh/h	454	0	0	458	0	0	43	0	701	19	0	700
V/C Ratio(X)	0.42	0.00	0.00	0.59	0.00	0.00	0.45	0.00	0.47	0.64	0.00	0.82
Avail Cap(c_a), veh/h	805	0	0	859	0	0	412	0	2335	277	0	2378
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.4	0.0	0.0	16.1	0.0	0.0	21.2	0.0	9.5	21.5	0.0	11.7
Incr Delay (d2), s/veh	0.6	0.0	0.0	1.2	0.0	0.0	2.7	0.0	0.4	12.4	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	1.9	0.0	0.0	0.2	0.0	1.4	0.2	0.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.0	0.0	0.0	17.3	0.0	0.0	23.9	0.0	9.9	34.0	0.0	13.6
LnGrp LOS	B	A	A	B	A	A	C	A	A	C	A	B
Approach Vol, veh/h		193			269			349			586	
Approach Delay, s/veh		16.0			17.3			10.6			14.0	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	24.0		15.3	5.0	23.7		15.3				
Change Period (Y+Rc), s	4.0	6.0		6.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s	10.0	60.0		20.0	10.0	60.0		20.0				
Max Q Clear Time (g_c+I1), s	2.4	8.2		6.4	2.5	14.9		8.3				
Green Ext Time (p_c), s	0.0	1.4		0.7	0.0	2.7		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			14.1									
HCM 6th LOS			B									

HCM 6th AWSC
2: Jack Tone Rd & E Harney Ln

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Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	83	13	26	113	42	58	239	16	21	162	83
Future Vol, veh/h	21	83	13	26	113	42	58	239	16	21	162	83
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	14	22	15	4	15	12	0	8	13	19	7	0
Mvmt Flow	21	83	13	26	113	42	58	239	16	21	162	83
Number of Lanes	0	1	1	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	11	10.9	14	11
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	20%	0%	20%	0%	19%	0%	11%	0%
Vol Thru, %	80%	0%	80%	0%	81%	0%	89%	0%
Vol Right, %	0%	100%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	297	16	104	13	139	42	183	83
LT Vol	58	0	21	0	26	0	21	0
Through Vol	239	0	83	0	113	0	162	0
RT Vol	0	16	0	13	0	42	0	83
Lane Flow Rate	297	16	104	13	139	42	183	83
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.49	0.023	0.197	0.022	0.252	0.069	0.32	0.123
Departure Headway (Hd)	5.935	5.266	6.819	6.143	6.528	5.912	6.289	5.316
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	606	679	525	581	549	605	571	673
Service Time	3.673	3.003	4.571	3.895	4.274	3.658	4.028	3.055
HCM Lane V/C Ratio	0.49	0.024	0.198	0.022	0.253	0.069	0.32	0.123
HCM Control Delay	14.3	8.1	11.2	9	11.5	9.1	12	8.8
HCM Lane LOS	B	A	B	A	B	A	B	A
HCM 95th-tile Q	2.7	0.1	0.7	0.1	1	0.2	1.4	0.4

Intersection						
Int Delay, s/veh	2.4					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	37	60	7	66	44	5
Future Vol, veh/h	37	60	7	66	44	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	575	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	11	30	0	12	30	0
Mvmt Flow	37	60	7	66	44	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	97	0	117	37
Stage 1	-	-	-	-	37	-
Stage 2	-	-	-	-	80	-
Critical Hdwy	-	-	4.1	-	6.7	6.2
Critical Hdwy Stg 1	-	-	-	-	5.7	-
Critical Hdwy Stg 2	-	-	-	-	5.7	-
Follow-up Hdwy	-	-	2.2	-	3.77	3.3
Pot Cap-1 Maneuver	-	-	1509	-	816	1041
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	877	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1509	-	812	1041
Mov Cap-2 Maneuver	-	-	-	-	812	-
Stage 1	-	-	-	-	918	-
Stage 2	-	-	-	-	873	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	812	1041	-	-	1509	-
HCM Lane V/C Ratio	0.054	0.005	-	-	0.005	-
HCM Control Delay (s)	9.7	8.5	-	-	7.4	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

Intersection												
Int Delay, s/veh	2.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	5	18	4	0	2	40	89	3	2	160	25
Future Vol, veh/h	22	5	18	4	0	2	40	89	3	2	160	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	9	20	0	0	0	0	10	4	0	0	6	20
Mvmt Flow	22	5	18	4	0	2	40	89	3	2	160	25

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	349	349	173	359	360	91	185	0	0	92	0	0
Stage 1	177	177	-	171	171	-	-	-	-	-	-	-
Stage 2	172	172	-	188	189	-	-	-	-	-	-	-
Critical Hdwy	7.19	6.7	6.2	7.1	6.5	6.2	4.2	-	-	4.1	-	-
Critical Hdwy Stg 1	6.19	5.7	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.19	5.7	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.581	4.18	3.3	3.5	4	3.3	2.29	-	-	2.2	-	-
Pot Cap-1 Maneuver	593	547	876	600	570	972	1343	-	-	1515	-	-
Stage 1	809	720	-	836	761	-	-	-	-	-	-	-
Stage 2	814	724	-	818	748	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	578	529	876	569	552	972	1343	-	-	1515	-	-
Mov Cap-2 Maneuver	578	529	-	569	552	-	-	-	-	-	-	-
Stage 1	784	719	-	810	737	-	-	-	-	-	-	-
Stage 2	787	702	-	795	747	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	10.5	2.4	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1343	-	-	661	660	1515	-	-
HCM Lane V/C Ratio	0.03	-	-	0.068	0.009	0.001	-	-
HCM Control Delay (s)	7.8	0	-	10.8	10.5	7.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	-	-

HCM 6th Signalized Intersection Summary
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	138	32	33	103	14	14	437	33	33	348	33
Future Volume (veh/h)	99	138	32	33	103	14	14	437	33	33	348	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1856	1885	1900	1900	1870	1856	1811	1796	1900
Adj Flow Rate, veh/h	99	138	29	33	103	11	14	437	26	33	348	21
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	1	0	3	1	0	0	2	3	6	7	0
Cap, veh/h	237	216	40	165	313	29	33	573	34	67	585	35
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.02	0.33	0.33	0.04	0.35	0.35
Sat Flow, veh/h	500	982	181	234	1425	134	1810	1748	104	1725	1677	101
Grp Volume(v), veh/h	266	0	0	147	0	0	14	0	463	33	0	369
Grp Sat Flow(s),veh/h/ln	1663	0	0	1794	0	0	1810	0	1852	1725	0	1778
Q Serve(g_s), s	3.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	8.7	0.7	0.0	6.6
Cycle Q Clear(g_c), s	5.6	0.0	0.0	2.6	0.0	0.0	0.3	0.0	8.7	0.7	0.0	6.6
Prop In Lane	0.37		0.11	0.22		0.07	1.00		0.06	1.00		0.06
Lane Grp Cap(c), veh/h	493	0	0	508	0	0	33	0	608	67	0	620
V/C Ratio(X)	0.54	0.00	0.00	0.29	0.00	0.00	0.43	0.00	0.76	0.50	0.00	0.60
Avail Cap(c_a), veh/h	964	0	0	1003	0	0	468	0	2873	446	0	2759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.9	0.0	0.0	12.8	0.0	0.0	18.8	0.0	11.6	18.2	0.0	10.3
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.3	0.0	0.0	3.3	0.0	1.5	2.1	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	0.7	0.0	0.0	0.1	0.0	2.2	0.3	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.8	0.0	0.0	13.1	0.0	0.0	22.1	0.0	13.1	20.3	0.0	11.0
LnGrp LOS	B	A	A	B	A	A	C	A	B	C	A	B
Approach Vol, veh/h		266			147			477			402	
Approach Delay, s/veh		14.8			13.1			13.4			11.8	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.5	18.7		14.5	4.7	19.5		14.5				
Change Period (Y+Rc), s	4.0	6.0		6.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s	10.0	60.0		20.0	10.0	60.0		20.0				
Max Q Clear Time (g_c+I1), s	2.7	10.7		7.6	2.3	8.6		4.6				
Green Ext Time (p_c), s	0.0	2.0		1.0	0.0	1.6		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			13.1									
HCM 6th LOS			B									

HCM 6th AWSC
2: Jack Tone Rd & E Harney Ln

01/12/2025

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	79	43	21	91	24	39	165	29	30	141	17
Future Vol, veh/h	20	79	43	21	91	24	39	165	29	30	141	17
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	10	0	3	0	2	4	0	5	14	0	6	0
Mvmt Flow	20	79	43	21	91	24	39	165	29	30	141	17
Number of Lanes	0	1	1	0	1	1	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	9.5	9.7	10.6	10.3
HCM LOS	A	A	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	19%	0%	20%	0%	19%	0%	18%	0%
Vol Thru, %	81%	0%	80%	0%	81%	0%	82%	0%
Vol Right, %	0%	100%	0%	100%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	204	29	99	43	112	24	171	17
LT Vol	39	0	20	0	21	0	30	0
Through Vol	165	0	79	0	91	0	141	0
RT Vol	0	29	0	43	0	24	0	17
Lane Flow Rate	204	29	99	43	112	24	171	17
Geometry Grp	5	5	5	5	5	5	5	5
Degree of Util (X)	0.321	0.04	0.169	0.062	0.186	0.035	0.271	0.024
Departure Headway (Hd)	5.664	4.947	6.146	5.164	5.974	5.206	5.711	5.019
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	639	727	585	694	601	688	633	717
Service Time	3.369	2.652	3.873	2.891	3.702	2.934	3.417	2.725
HCM Lane V/C Ratio	0.319	0.04	0.169	0.062	0.186	0.035	0.27	0.024
HCM Control Delay	11	7.9	10.1	8.2	10.1	8.1	10.5	7.8
HCM Lane LOS	B	A	B	A	B	A	B	A
HCM 95th-tile Q	1.4	0.1	0.6	0.2	0.7	0.1	1.1	0.1

Intersection						
Int Delay, s/veh	1.6					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱		↰	↰	↱
Traffic Vol, veh/h	80	0	0	53	26	2
Future Vol, veh/h	80	0	0	53	26	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	575	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	80	0	0	53	26	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	80	0	133	80
Stage 1	-	-	-	-	80	-
Stage 2	-	-	-	-	53	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1531	-	866	986
Stage 1	-	-	-	-	948	-
Stage 2	-	-	-	-	975	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1531	-	866	986
Mov Cap-2 Maneuver	-	-	-	-	866	-
Stage 1	-	-	-	-	948	-
Stage 2	-	-	-	-	975	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	866	986	-	-	1531	-
HCM Lane V/C Ratio	0.03	0.002	-	-	-	-
HCM Control Delay (s)	9.3	8.7	-	-	0	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

Intersection												
Int Delay, s/veh	2.8											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	30	1	41	2	0	0	31	108	0	0	112	24
Future Vol, veh/h	30	1	41	2	0	0	31	108	0	0	112	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	4
Mvmt Flow	30	1	41	2	0	0	31	108	0	0	112	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	294	294	124	315	306	108	136	0	0	108	0	0
Stage 1	124	124	-	170	170	-	-	-	-	-	-	-
Stage 2	170	170	-	145	136	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	662	620	932	642	611	951	1461	-	-	1495	-	-
Stage 1	885	797	-	837	762	-	-	-	-	-	-	-
Stage 2	837	762	-	863	788	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	650	606	932	602	597	951	1461	-	-	1495	-	-
Mov Cap-2 Maneuver	650	606	-	602	597	-	-	-	-	-	-	-
Stage 1	865	797	-	818	744	-	-	-	-	-	-	-
Stage 2	818	744	-	824	788	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	11	1.7	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1461	-	-	784	602	1495	-	-
HCM Lane V/C Ratio	0.021	-	-	0.092	0.003	-	-	-
HCM Control Delay (s)	7.5	0	-	10.1	11	0	-	-
HCM Lane LOS	A	A	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0	0	-	-

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - E AM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	122	Opposing Demand Flow Rate, veh/h	165
Peak Hour Factor	1.00	Total Trucks, %	5.74
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient (m)	3.28208	Speed Power Coefficient (p)	0.54976
PF Slope Coefficient (m)	-1.23095	PF Power Coefficient (p)	0.76891
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	54.0

Vehicle Results

Average Speed, mi/h	54.0	Percent Followers, %	21.7
Segment Travel Time, minutes	5.00	Adj. Follower Density, followers/mi/ln	0.5
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	137	0.02	0.5	A

HCS Two-Lane Highway Report

Project Information

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Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - E AM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	217	Opposing Demand Flow Rate, veh/h	98
Peak Hour Factor	1.00	Total Trucks, %	10.14
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.2
Speed Slope Coefficient (m)	3.24360	Speed Power Coefficient (p)	0.57513
PF Slope Coefficient (m)	-1.20751	PF Power Coefficient (p)	0.77577
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	53.3

Vehicle Results

Average Speed, mi/h	53.3	Percent Followers, %	30.9
Segment Travel Time, minutes	5.07	Adj. Follower Density, followers/mi/ln	1.3
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	244	0.08	1.3	A

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - E AM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	69	Opposing Demand Flow Rate, veh/h	73
Peak Hour Factor	1.00	Total Trucks, %	26.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	58.8
Speed Slope Coefficient (m)	3.47854	Speed Power Coefficient (p)	0.58752
PF Slope Coefficient (m)	-1.17904	PF Power Coefficient (p)	0.79518
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	58.8

Vehicle Results

Average Speed, mi/h	58.8	Percent Followers, %	13.1
Segment Travel Time, minutes	2.86	Adj. Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	48	0.00	0.2	A

HCS Two-Lane Highway Report

Project Information

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Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - E AM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	73	Opposing Demand Flow Rate, veh/h	69
Peak Hour Factor	1.00	Total Trucks, %	16.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	59.2
Speed Slope Coefficient (m)	3.49350	Speed Power Coefficient (p)	0.58973
PF Slope Coefficient (m)	-1.17685	PF Power Coefficient (p)	0.79524
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	59.2

Vehicle Results

Average Speed, mi/h	59.2	Percent Followers, %	13.7
Segment Travel Time, minutes	2.84	Adj. Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	51	0.00	0.2	A

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - E AM NB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	414	Opposing Demand Flow Rate, veh/h	222
Peak Hour Factor	0.85	Total Trucks, %	8.24
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	59.9
Speed Slope Coefficient (m)	3.60386	Speed Power Coefficient (p)	0.53320
PF Slope Coefficient (m)	-1.22362	PF Power Coefficient (p)	0.78091
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	58.0

Vehicle Results

Average Speed, mi/h	58.0	Percent Followers, %	45.9
Segment Travel Time, minutes	3.21	Adj. Follower Density, followers/mi/ln	3.3
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	273	0.15	3.3	B

HCS Two-Lane Highway Report

Project Information

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Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - E AM SB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	249	Opposing Demand Flow Rate, veh/h	342
Peak Hour Factor	0.85	Total Trucks, %	9.91
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	59.9
Speed Slope Coefficient (m)	3.63808	Speed Power Coefficient (p)	0.50688
PF Slope Coefficient (m)	-1.24613	PF Power Coefficient (p)	0.77335
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	1.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	58.5

Vehicle Results

Average Speed, mi/h	58.5	Percent Followers, %	34.7
Segment Travel Time, minutes	3.18	Adj. Follower Density, followers/mi/ln	1.5
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	164	0.07	1.5	A

HCS Two-Lane Highway Report

Project Information

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Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - E PM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	219	Opposing Demand Flow Rate, veh/h	161
Peak Hour Factor	1.00	Total Trucks, %	6.39
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient (m)	3.27928	Speed Power Coefficient (p)	0.55105
PF Slope Coefficient (m)	-1.22974	PF Power Coefficient (p)	0.76929
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	53.3

Vehicle Results

Average Speed, mi/h	53.3	Percent Followers, %	31.8
Segment Travel Time, minutes	5.06	Adj. Follower Density, followers/mi/ln	1.3
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	246	0.09	1.3	A

HCS Two-Lane Highway Report

Project Information			
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Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - E PM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	161	Opposing Demand Flow Rate, veh/h	219
Peak Hour Factor	1.00	Total Trucks, %	4.97
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient (m)	3.30372	Speed Power Coefficient (p)	0.53408
PF Slope Coefficient (m)	-1.24549	PF Power Coefficient (p)	0.76466
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	53.7

Vehicle Results			
Average Speed, mi/h	53.7	Percent Followers, %	26.5
Segment Travel Time, minutes	5.03	Adj. Follower Density, followers/mi/ln	0.8
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	181	0.05	0.8	A

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - E PM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	57	Opposing Demand Flow Rate, veh/h	40
Peak Hour Factor	1.00	Total Trucks, %	8.77
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.03

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	59.4
Speed Slope Coefficient (m)	3.48679	Speed Power Coefficient (p)	0.60875
PF Slope Coefficient (m)	-1.16002	PF Power Coefficient (p)	0.79984
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	59.4

Vehicle Results

Average Speed, mi/h	59.4	Percent Followers, %	11.1
Segment Travel Time, minutes	2.83	Adj. Follower Density, followers/mi/ln	0.1
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	40	0.00	0.1	A

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
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Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - E PM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	69	Opposing Demand Flow Rate, veh/h	55
Peak Hour Factor	1.00	Total Trucks, %	7.25
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	59.5
Speed Slope Coefficient (m)	3.50085	Speed Power Coefficient (p)	0.59816
PF Slope Coefficient (m)	-1.16922	PF Power Coefficient (p)	0.79696
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	59.5

Vehicle Results

Average Speed, mi/h	59.5	Percent Followers, %	13.0
Segment Travel Time, minutes	2.83	Adj. Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	48	0.00	0.2	A

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - E PM NB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	375	Opposing Demand Flow Rate, veh/h	405
Peak Hour Factor	0.85	Total Trucks, %	3.45
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.1
Speed Slope Coefficient (m)	3.66647	Speed Power Coefficient (p)	0.49606
PF Slope Coefficient (m)	-1.25471	PF Power Coefficient (p)	0.76965
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	58.2

Vehicle Results

Average Speed, mi/h	58.2	Percent Followers, %	44.6
Segment Travel Time, minutes	3.20	Adj. Follower Density, followers/mi/ln	2.9
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	247	0.14	2.9	B

HCS Two-Lane Highway Report

Project Information

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Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - E PM SB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	445	Opposing Demand Flow Rate, veh/h	368
Peak Hour Factor	0.85	Total Trucks, %	2.65
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.1
Speed Slope Coefficient (m)	3.65830	Speed Power Coefficient (p)	0.50220
PF Slope Coefficient (m)	-1.24959	PF Power Coefficient (p)	0.77151
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	58.0

Vehicle Results

Average Speed, mi/h	58.0	Percent Followers, %	48.8
Segment Travel Time, minutes	3.21	Adj. Follower Density, followers/mi/ln	3.7
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	293	0.18	3.7	B

HCS Two-Lane Highway Report

Project Information			
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Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - E+P AM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	129	Opposing Demand Flow Rate, veh/h	170
Peak Hour Factor	1.00	Total Trucks, %	7.75
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	54.3
Speed Slope Coefficient (m)	3.28046	Speed Power Coefficient (p)	0.54816
PF Slope Coefficient (m)	-1.23240	PF Power Coefficient (p)	0.76858
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	53.8

Vehicle Results			
Average Speed, mi/h	53.8	Percent Followers, %	22.5
Segment Travel Time, minutes	5.01	Adj. Follower Density, followers/mi/ln	0.5
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	145	0.02	0.5	A

HCS Two-Lane Highway Report

Project Information			
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Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - E+P AM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	222	Opposing Demand Flow Rate, veh/h	105
Peak Hour Factor	1.00	Total Trucks, %	10.81
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	54.2
Speed Slope Coefficient (m)	3.24600	Speed Power Coefficient (p)	0.57203
PF Slope Coefficient (m)	-1.21034	PF Power Coefficient (p)	0.77500
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	53.2

Vehicle Results			
Average Speed, mi/h	53.2	Percent Followers, %	31.4
Segment Travel Time, minutes	5.07	Adj. Follower Density, followers/mi/ln	1.3
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	250	0.08	1.3	A

HCS Two-Lane Highway Report

Project Information

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Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - E+P AM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	90	Opposing Demand Flow Rate, veh/h	88
Peak Hour Factor	1.00	Total Trucks, %	30.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	58.7
Speed Slope Coefficient (m)	3.48016	Speed Power Coefficient (p)	0.57982
PF Slope Coefficient (m)	-1.18590	PF Power Coefficient (p)	0.79335
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	58.7

Vehicle Results

Average Speed, mi/h	58.7	Percent Followers, %	16.1
Segment Travel Time, minutes	2.86	Adj. Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	63	0.00	0.2	A

HCS Two-Lane Highway Report

Project Information

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Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - E+P AM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	88	Opposing Demand Flow Rate, veh/h	90
Peak Hour Factor	1.00	Total Trucks, %	21.59
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	59.0
Speed Slope Coefficient (m)	3.49644	Speed Power Coefficient (p)	0.57886
PF Slope Coefficient (m)	-1.18653	PF Power Coefficient (p)	0.79264
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	59.0

Vehicle Results

Average Speed, mi/h	59.0	Percent Followers, %	15.9
Segment Travel Time, minutes	2.85	Adj. Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	62	0.00	0.2	A

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - E+P AM NB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	429	Opposing Demand Flow Rate, veh/h	233
Peak Hour Factor	0.85	Total Trucks, %	9.32
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	59.9
Speed Slope Coefficient (m)	3.60555	Speed Power Coefficient (p)	0.53049
PF Slope Coefficient (m)	-1.22601	PF Power Coefficient (p)	0.78021
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	57.9

Vehicle Results

Average Speed, mi/h	57.9	Percent Followers, %	47.0
Segment Travel Time, minutes	3.21	Adj. Follower Density, followers/mi/ln	3.5
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	283	0.16	3.5	B

HCS Two-Lane Highway Report

Project Information			
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Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - E+P AM SB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	260	Opposing Demand Flow Rate, veh/h	358
Peak Hour Factor	0.85	Total Trucks, %	11.76
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	59.8
Speed Slope Coefficient (m)	3.63897	Speed Power Coefficient (p)	0.50408
PF Slope Coefficient (m)	-1.24859	PF Power Coefficient (p)	0.77261
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	1.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	58.4

Vehicle Results			
Average Speed, mi/h	58.4	Percent Followers, %	35.7
Segment Travel Time, minutes	3.19	Adj. Follower Density, followers/mi/ln	1.6
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	171	0.07	1.6	A

HCS Two-Lane Highway Report

Project Information			
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Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - E+P PM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	219	Opposing Demand Flow Rate, veh/h	163
Peak Hour Factor	1.00	Total Trucks, %	6.39
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.13

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient (m)	3.28010	Speed Power Coefficient (p)	0.55040
PF Slope Coefficient (m)	-1.23034	PF Power Coefficient (p)	0.76911
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	1.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	53.3

Vehicle Results			
Average Speed, mi/h	53.3	Percent Followers, %	31.8
Segment Travel Time, minutes	5.06	Adj. Follower Density, followers/mi/ln	1.3
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	246	0.09	1.3	A

HCS Two-Lane Highway Report

Project Information			
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Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - E+P PM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	163	Opposing Demand Flow Rate, veh/h	219
Peak Hour Factor	1.00	Total Trucks, %	4.91
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient (m)	3.30383	Speed Power Coefficient (p)	0.53408
PF Slope Coefficient (m)	-1.24549	PF Power Coefficient (p)	0.76466
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	53.7

Vehicle Results			
Average Speed, mi/h	53.7	Percent Followers, %	26.7
Segment Travel Time, minutes	5.03	Adj. Follower Density, followers/mi/ln	0.8
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	183	0.05	0.8	A

HCS Two-Lane Highway Report

Project Information

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Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - E+P PM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	57	Opposing Demand Flow Rate, veh/h	48
Peak Hour Factor	1.00	Total Trucks, %	8.77
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.03

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	59.4
Speed Slope Coefficient (m)	3.49305	Speed Power Coefficient (p)	0.60285
PF Slope Coefficient (m)	-1.16516	PF Power Coefficient (p)	0.79828
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	59.4

Vehicle Results

Average Speed, mi/h	59.4	Percent Followers, %	11.2
Segment Travel Time, minutes	2.83	Adj. Follower Density, followers/mi/ln	0.1
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	40	0.00	0.1	A

HCS Two-Lane Highway Report

Project Information

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Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - E+P PM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	77	Opposing Demand Flow Rate, veh/h	55
Peak Hour Factor	1.00	Total Trucks, %	6.49
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	59.5
Speed Slope Coefficient (m)	3.50222	Speed Power Coefficient (p)	0.59816
PF Slope Coefficient (m)	-1.16920	PF Power Coefficient (p)	0.79692
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	59.5

Vehicle Results

Average Speed, mi/h	59.5	Percent Followers, %	14.1
Segment Travel Time, minutes	2.82	Adj. Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	54	0.00	0.2	A

HCS Two-Lane Highway Report

Project Information

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Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - E+P PM NB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	375	Opposing Demand Flow Rate, veh/h	412
Peak Hour Factor	0.85	Total Trucks, %	3.45
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.1
Speed Slope Coefficient (m)	3.66828	Speed Power Coefficient (p)	0.49493
PF Slope Coefficient (m)	-1.25564	PF Power Coefficient (p)	0.76929
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	58.1

Vehicle Results

Average Speed, mi/h	58.1	Percent Followers, %	44.6
Segment Travel Time, minutes	3.20	Adj. Follower Density, followers/mi/ln	2.9
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	247	0.14	2.9	B

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - E+P PM SB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	452	Opposing Demand Flow Rate, veh/h	368
Peak Hour Factor	0.85	Total Trucks, %	2.60
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.1
Speed Slope Coefficient (m)	3.65839	Speed Power Coefficient (p)	0.50220
PF Slope Coefficient (m)	-1.24959	PF Power Coefficient (p)	0.77151
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	57.9

Vehicle Results

Average Speed, mi/h	57.9	Percent Followers, %	49.2
Segment Travel Time, minutes	3.21	Adj. Follower Density, followers/mi/ln	3.8
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	298	0.18	3.8	B

HCS Two-Lane Highway Report

Project Information			
Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - F AM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	188	Opposing Demand Flow Rate, veh/h	229
Peak Hour Factor	1.00	Total Trucks, %	5.74
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient (m)	3.30579	Speed Power Coefficient (p)	0.53149
PF Slope Coefficient (m)	-1.24789	PF Power Coefficient (p)	0.76399
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	1.0
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	53.5

Vehicle Results			
Average Speed, mi/h	53.5	Percent Followers, %	29.4
Segment Travel Time, minutes	5.05	Adj. Follower Density, followers/mi/ln	1.0
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	212	0.07	1.0	A

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - F AM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	301	Opposing Demand Flow Rate, veh/h	151
Peak Hour Factor	1.00	Total Trucks, %	10.14
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.2
Speed Slope Coefficient (m)	3.26837	Speed Power Coefficient (p)	0.55439
PF Slope Coefficient (m)	-1.22660	PF Power Coefficient (p)	0.77035
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	52.9

Vehicle Results

Average Speed, mi/h	52.9	Percent Followers, %	38.5
Segment Travel Time, minutes	5.10	Adj. Follower Density, followers/mi/ln	2.2
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	339	0.16	2.2	B

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - F AM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	72	Opposing Demand Flow Rate, veh/h	81
Peak Hour Factor	1.00	Total Trucks, %	26.09
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	58.8
Speed Slope Coefficient (m)	3.48327	Speed Power Coefficient (p)	0.58330
PF Slope Coefficient (m)	-1.18274	PF Power Coefficient (p)	0.79406
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	58.8

Vehicle Results

Average Speed, mi/h	58.8	Percent Followers, %	13.6
Segment Travel Time, minutes	2.86	Adj. Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	50	0.00	0.2	A

HCS Two-Lane Highway Report

Project Information			
Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - F AM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity			
Directional Demand Flow Rate, veh/h	81	Opposing Demand Flow Rate, veh/h	72
Peak Hour Factor	1.00	Total Trucks, %	16.44
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	59.2
Speed Slope Coefficient (m)	3.49535	Speed Power Coefficient (p)	0.58806
PF Slope Coefficient (m)	-1.17831	PF Power Coefficient (p)	0.79480
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	59.2

Vehicle Results			
Average Speed, mi/h	59.2	Percent Followers, %	14.8
Segment Travel Time, minutes	2.84	Adj. Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	57	0.00	0.2	A

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - F AM NB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	551	Opposing Demand Flow Rate, veh/h	312
Peak Hour Factor	1.00	Total Trucks, %	8.24
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.32

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	59.9
Speed Slope Coefficient (m)	3.63239	Speed Power Coefficient (p)	0.51275
PF Slope Coefficient (m)	-1.24108	PF Power Coefficient (p)	0.77501
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	57.5

Vehicle Results

Average Speed, mi/h	57.5	Percent Followers, %	54.2
Segment Travel Time, minutes	3.23	Adj. Follower Density, followers/mi/ln	5.2
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	427	0.30	5.2	C

HCS Two-Lane Highway Report

Project Information

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Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - F AM SB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	350	Opposing Demand Flow Rate, veh/h	456
Peak Hour Factor	1.00	Total Trucks, %	9.91
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	59.9
Speed Slope Coefficient (m)	3.66763	Speed Power Coefficient (p)	0.48820
PF Slope Coefficient (m)	-1.26158	PF Power Coefficient (p)	0.76750
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	58.0

Vehicle Results

Average Speed, mi/h	58.0	Percent Followers, %	43.1
Segment Travel Time, minutes	3.21	Adj. Follower Density, followers/mi/ln	2.6
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	271	0.15	2.6	B

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - F PM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	250	Opposing Demand Flow Rate, veh/h	161
Peak Hour Factor	1.00	Total Trucks, %	6.39
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient (m)	3.27928	Speed Power Coefficient (p)	0.55105
PF Slope Coefficient (m)	-1.22974	PF Power Coefficient (p)	0.76929
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	1.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	53.2

Vehicle Results

Average Speed, mi/h	53.2	Percent Followers, %	34.5
Segment Travel Time, minutes	5.07	Adj. Follower Density, followers/mi/ln	1.6
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	281	0.11	1.6	A

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - F PM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	161	Opposing Demand Flow Rate, veh/h	250
Peak Hour Factor	1.00	Total Trucks, %	4.97
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.09

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient (m)	3.31422	Speed Power Coefficient (p)	0.52632
PF Slope Coefficient (m)	-1.25271	PF Power Coefficient (p)	0.76252
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	53.6

Vehicle Results

Average Speed, mi/h	53.6	Percent Followers, %	26.7
Segment Travel Time, minutes	5.03	Adj. Follower Density, followers/mi/ln	0.8
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	181	0.05	0.8	A

HCS Two-Lane Highway Report

Project Information			
Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - F PM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity			
Directional Demand Flow Rate, veh/h	65	Opposing Demand Flow Rate, veh/h	42
Peak Hour Factor	1.00	Total Trucks, %	8.77
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	59.4
Speed Slope Coefficient (m)	3.48841	Speed Power Coefficient (p)	0.60721
PF Slope Coefficient (m)	-1.16135	PF Power Coefficient (p)	0.79943
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	59.4

Vehicle Results			
Average Speed, mi/h	59.4	Percent Followers, %	12.2
Segment Travel Time, minutes	2.83	Adj. Follower Density, followers/mi/ln	0.1
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	46	0.00	0.1	A

HCS Two-Lane Highway Report

Project Information			
Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - F PM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity			
Directional Demand Flow Rate, veh/h	72	Opposing Demand Flow Rate, veh/h	63
Peak Hour Factor	1.00	Total Trucks, %	7.25
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	59.5
Speed Slope Coefficient (m)	3.50625	Speed Power Coefficient (p)	0.59320
PF Slope Coefficient (m)	-1.17355	PF Power Coefficient (p)	0.79565
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	59.5

Vehicle Results			
Average Speed, mi/h	59.5	Percent Followers, %	13.5
Segment Travel Time, minutes	2.83	Adj. Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	50	0.00	0.2	A

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - F PM NB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	451	Opposing Demand Flow Rate, veh/h	455
Peak Hour Factor	1.00	Total Trucks, %	3.45
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.1
Speed Slope Coefficient (m)	3.67905	Speed Power Coefficient (p)	0.48835
PF Slope Coefficient (m)	-1.26100	PF Power Coefficient (p)	0.76718
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	57.9

Vehicle Results

Average Speed, mi/h	57.9	Percent Followers, %	49.6
Segment Travel Time, minutes	3.21	Adj. Follower Density, followers/mi/ln	3.9
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	350	0.22	3.9	B

HCS Two-Lane Highway Report

Project Information			
Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - F PM SB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	500	Opposing Demand Flow Rate, veh/h	443
Peak Hour Factor	1.00	Total Trucks, %	2.65
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.29

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	60.1
Speed Slope Coefficient (m)	3.67756	Speed Power Coefficient (p)	0.49012
PF Slope Coefficient (m)	-1.25951	PF Power Coefficient (p)	0.76771
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	57.8

Vehicle Results			
Average Speed, mi/h	57.8	Percent Followers, %	52.3
Segment Travel Time, minutes	3.22	Adj. Follower Density, followers/mi/ln	4.5
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	388	0.26	4.5	C

HCS Two-Lane Highway Report

Project Information			
Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - F+P AM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	195	Opposing Demand Flow Rate, veh/h	234
Peak Hour Factor	1.00	Total Trucks, %	7.07
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.11

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	54.3
Speed Slope Coefficient (m)	3.30510	Speed Power Coefficient (p)	0.53023
PF Slope Coefficient (m)	-1.24906	PF Power Coefficient (p)	0.76370
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	1.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	53.4

Vehicle Results			
Average Speed, mi/h	53.4	Percent Followers, %	30.1
Segment Travel Time, minutes	5.06	Adj. Follower Density, followers/mi/ln	1.1
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	219	0.07	1.1	A

HCS Two-Lane Highway Report

Project Information			
Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - F+P AM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	306	Opposing Demand Flow Rate, veh/h	158
Peak Hour Factor	1.00	Total Trucks, %	10.63
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	54.2
Speed Slope Coefficient (m)	3.27040	Speed Power Coefficient (p)	0.55204
PF Slope Coefficient (m)	-1.22877	PF Power Coefficient (p)	0.76975
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	52.9

Vehicle Results			
Average Speed, mi/h	52.9	Percent Followers, %	39.0
Segment Travel Time, minutes	5.11	Adj. Follower Density, followers/mi/ln	2.3
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	344	0.16	2.3	B

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - F+P AM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	93	Opposing Demand Flow Rate, veh/h	96
Peak Hour Factor	1.00	Total Trucks, %	29.87
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	58.7
Speed Slope Coefficient (m)	3.48472	Speed Power Coefficient (p)	0.57605
PF Slope Coefficient (m)	-1.18922	PF Power Coefficient (p)	0.79234
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	58.7

Vehicle Results

Average Speed, mi/h	58.7	Percent Followers, %	16.6
Segment Travel Time, minutes	2.86	Adj. Follower Density, followers/mi/ln	0.3
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	65	0.00	0.3	A

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - F+P AM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	96	Opposing Demand Flow Rate, veh/h	93
Peak Hour Factor	1.00	Total Trucks, %	21.16
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.06

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	59.0
Speed Slope Coefficient (m)	3.49884	Speed Power Coefficient (p)	0.57744
PF Slope Coefficient (m)	-1.18776	PF Power Coefficient (p)	0.79224
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.3
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	59.0

Vehicle Results

Average Speed, mi/h	59.0	Percent Followers, %	16.9
Segment Travel Time, minutes	2.85	Adj. Follower Density, followers/mi/ln	0.3
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	67	0.00	0.3	A

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - F+P AM NB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	564	Opposing Demand Flow Rate, veh/h	321
Peak Hour Factor	1.00	Total Trucks, %	8.94
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.33

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	59.9
Speed Slope Coefficient (m)	3.63375	Speed Power Coefficient (p)	0.51097
PF Slope Coefficient (m)	-1.24263	PF Power Coefficient (p)	0.77452
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	5.4
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	57.4

Vehicle Results

Average Speed, mi/h	57.4	Percent Followers, %	55.0
Segment Travel Time, minutes	3.24	Adj. Follower Density, followers/mi/ln	5.4
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	437	0.31	5.4	C

HCS Two-Lane Highway Report

Project Information			
Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - F+P AM SB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	359	Opposing Demand Flow Rate, veh/h	469
Peak Hour Factor	1.00	Total Trucks, %	11.05
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	59.8
Speed Slope Coefficient (m)	3.66871	Speed Power Coefficient (p)	0.48634
PF Slope Coefficient (m)	-1.26317	PF Power Coefficient (p)	0.76695
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	2.7
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	57.9

Vehicle Results			
Average Speed, mi/h	57.9	Percent Followers, %	43.8
Segment Travel Time, minutes	3.21	Adj. Follower Density, followers/mi/ln	2.7
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	278	0.15	2.7	B

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - F+P PM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity

Directional Demand Flow Rate, veh/h	250	Opposing Demand Flow Rate, veh/h	163
Peak Hour Factor	1.00	Total Trucks, %	6.39
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.15

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient (m)	3.28010	Speed Power Coefficient (p)	0.55040
PF Slope Coefficient (m)	-1.23034	PF Power Coefficient (p)	0.76911
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	1.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	53.2

Vehicle Results

Average Speed, mi/h	53.2	Percent Followers, %	34.5
Segment Travel Time, minutes	5.07	Adj. Follower Density, followers/mi/ln	1.6
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	281	0.11	1.6	A

HCS Two-Lane Highway Report

Project Information			
Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	1 - E Harney Ln btwn SR-99 & SR-88 - F+P PM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	23760
Lane Width, ft	11	Shoulder Width, ft	0
Speed Limit, mi/h	55	Access Point Density, pts/mi	13.3

Demand and Capacity			
Directional Demand Flow Rate, veh/h	163	Opposing Demand Flow Rate, veh/h	250
Peak Hour Factor	1.00	Total Trucks, %	4.91
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.10

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient (m)	3.31433	Speed Power Coefficient (p)	0.52632
PF Slope Coefficient (m)	-1.25271	PF Power Coefficient (p)	0.76252
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.8
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	23760	-	-	53.6

Vehicle Results			
Average Speed, mi/h	53.6	Percent Followers, %	27.0
Segment Travel Time, minutes	5.03	Adj. Follower Density, followers/mi/ln	0.8
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	183	0.05	0.8	A

HCS Two-Lane Highway Report

Project Information			
Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - F+P PM EB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity			
Directional Demand Flow Rate, veh/h	65	Opposing Demand Flow Rate, veh/h	50
Peak Hour Factor	1.00	Total Trucks, %	8.77
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	59.4
Speed Slope Coefficient (m)	3.49453	Speed Power Coefficient (p)	0.60147
PF Slope Coefficient (m)	-1.16636	PF Power Coefficient (p)	0.79792
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	59.4

Vehicle Results			
Average Speed, mi/h	59.4	Percent Followers, %	12.3
Segment Travel Time, minutes	2.83	Adj. Follower Density, followers/mi/ln	0.1
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	46	0.00	0.1	A

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	2 - E Harney Ln btwn Jack Tone Rd & Site - F+P PM WB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	14784
Lane Width, ft	11	Shoulder Width, ft	5
Speed Limit, mi/h	55	Access Point Density, pts/mi	6.8

Demand and Capacity

Directional Demand Flow Rate, veh/h	80	Opposing Demand Flow Rate, veh/h	63
Peak Hour Factor	1.00	Total Trucks, %	6.52
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	59.5
Speed Slope Coefficient (m)	3.50757	Speed Power Coefficient (p)	0.59320
PF Slope Coefficient (m)	-1.17353	PF Power Coefficient (p)	0.79561
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	0.2
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	14784	-	-	59.5

Vehicle Results

Average Speed, mi/h	59.5	Percent Followers, %	14.6
Segment Travel Time, minutes	2.82	Adj. Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	56	0.00	0.2	A

HCS Two-Lane Highway Report

Project Information

Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - F+P PM NB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	451	Opposing Demand Flow Rate, veh/h	461
Peak Hour Factor	1.00	Total Trucks, %	3.45
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.27

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.1
Speed Slope Coefficient (m)	3.68050	Speed Power Coefficient (p)	0.48748
PF Slope Coefficient (m)	-1.26170	PF Power Coefficient (p)	0.76689
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	3.9
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	57.9

Vehicle Results

Average Speed, mi/h	57.9	Percent Followers, %	49.6
Segment Travel Time, minutes	3.21	Adj. Follower Density, followers/mi/ln	3.9
Vehicle LOS	B		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	350	0.22	3.9	B

HCS Two-Lane Highway Report

Project Information			
Analyst	Alyssa Labrador	Date	12/23/2024
Agency	W-Trans	Analysis Year	2024
Jurisdiction	San Joaquin County	Time Analyzed	3 - SR-88 btwn E Harney Ln & 8 Mile Rd - F+P PM SB
Project Description	SJX015	Units	U.S. Customary

Segment 1

Vehicle Inputs			
Segment Type	Passing Zone	Length, ft	16368
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	55	Access Point Density, pts/mi	10.0

Demand and Capacity			
Directional Demand Flow Rate, veh/h	506	Opposing Demand Flow Rate, veh/h	443
Peak Hour Factor	1.00	Total Trucks, %	2.61
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.30

Intermediate Results			
Segment Vertical Class	1	Free-Flow Speed, mi/h	60.1
Speed Slope Coefficient (m)	3.67763	Speed Power Coefficient (p)	0.49012
PF Slope Coefficient (m)	-1.25951	PF Power Coefficient (p)	0.76770
In Passing Lane Effective Length?	No	Follower Density, followers/mi/ln	4.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	16368	-	-	57.7

Vehicle Results			
Average Speed, mi/h	57.7	Percent Followers, %	52.6
Segment Travel Time, minutes	3.22	Adj. Follower Density, followers/mi/ln	4.6
Vehicle LOS	C		

Facility Results

T	VMT veh-mi/AP	VHD veh-h/p	Follower Density, followers/mi/ln	LOS
1	392	0.27	4.6	C

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: 3-East Harney Lane/Site Access
Study Scenario: Future plus Project AM

Direction of Analysis Street: East/West

Cross Street Intersects: From the South

East Harney Lane
Eastbound Volumes (veh/hr)
Through Volume = 37
Right Turn Volume = 60

East Harney Lane
Westbound Volumes (veh/hr)
66 = Through Volume
7 = Left Turn Volume

Eastbound Speed Limit: 55 mph
Eastbound Configuration: 2 Lanes - Undivided

Project Driveway

Westbound Speed Limit: 55 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	450
Advancing Volume	Va =	97
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

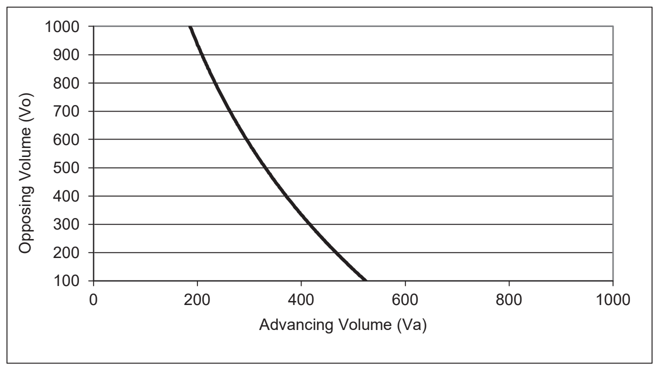
Advancing Volume Threshold	AV =	100
Advancing Volume	Va =	97
If AV<Va then warrant is met		No

Right Turn Taper Warranted: **NO**

Westbound Left Turn Lane Warrants

Percentage Left Turns	%lt	9.6 %
Advancing Volume Threshold	AV	563 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 55 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Intersection: 1: SR 88 & E Harney Ln

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	92	130	37	116	88	159
Average Queue (ft)	40	63	11	40	13	67
95th Queue (ft)	78	113	30	89	50	131
Link Distance (ft)	2539	7781		2683		3543
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			125		140	
Storage Blk Time (%)				0	0	0
Queuing Penalty (veh)				0	0	0

Intersection: 2: Jack Tone Rd & E Harney Ln

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	LT	R	LT	R
Maximum Queue (ft)	73	48	91	59	60	56	60	40
Average Queue (ft)	32	10	38	19	27	12	27	16
95th Queue (ft)	60	36	68	52	47	41	49	38
Link Distance (ft)	7781		4982		2775		1650	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		25		25		25		25
Storage Blk Time (%)	5	1	9	2	8	1	6	2
Queuing Penalty (veh)	1	1	2	2	1	1	2	2

Intersection: 3: Site Driveway & E Harney Ln

Movement	WB	NB	NB
Directions Served	LT	L	R
Maximum Queue (ft)	2	73	24
Average Queue (ft)	0	22	3
95th Queue (ft)	2	56	15
Link Distance (ft)	5909	1889	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			50
Storage Blk Time (%)		1	
Queuing Penalty (veh)		0	

Intersection: 4: Clements Rd & E Harney Ln

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	61	26	38
Average Queue (ft)	22	5	4
95th Queue (ft)	49	21	21
Link Distance (ft)	5909	2622	2606
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 13

Intersection: 1: SR 88 & E Harney Ln

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	141	118	41	146	63	154
Average Queue (ft)	72	47	10	62	20	62
95th Queue (ft)	125	92	30	118	48	119
Link Distance (ft)	2539	7781		2683		3543
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			125		140	
Storage Blk Time (%)				0		0
Queuing Penalty (veh)				0		0

Intersection: 2: Jack Tone Rd & E Harney Ln

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	LT	R	LT	R
Maximum Queue (ft)	62	50	61	53	65	62	69	37
Average Queue (ft)	27	21	30	13	28	16	30	10
95th Queue (ft)	48	47	50	42	48	45	52	33
Link Distance (ft)	7781		4982		2775		1650	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		25		25		25		25
Storage Blk Time (%)	7	3	8	1	8	2	9	1
Queuing Penalty (veh)	3	3	1	1	2	2	1	1

Intersection: 3: Site Driveway & E Harney Ln

Movement	NB	NB
Directions Served	L	R
Maximum Queue (ft)	34	23
Average Queue (ft)	12	2
95th Queue (ft)	35	13
Link Distance (ft)	1889	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		50
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 4: Clements Rd & E Harney Ln

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	46	19	25
Average Queue (ft)	21	1	2
95th Queue (ft)	43	11	14
Link Distance (ft)	5909	2622	2606
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 14

Intersection: 1: SR 88 & E Harney Ln

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	186	207	51	143	90	283
Average Queue (ft)	79	98	13	63	11	136
95th Queue (ft)	147	169	37	121	48	237
Link Distance (ft)	2539	7781		2683		3543
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			125		140	
Storage Blk Time (%)				1	0	5
Queuing Penalty (veh)				0	0	1

Intersection: 2: Jack Tone Rd & E Harney Ln

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	LT	R	LT	R
Maximum Queue (ft)	82	52	102	57	116	52	95	49
Average Queue (ft)	32	11	42	29	55	15	43	32
95th Queue (ft)	64	39	81	59	96	47	73	51
Link Distance (ft)	7781		4982		2775		1650	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		25		25		25		25
Storage Blk Time (%)	8	1	11	4	27	1	16	7
Queuing Penalty (veh)	1	1	5	5	4	4	13	12

Intersection: 3: Site Driveway & E Harney Ln

Movement	NB	NB
Directions Served	L	R
Maximum Queue (ft)	66	24
Average Queue (ft)	21	2
95th Queue (ft)	54	15
Link Distance (ft)	1889	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		50
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 4: Clements Rd & E Harney Ln

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	64	26	45	5
Average Queue (ft)	23	5	8	0
95th Queue (ft)	50	21	32	4
Link Distance (ft)	5909	2622	2606	2647
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 47

Intersection: 1: SR 88 & E Harney Ln

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	213	118	71	205	98	162
Average Queue (ft)	95	53	10	102	25	76
95th Queue (ft)	167	102	41	174	64	139
Link Distance (ft)	2539	7781		2683		3543
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			125		140	
Storage Blk Time (%)				3		1
Queuing Penalty (veh)				0		0

Intersection: 2: Jack Tone Rd & E Harney Ln

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	LT	R	LT	R
Maximum Queue (ft)	70	51	70	53	83	62	78	41
Average Queue (ft)	30	23	31	18	38	22	35	12
95th Queue (ft)	54	51	55	47	67	54	61	37
Link Distance (ft)	7781		4982		2775		1650	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		25		25		25		25
Storage Blk Time (%)	9	3	9	2	16	2	13	1
Queuing Penalty (veh)	4	3	2	2	5	5	2	2

Intersection: 3: Site Driveway & E Harney Ln

Movement	NB	NB
Directions Served	L	R
Maximum Queue (ft)	32	24
Average Queue (ft)	13	2
95th Queue (ft)	35	14
Link Distance (ft)	1889	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		50
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 4: Clements Rd & E Harney Ln

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	65	19	34
Average Queue (ft)	29	1	3
95th Queue (ft)	53	9	19
Link Distance (ft)	5909	2622	2606
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 25

Intersection: 1: SR 88 & E Harney Ln

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	111	162	44	127	61	158
Average Queue (ft)	45	72	11	44	13	67
95th Queue (ft)	88	129	32	98	44	131
Link Distance (ft)	2539	7781		2683		3543
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			125		140	
Storage Blk Time (%)				0		1
Queuing Penalty (veh)				0		0

Intersection: 2: Jack Tone Rd & E Harney Ln

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	LT	R	LT	R
Maximum Queue (ft)	84	49	113	60	60	53	62	39
Average Queue (ft)	38	10	46	21	28	13	28	17
95th Queue (ft)	70	36	84	54	47	41	50	38
Link Distance (ft)	7781		4982		2775		1650	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		25		25		25		25
Storage Blk Time (%)	7	1	10	2	8	1	7	2
Queuing Penalty (veh)	1	1	3	3	1	1	3	2

Intersection: 3: Site Driveway & E Harney Ln

Movement	NB	NB
Directions Served	L	R
Maximum Queue (ft)	82	22
Average Queue (ft)	31	4
95th Queue (ft)	68	20
Link Distance (ft)	1889	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		50
Storage Blk Time (%)	1	
Queuing Penalty (veh)	0	

Intersection: 4: Clements Rd & E Harney Ln

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	60	25	32	3
Average Queue (ft)	23	4	3	0
95th Queue (ft)	50	18	18	3
Link Distance (ft)	5909	2622	2606	2647
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 14

Intersection: 1: SR 88 & E Harney Ln

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	156	127	45	136	63	151
Average Queue (ft)	71	51	11	60	21	60
95th Queue (ft)	129	98	33	108	49	116
Link Distance (ft)	2539	7781		2683		3543
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			125		140	
Storage Blk Time (%)				0		0
Queuing Penalty (veh)				0		0

Intersection: 2: Jack Tone Rd & E Harney Ln

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	LT	R	LT	R
Maximum Queue (ft)	57	50	69	56	64	59	66	39
Average Queue (ft)	26	21	31	14	28	16	29	9
95th Queue (ft)	44	47	53	44	48	44	50	32
Link Distance (ft)	7781		4982		2775		1650	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		25		25		25		25
Storage Blk Time (%)	6	3	8	1	9	2	9	1
Queuing Penalty (veh)	2	2	2	1	2	2	1	1

Intersection: 3: Site Driveway & E Harney Ln

Movement	NB	NB
Directions Served	L	R
Maximum Queue (ft)	36	29
Average Queue (ft)	17	3
95th Queue (ft)	39	16
Link Distance (ft)	1889	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		50
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 4: Clements Rd & E Harney Ln

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	51	17	27
Average Queue (ft)	22	2	2
95th Queue (ft)	43	11	13
Link Distance (ft)	5909	2622	2606
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 14

Intersection: 1: SR 88 & E Harney Ln

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	201	272	68	197	74	288
Average Queue (ft)	89	119	14	77	13	141
95th Queue (ft)	170	223	45	152	48	238
Link Distance (ft)	2539	7781		2683		3543
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			125		140	
Storage Blk Time (%)				2	0	6
Queuing Penalty (veh)				0	0	1

Intersection: 2: Jack Tone Rd & E Harney Ln

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	LT	R	LT	R
Maximum Queue (ft)	96	53	112	63	133	54	101	50
Average Queue (ft)	42	11	47	28	59	17	44	33
95th Queue (ft)	76	39	88	60	104	49	81	53
Link Distance (ft)	7781		4982		2775		1650	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		25		25		25		25
Storage Blk Time (%)	11	1	14	4	30	2	17	7
Queuing Penalty (veh)	1	1	6	6	5	5	14	13

Intersection: 3: Site Driveway & E Harney Ln

Movement	WB	NB	NB
Directions Served	LT	L	R
Maximum Queue (ft)	5	79	33
Average Queue (ft)	0	30	4
95th Queue (ft)	3	68	21
Link Distance (ft)	5909	1889	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			50
Storage Blk Time (%)		1	0
Queuing Penalty (veh)		0	0

Intersection: 4: Clements Rd & E Harney Ln

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	81	25	47	5
Average Queue (ft)	25	5	8	0
95th Queue (ft)	56	21	30	5
Link Distance (ft)	5909	2622	2606	2647
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 51

Intersection: 1: SR 88 & E Harney Ln

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	181	131	66	211	80	163
Average Queue (ft)	94	58	11	105	25	74
95th Queue (ft)	156	110	41	180	59	134
Link Distance (ft)	2539	7781		2683		3543
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			125		140	
Storage Blk Time (%)				3	0	0
Queuing Penalty (veh)				0	0	0

Intersection: 2: Jack Tone Rd & E Harney Ln

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	LT	R	LT	R
Maximum Queue (ft)	70	52	72	55	83	58	78	42
Average Queue (ft)	30	22	32	19	38	21	35	13
95th Queue (ft)	55	49	56	49	66	53	60	39
Link Distance (ft)	7781		4982		2775		1650	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		25		25		25		25
Storage Blk Time (%)	9	3	9	2	16	2	13	1
Queuing Penalty (veh)	4	3	2	2	5	5	2	2

Intersection: 3: Site Driveway & E Harney Ln

Movement	NB	NB
Directions Served	L	R
Maximum Queue (ft)	41	22
Average Queue (ft)	17	3
95th Queue (ft)	40	15
Link Distance (ft)	1889	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		50
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Intersection: 4: Clements Rd & E Harney Ln

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	64	17	34
Average Queue (ft)	30	1	3
95th Queue (ft)	54	9	18
Link Distance (ft)	5909	2622	2606
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 26

APPENDIX D. GREENHOUSE GAS EMISSIONS STUDY

BASELINE
ENVIRONMENTAL CONSULTING

MEMORANDUM

Date: March 25, 2025 **Job No.:** 21202-23

To: Rob Carnachan, Senior Environmental Planner, WRA, Inc.

From: Yilin Tian, Project Environmental Engineer, Baseline Environmental Consulting

Subject: **Greenhouse Gas Emissions Technical Study, North County Sanitary Landfill and Recycling Center Solid Waste Facility Permit Amendment Project, Lodi, California**

Baseline Environmental Consulting (Baseline) has prepared this technical study to evaluate the potential greenhouse gas (GHG) emissions impacts associated with the proposed North County Sanitary Landfill and Recycling Center (North County Landfill) Solid Waste Facility Permit Amendment Project (project) located in Lodi, California. This technical memorandum includes an overview of existing GHG emission conditions and regulations, and an analysis of the potential GHG emission impacts associated with the implementation of the project. This study will be used to support the environmental review for the project under the California Environmental Quality Act (CEQA).

PROJECT DESCRIPTION

The project site is located at 17720 East Harney Lane and approximately 0.35 miles south of East Harney Lane via an access road (**Figure 1**). The project site has operated as a solid waste disposal and transfer/processing facility since 1991. The total permitted area for all facility operations is 320 acres and the landfilling area is 185 acres. The northern one-third of the property between the landfill and Harney Lane is a mitigation area established to preserve wetlands in the landfill's footprint. In addition to the waste disposal area, the four main buildings on site are a recycling center, office/maintenance building, water pump house building, and scale house. There is a permanent berm, set back 100 feet from the property line, surrounding the project site's perimeter.

The project consists of a proposed amendment to the Solid Waste Facility Permit to increase the maximum allowed daily refuse disposal and the number of daily incoming refuse vehicles from 1,200 tons per day and 850 vehicles per day to 4,000 tons and 1,200 vehicles per day. This increase would involve a change in refuse truck routing; approximately 50 transfer trucks that currently go to the Foothill Landfill would be re-routed to the North County Landfill. The refuse trucks would access the North County Landfill via East Harney Lane and the North County Landfill access road. The projected annual intake would increase from 250,000 tons in 2024 to 660,000 tons in 2026, then increase 3 percent annually thereafter. In addition, the North County Landfill currently operates from 7:00 am to 5:00 pm, seven days per week. The project would add one more hour to the Noth County Landfill's daily operations between 6:00 am and 7:00 am to allow the acceptance of commercial waste during this time period. The project would not change the North County Landfill's capacity and would not involve new construction. At current operational levels, the projected closure year of the landfill is 2046. With the implementation of the project, the projected closure date would move up three years to 2043.

In 2006, the North County Landfill installed a landfill gas (LFG) collection system, including a flare, vertical wells, and connecting piping. Additional LFG collectors, primarily horizontal collection trenches, will continue to be installed in the refuse and connected to the LFG collection system as the landfill is constructed. Collected LFG is combusted in a temperature-controlled flare in accordance with the existing San Joaquin Valley Air Pollution Control District (Valley Air District) Title V Permit (N-119-1-12). A new 1,200 standard cubic feet per minute low nitrogen oxides (NOx) flare was installed in October 2024 and is currently used as the primary flare. The previous flare will be used as back-up.

ENVIRONMENTAL SETTING

Climate Change and GHG Emissions

Climate change refers to change in the Earth's weather patterns, including the rise in temperature because of an increase in heat-trapping GHGs in the atmosphere. Existing GHGs allow about two-thirds of the visible and ultraviolet light from the sun to pass through the atmosphere and be absorbed by the Earth's surface. To balance the absorbed incoming energy, the surface radiates thermal energy back to space at longer wavelengths, primarily in the infrared part of the spectrum. Much of the thermal radiation emitted from the surface is absorbed by the GHGs in the atmosphere and is re-radiated in all directions. Because part of the re-radiation is back toward the Earth's surface and the lower atmosphere, the global surface temperatures are elevated above what they would be in the absence of GHGs. This process of trapping heat in the lower atmosphere is known as the greenhouse effect.

An increase of GHGs in the atmosphere affects the energy balance of the Earth and results in a global warming trend. Increases in global average temperatures have been observed since the mid-20th century and have been linked to observed increases in GHG emissions from anthropogenic sources. The primary GHG emissions of concern are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Each GHG has a different global warming potential. For instance, methane traps about 25 times more heat per molecule than CO_2.[1] Therefore, emissions of GHGs are reported in metric tons of carbon dioxide equivalents (CO_2e), wherein each GHG is weighted by its global warming potential relative to CO_2.

[1] California Air Resources Board (CARB), 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. December

According to the Intergovernmental Panel on Climate Change (IPCC), over the past few hundred years the atmospheric concentrations of CO_2 have increased to unprecedented levels compared to previous fluctuations in CO_2 concentrations observed over the past 800,000 years due to anthropogenic sources. According to a 2022 report, eight of the top 10 warmest years on record since 1880 had occurred in the last decade based on measurements of the Earth's global average surface temperature.[2] The global increases in CO_2 concentrations primarily are related to fossil fuel combustion and land use change (e.g., deforestation). The dominant anthropogenic sources of methane are from ruminant livestock, fossil fuel extraction and use, rice paddy agriculture, and landfills, while the dominant anthropogenic sources of N_2O are from ammonia for fertilizer and industrial activity. Fossil fuels combustion and industrial processes account for the largest share and growth in gross GHG emissions.[3]

Effects of GHG Emissions

In March 2023, the IPCC published the final installment of the Six Assessment Report (AR6), summarizing the state of knowledge of climate change, its widespread impacts and risks, and climate change mitigation and adaptation. The IPCC report found that the consequences of global warming already are being seen because of a 1.1 degree Celsius (°C) increase in pre-industrial levels, such as extreme weather, rising sea levels, and diminishing Arctic Sea ice. Climate impacts on ecosystems and humans are widespread across the globe and vulnerable communities who have historically contributed the least to current climate change are disproportionately affected.

Global warming will continue to increase in the near term (2021-2040) mainly due to increased cumulative CO_2 emissions and is likely to reach 1.5°C above pre-industrial levels between 2021 and 2040. Risks and projected adverse impacts and related losses and damages from climate change will escalate with every increment of global warming. The IPCC states that deep, rapid, and sustained reductions in GHG emissions would lead to a discernible slowdown in global warming within around two decades, and also to discernible changes in atmospheric composition within a few years.

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[2] National Aeronautics and Space Administration (NASA), 2022. 2021 Tied for 6th Warmest Year in Continued Trend, NASA Analysis Shows. Available at: https://climate.nasa.gov/news/3140/2021-tied-for-6th-warmest-year-in-continued-trend-nasa-analysis-shows/, accessed October 7, 2023. Posted January 13.

[3] Intergovernmental Panel on Climate Change (IPCC), 2023. Summary for Policymakers. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Available at: https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf

Landfill Gas

LFG is a natural byproduct of the decomposition of organic material in landfills. Methane and carbon dioxide are the primary constituents of LFG and are produced by the decomposition of organic material within the landfill under anaerobic conditions. By volume, LFG is typically comprised of about 50 percent methane and 50 percent carbon dioxide and water vapor. In addition to these main components, LFG contains small amounts of nitrogen, oxygen, and hydrogen, less than 1 percent non-methane organic compounds (NMOCs), and trace amounts of inorganic compounds.

Methane emitted from landfills is considered anthropogenic, because it is a direct result of human activities, specifically the disposal of organic waste in oxygen-limited environments where microorganisms break down this waste and produce methane as a byproduct. However, the carbon dioxide emitted from landfills it considered biogenic rather than anthropogenic because it's a natural byproduct of the decomposition of organic matter, which is part of the natural carbon cycle and not solely from human activities. Therefore, the analysis of climate change impacts related to anthropogenic emissions from landfills focuses on methane and not carbon dioxide.

The rate of methane generation is influenced by the amount of bioavailable carbon, the characteristics of the waste (e.g., composition and age), and the environmental conditions that support anaerobic bacterial activity. As waste is continuously deposited in the landfill, methane production gradually increases throughout the landfill’s operational life, typically reaching its highest level within several years after the final year of waste disposal, often referred to as the landfill closure year. After closure and capping the landfill, the rate of methane generation typically declines due to reduced moisture infiltration.

According to the Title V Permit (N-119-1-12) for the North County Landfill, the flare for the LFG collection system must attain a methane destruction efficiency of at least 99 percent by weight. In other words, flare combustion must convert at least 99 percent of the methane in LFG to carbon dioxide (a less potent GHG) and other compounds.

REGULATORY SETTING

Federal Regulations

On April 2, 2007, the U.S. Supreme Court ruled that CO_2 is an air pollutant as defined under the Clean Air Act, and that the Environmental Protection Agency (EPA) has the authority to regulate emissions of GHGs (U.S. Supreme Court, 2007). The EPA made two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act, as follows:

- Endangerment Finding: The current and projected concentrations of the six key well-mixed GHGs (CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur Hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations. The EPA also found that the combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that endangers public health and welfare under Clean Air Act Section 202(a).

- Cause or Contribute Finding: The combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

In 2016, the EPA established two regulations—the New Source Performance Standards (NSPS) for new landfills and the Emission Guidelines (EG) for existing landfills—aimed at reducing methane emissions from landfill gas. The EG require the installation of a LFG collection and control system at municipal solid waste (MSW) landfills that exceed a specified design capacity and NMOC emission threshold.

State Regulations

The State of California has established the following long-term climate action goals:

- **Assembly Bill (AB) 32:** Reduce GHG emissions to 1990 levels by 2020.

- **Senate Bill (SB) 32:** Reduce GHG emissions to 40 percent below 1990 levels by 2030.

- **AB 1279:** Achieve carbon neutrality as soon as possible, but no later than 2045 and maintain net negative GHG emissions thereafter; and reduce GHG emissions to 85 percent below 1990 levels by 2045.

Landfill Methane Regulation

In response to California Assembly Bill 32, the California Air Resources Board (CARB) adopted the Landfill Methane Regulation in 2010, which requires MSW landfills to reduce methane and other air pollutant emissions through emissions monitoring and capturing fugitive methane emissions. MSW landfills are regulated under local air district rules that implement the federal requirements of the NSPS and EG, 40 Code of Federal Regulations Part 60 Subparts WWW and Cc, for MSW landfills. CARB and 22 air districts, including the San Joaquin Valley Air Pollution Control District (Valley Air District), entered into memoranda of understanding to enable the districts to implement and enforce the Landfill Methane Regulation.

The Short-Lived Climate Pollutant (SLCP) Reduction Strategy and SB 1383

Promulgated in 2016, California Senate Bill (SB) 1383 set a statewide target to reduce organic waste disposed of in landfills of 50 percent by 2020 and 75 percent by 2025. In addition, SB 1383 requires recovering at least 20 percent of disposed edible food for human consumption by 2025. As organic waste is a primary substance that generates LFG, diverting organic waste from landfills can reduce LFG emissions.

The Short-Lived Climate Pollutant (SLCP) Reduction Strategy, adopted by CARB in 2017, is California's plan for reducing emissions of high global-warming potential gases with short atmospheric lifetimes. SLCPs include methane, hydrofluorocarbons, and anthropogenic black carbon. In accordance with SB 1383, the SLCP Reduction Strategy has set the following targets for statewide reductions in SLCP emissions:

- 40 percent below 2013 levels by 2030 for methane and hydrofluorocarbons; and
- 50 percent below 2013 levels by 2030 for anthropogenic black carbon.

The SLCP Reduction Strategy also provides specific direction for reductions from dairy and livestock operations and from landfills by diverting organic materials.

California On-Road Vehicle Emission Regulations

The State of California has established statewide emission and fuel economy regulations for vehicles that align with or supersede the national standards. The key state regulations related to vehicles emissions are as follows:

- The Pavley Regulations (AB 1493), as amended in 2009, required a 30 percent reduction in state GHG emissions from new passenger vehicles from 2009 through 2016.
- The Advanced Clean Cars Program extends the Pavley Regulations beyond 2016 and established a technology mandate for zero-emission vehicles (ZEVs).
- The Advanced Clean Cars II Program requires all new passenger cars, trucks, and sport utility vehicles sold in California to be ZEVs by 2035.
- Executive Order N-79-20 established a goal that 100 percent of in-state sales of new passenger cars and light-duty trucks will be zero-emission by 2035, which is supported by the Advanced Clean Cars II Regulations.

- The Advanced Clean Trucks regulation requires between 40 and 75 percent of new medium- and heavy-duty vehicles sold in California to be ZEVs or near-zero-emissions vehicles by 2035.

- The Low-Carbon Fuel Standard (Executive Order S-1-07), as amended in 2019, requires a 20 percent reduction in the carbon intensity of California's transportation fuels by 2030.

- SB 375 establishes regional GHG emissions reduction targets from passenger vehicles for 2020 and 2035 by requiring metropolitan planning organizations to develop and implement Sustainable Communities Strategies that align regional transportation planning efforts with regional housing allocation needs.

- The Truck and Bus Regulation, as amended in 2014, requires heavy-duty diesel vehicles that operate in California to reduce TAC emissions from their exhaust. As of January 1, 2023, nearly all trucks and buses are required to have 2010 or newer model year engines, to reduce particulate matter and oxides of nitrogen emissions.

- The Tractor-Trailer GHG Regulation (13 CCR 1956), adopted by CARB in 2008, requires tractors and trailers to use aerodynamic technologies and low rolling resistance tires, to reduce fuel use and emissions.

California's Climate Change Scoping Plan

In December 2008, CARB adopted the Climate Change Scoping Plan to identify how the state can achieve its 2020 climate action goal under AB 32. In 2017, CARB updated the Scoping Plan to identify how the state can achieve its 2030 climate action goal under SB 32 and substantially advance toward its 2050 climate action goal under Executive Order S-3-05. The 2017 Scoping Plan includes the regulatory programs identified above, such as the Advanced Clean Cars Program, Low-Carbon Fuel Standard, Renewable Portfolio Standard Program, energy efficiency standards, SLCP Reduction Strategy, and Cap-and-Trade Program (CARB, 2017b).

In December 2022, CARB adopted the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan), which outlines a roadmap to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045 (CARB, 2022). Building on the 2017 Scoping Plan, the 2022 Scoping Plan evaluates the progress made toward meeting the 2030 GHG emissions reduction target that was established in SB 32 and identifies a technologically feasible, cost-effective, and equity-focused path to achieve carbon neutrality by 2045 or earlier.

In December 2022, CARB adopted the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan), which outlines a roadmap to achieve targets for carbon neutrality and reduce

anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045.[4] Building on the 2017 Scoping Plan, the 2022 Scoping Plan evaluates the progress made toward meeting the 2030 GHG reduction target established in SB 32 and identifies a technologically feasible, cost-effective, and equity-focused path to achieve carbon neutrality by 2045. The 2022 Scoping Plan presents an approach for an aggressive reduction of fossil fuels and a rapid transition to renewable energy resources and zero-emission vehicles. The 2022 Scoping Plan identifies key sectors such as transportation sustainability, clean electricity grid, sustainable manufacturing and buildings, carbon dioxide removal and capture, short-lived climate pollutants, and natural and working lands. The 2022 Scoping Plan identifies actions and outcomes such as rapidly moving to zero-emission transportation; electrifying cars, buses, trains, and trucks; phasing out the use of fossil gas used for heating homes and buildings; clamping down on chemicals and refrigerants; providing communities with sustainable options for walking, biking, and public transit; building out clean, renewable energy resources (such as solar arrays and wind turbine capacity) to displace fossil-fuel fired electrical generation; and scaling up new options such as renewable hydrogen and biomethane.

The 2022 Scoping Plan outlines several strategies to reduce methane emissions from landfills, with a focus on organic waste diversion, composting and anerobic digestion capacity expansion, and existing landfill operational practice improvement.

Regional Regulations

The project is located in the San Joaquin Valley Air Basin, which is under the jurisdiction of the Valley Air District. The mission of the Valley Air District is to improve the health and quality of life for all Valley residents through efficient, effective and entrepreneurial air quality management strategies. The Valley Air District has implemented these plans and adopted nearly 650 rules that have resulted in significant emissions reductions. Rule 4642 (Solid Waste Disposal Sites) limits volatile organic compound emissions from solid waste disposal sites.

Climate change is not caused by any individual emissions source but by a large number of sources around the world emitting GHGs that collectively create a significant cumulative impact. CEQA requires agencies in California to analyze such impacts by evaluating whether a proposed project would make a “cumulatively considerable” contribution to the significant cumulative impact on climate change.

In 2008, Valley Air District adopted the Climate Change Action Plan (CCAP). The CCAP directed the District Air Pollution Control Officer to develop guidance to assist Lead Agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project specific GHG emissions on global climate change. In 2009, the Valley Air District adopted

[4] California Air Resources Board (CARB), 2022. *Scoping Plan for Achieving Carbon Neutrality.*

the *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* and a policy entitled *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency* (Policy).[5] In 2015, the Valley Air District has adopted thresholds of significance to assist lead agencies in the evaluation and mitigation of air quality impacts under CEQA (CEQA Guidance). The Valley Air District has not established a numerical GHG emissions threshold in the absence of supporting scientific evidence. Instead, the Valley Air District recommends assessing project-specific GHG emission impacts on global climate change based on the tiered approach specified in the Policy:

- Projects complying with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less than significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the Lead Agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review document adopted by the Lead Agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement Best Performance Standards (BPS).

- Projects implementing BPS would not require quantification of project specific GHG emissions. Consistent with CEQA Guideline, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.

- Projects not implementing BPS would require quantification of project specific GHG emissions and demonstration that project-specific GHG emissions would be reduced or mitigated by at least 29 percent compared to Business as Usual (BAU), including GHG emission reductions achieved since the 2002-2004 baseline period, consistent with GHG emission reduction targets established in CARB's 2008 Scoping Plan. Projects achieving at least a 29 percent GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG emissions.

The Valley Air District has not approved BPS for landfills but has identified an illustrative BPS which is listed below.

> **Illustrative BPS**: Landfills shall comply with CARB Regulation to Reduce Methane Emissions from Municipal Solid Waste Landfills.

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[5]San Joaquin Valley Air Pollution Control District, 2009. District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency. Available at: https://ww2.valleyair.org/media/disb2jna/2-ccap-final-district-policy-ceqa-ghg-dec-17-2009.pdf

SIGNIFICANCE CRITERIA

According to the CEQA Guidelines Appendix G, implementation of the project would have a significant impact related to GHG emissions if it would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or

2. Fundamentally conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of GHGs.

ANALYSIS AND FINDINGS

GHG Emissions from Project Operation

The project would not change the North County Landfill's design capacity of 41.2 million cubic yards of disposal and would not involve construction of new facilities. The amount of waste-in-place when the landfill reaches its design capacity would remain the same. The project would increase the maximum amount of allowed daily refuse disposal and the number of daily incoming refuse trucks from 1,200 tons per day and 850 trucks per day to 4,000 tons and 1,200 trucks per day. This increase would involve a change in refuse truck routing; approximately 51 transfer trucks that currently go to the Foothill Landfill would be re-routed to the North County Landfill. The average trip distance for the re-routed trucks is expected to decrease due to the location of the North County Landfill. Although the number of truck trips to North County Landfill would increase, partially due to routing changes, the total vehicle miles travelled by refuse trucks would decrease by approximately 5.7 percent from 1,678,144 miles to 1,582,797 miles in 2026. The increase in daily refuse disposal would increase the use of off-road equipment associated with landfill operations. Up to six new employees would be needed for the increase in waste disposal and truck trip-related activity.

Implementation of the project would result in net increases in off-road equipment usage on the project site, and project-generated vehicle trips along the haul route. Although the project would not change the North County Landfill design capacity, the rate of additional cell and module construction on the project site would increase to accommodate the amount of waste accepted with the proposed increase in maximum allowed daily refuse disposal. Compared to the current operation condition, the project could increase the rate of LFG generated and collected but is not expected to substantially change the total amount of LFG generated over the lifetime of the landfill since the total waste-in-place would remain the same once landfill capacity is reached.

For the baseline condition (2024) and project condition, GHG emissions from off-road equipment usage were calculated using the California Emissions Estimator Model (CalEEMod) version 2022.1 methodologies. For mobile sources, GHG emissions from project-generated vehicle trips were estimated using year 2024 emission factors from CARB's EMFAC2021 database. Because statewide vehicle emission standards are required to improve over time in accordance with vehicle emission regulations, using the emission factors for the baseline year (2024) provides the maximum expected annual emissions. The input parameters and assumptions used to estimate GHG emissions from off-road heavy construction equipment and mobile sources are provided in Attachment A of the Air Quality Technical Study[6] for the proposed project (also includes in **Attachment A** of this report).

The long-term LFG emissions of methane for the North County Landfill were estimated using the EPA Landfill Gas Emission Model (LandGEM,) version 3.1 and AP-42 default inputs. Information about historical waste acceptance rates (1991 to 2023), closure year (project condition), and predicted annual increases in waste intake were provided by the applicant. For the baseline condition, it was assumed that 250,000 tons of waste was accepted in 2024, and a three percent increase in waste disposal rate per year thereafter. Under this scenario, the North County Landfill would reach the 20.6 million tons design capacity[7] by 2059. For the project condition, it was assumed that the waste disposal rate would increase from 250,000 tons in 2024 to 660,000 tons in 2026, then a three percent increase in waste disposal rate per year thereafter. Under this scenario, the North County Landfill would reach the 20.6 million tons design capacity by 2043.

As described above, LFG-derived CO_2 emissions (including CO_2 from combustion of methane at the flare) are considered biogenic and a part of the natural carbon cycle, and are not considered an anthropogenic contributor to climate change; therefore, the biogenic CO_2 emissions from LFG are not included in the evaluation of the project's potential impacts on climate change from GHG emissions.

Methane content in the LFG was assumed to be 50 percent. Although the North County Landfill has a landfill gas collection system, those systems are not 100 percent efficient in collecting LFG and hence fugitive emissions of methane would still occur. With the absence of site-specific data, LFG collection system collection efficiencies, which are subject to landfill cover type, were obtained from 40 CFR Part 98 subpart HH. The North County Landfill is only partially built and as such all cover on the site is either daily or intermediate cover. Construction of final covers are planned to be done in conjunction with the excavation and construction of future modules.

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[6] Baseline Environmental Consulting, 2025. Air Quality Technical Study, North County Sanitary Landfill and Recycling Center Solid Waste Facility Permit Amendment Project, Lodi, California. March.
[7] Estimated based on the waste design capacity of 41.2 million cubic yards reported in the Solid Waste Facility Permit 39-AA-0022 and an average refuse density of 1,000 pounds per cubic yards.

According to the North County Landfill Joint Technical Document revised in 2024,[8] a final cover for a portion of the landfill is proposed by 2029. Therefore, it was assumed that most of the landfill areas are covered by intermediate cover between 2024 and 2029 (collection efficiency 65 percent), then 50 percent of the landfill areas will be cover by a final cover between 2030 and the closure year (weighted average collection efficiency 75 percent). After the closure year, it was assumed that all landfill areas will be covered by a final cover (collection efficiency 85 percent). In addition, it was assumed that 10 percent of the fugitive methane emissions are oxidized to CO_2 as the gas passes through the landfill soil cover.[9] The collected LFG would be combusted in a temperature-controlled flare. During combustion, gaseous hydrocarbons react with atmospheric oxygen to form CO_2 and water. The destruction efficiency is defined as the percentage of a specific pollutant in the flare vent gas that is converted to a different compound (such as CO_2). Methane destruction efficiency for the flare was assumed to be 99 percent based on the Title V Permit.

The input parameters, assumptions, LandGEM outputs, and associated calculations for estimating LFG derived methane emissions are provided in **Attachment A**. As shown in **Table 1**, the project's estimated net increase in average annual GHG emissions from operation would total approximately 2,537 metric tons CO_2e in year 2026. GHG emissions from off-road equipment and landfill methane emissions would increase with the implementation of the project due to the increase waste intake and associated landfill operations. However, GHG emissions from on-road mobile sources would decrease by 230 metric tons CO_2e per year, mainly attributable to the shorter truck trip distance of the re-routed trucks. It is to be noted that GHG emissions from off-road and on-road mobile sources in later years would be lower due to the increasingly stringent emissions standards and fleet turnover (including construction off-road equipment, trucks, and on-road passenger vehicles).

Table 1. Estimated Annual GHG Emissions (metric tons CO_2e per year)

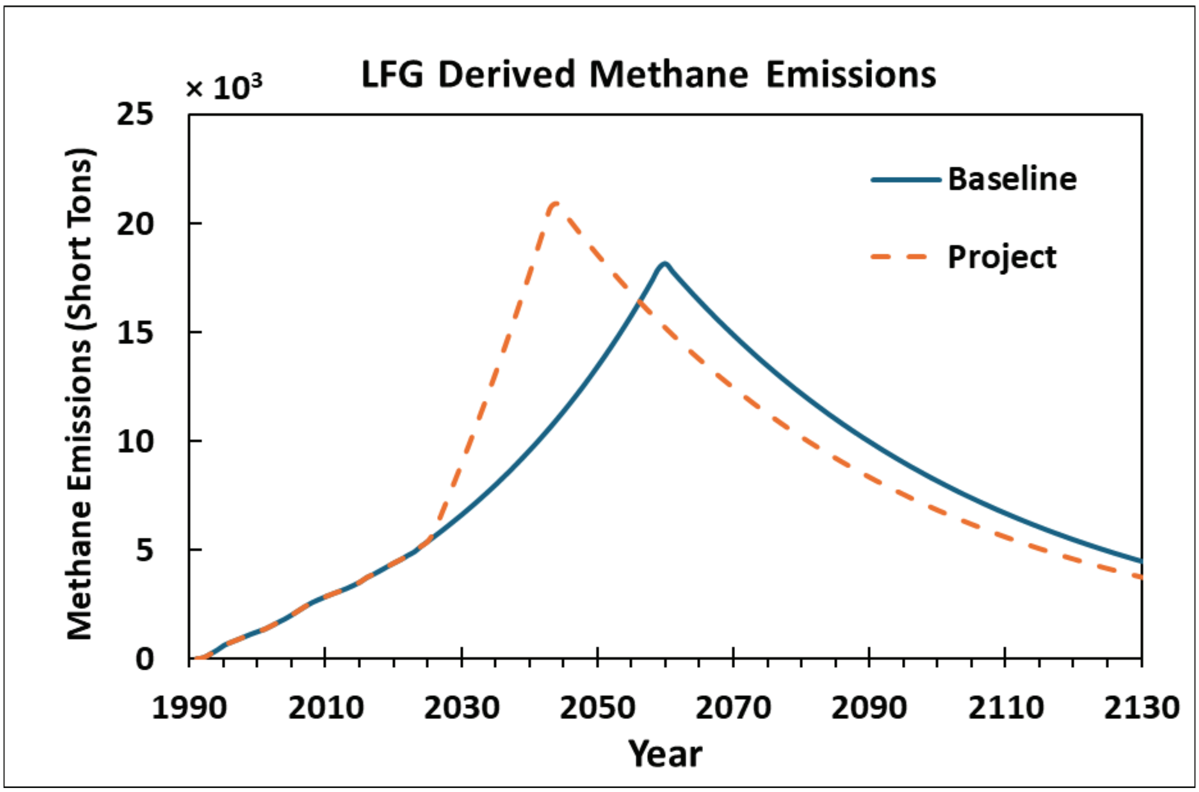
Emission Scenarios	Off-Road Equipment	On-Road Mobile Sources	Landfill Methane Emissions	Total
Baseline Condition	1,115	4,354.4	40,933	46,463
Project Condition (As of 2026)	1,978	4,124.7	42,898	49,000
Net Difference	863	-230	1,904	2,537

Source: Attachment A.

[8] San Joaquin County Public Works, 2024. Joint Technical Document for North County Recycling Center and Sanitary Landfill. August 30.
[9] U.S. EPA, 2020. Documentation For Greenhouse Gas Emission and Energy Factors Used in the Waste Reduction Model (WARM). Management Practices Chapters. November. https://www.epa.gov/sites/default/files/2020-12/documents/warm_management_practices_v15_10-29-2020.pdf.

The methane emissions from LFG for 2026 shown in **Table 1** above were estimated to represent the project year (2026) impact. As waste is continuously deposited in the landfill, methane production would gradually increase throughout the landfill's operational life. After closure and capping the landfill, the rate of methane generation typically declines due to reduced moisture infiltration. The overall methane generation rates for the baseline and project conditions were estimated using LandGEM and are illustrated in **Chart 1**. As shown in **Chart 1**, the project condition (orange dashed line) results in an earlier and higher peak methane emission rate compared to the baseline condition (blue line). After the closure year, methane emissions under both conditions decline, and the project condition shows a lower long-term emission rate compared to the baseline condition.

Chart 1. LFG Derived Methane Emissions



To represent the overall impact of the project, total LFG-derived methane emissions over 50 years past the project year (2026 to 2076) were estimated for the baseline condition and the project condition and then averaged to obtained representative average annual GHG emissions rates. The assumptions and associated calculations for estimating LFG-derived methane emissions are provided in **Attachment A.** Over 50 years, the LFG generated under baseline and project conditions would result in total CO_2e emissions of 2,864,788 metric tons (57,296 metric tons per year) and 2,941,459 metric tons (58,829 metric tons per year), respectively. On average, the project would increase annual CO_2e emissions by 1,533 metric tons per year.

As discussed above, the Valley Air District has not established a numerical GHG emissions threshold and recommends evaluating project-level GHG emissions impacts based on compliance with an approved GHG emission reduction plan or GHG mitigation program or implementation of BPS. The North County Landfill is required to comply with the CARB Landfill Methane Regulation, which requires MSW landfills to reduce methane and other air pollutant emissions through emissions monitoring and capturing of methane emissions. Since the project will comply with a statewide plan for GHG reductions, the project would have a less than significant individual and cumulative impact for GHG emissions.

Consistency with GHG Plans

The 2022 Scoping Plan outlines a roadmap for the state to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045.[10] The 2022 Scoping Plan identifies actions and outcomes such as rapidly moving to zero-emission transportation; electrifying cars, buses, trains, and trucks; phasing out the use of fossil gas used for heating homes and buildings; clamping down on chemicals and refrigerants; providing communities with sustainable options for walking, biking, and public transit; building out clean, renewable energy resources (such as solar arrays and wind turbine capacity) to displace fossil-fuel fired electrical generation; and scaling up new options such as renewable hydrogen and biomethane. In addition, the 2022 Scoping Plan outlines several strategies to reduce methane emissions from landfills, with a focus on organic waste diversion, composting and anerobic digestion capacity expansion, and existing landfill operational practice improvement.

As discussed above, the project would result in a net decrease in daily haul truck vehicle miles traveled. For medium and heavy-duty trucks, California has the following regulations, strategies, and plans to reduce GHG emissions: Advanced Clean Truck Regulation, Tractor-Trailer Greenhouse Gas Regulation, and Truck and Bus Regulation. The trucks visiting the project site would be subject to these regulations, strategies, and plans; therefore, the project would comply with the state GHG emissions reduction strategies for trucks. In addition, if the project is not implemented, it is reasonable to assume that the growing demand for waste disposal in the region may need to be addressed by landfills that are located further away (as demonstrated by the current condition), which would result in higher GHG emissions from haul truck travel. Therefore, the project is in alignment with the 2022 Scoping Plan.

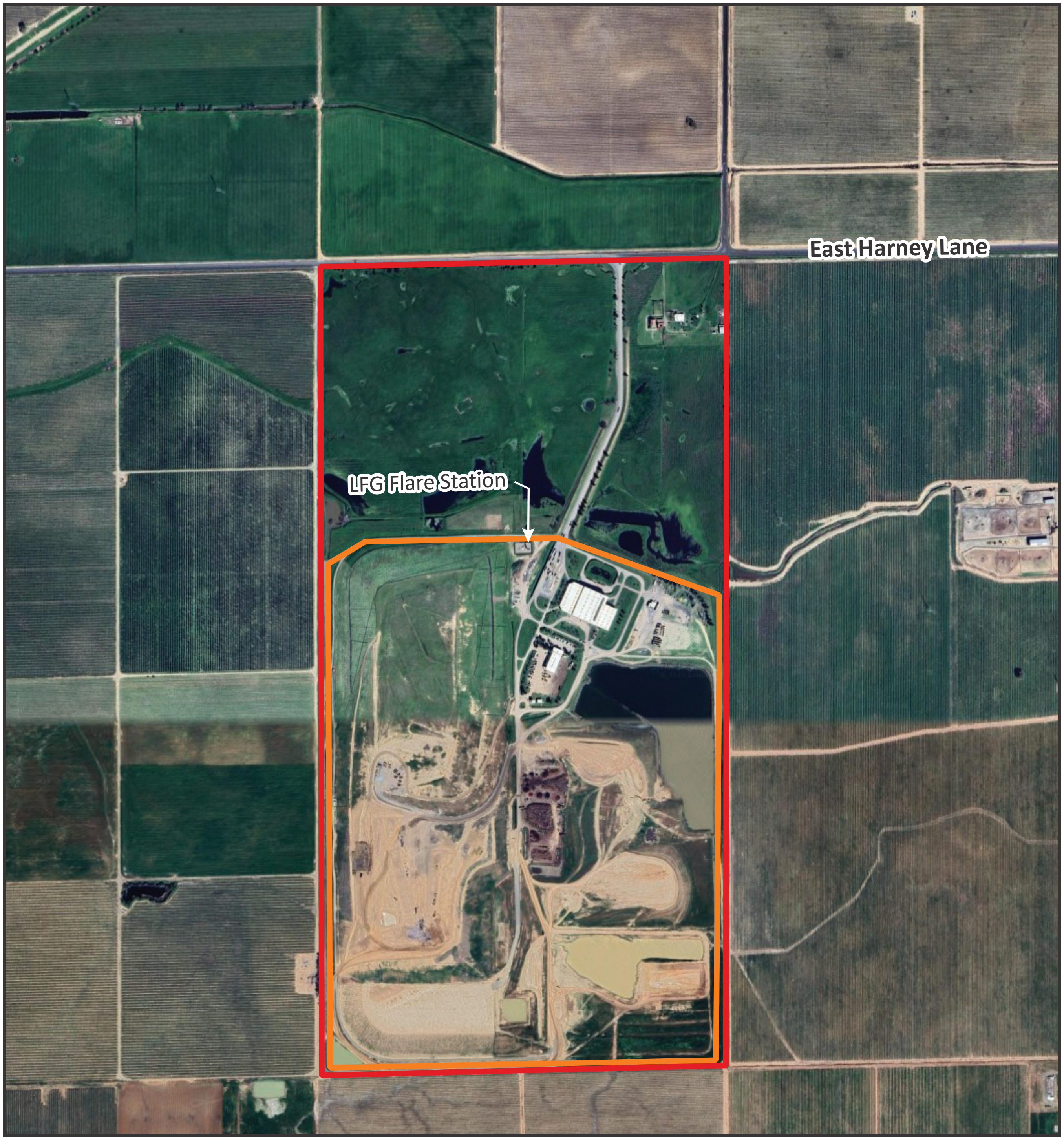
[10] California Air Resources Board, 2022. 2022 Scoping Plan for Achieving Carbon Neutrality. December.

As mentioned above, the North County Landfill is required to comply with the CARB Landfill Methane Regulation. The North County Landfill has implemented a LFG collection system, including a flare, vertical wells, and connecting piping. As landfill operations continue, additional LFG collectors, primarily horizontal collection trenches, will be installed and integrated into the existing system. Furthermore, the majority of incoming waste is either source-separated municipal waste or sorted on-site at the recycling center, ensuring that most green waste is removed from the waste stream. Most of the green waste is off-hauled to composting facilities as North County Landfill currently does not have composting on-site. In summary, the project would not conflict with the 2022 Scoping Plan and the Landfill Methane Regulation.

3 CONCLUSIONS

As discussed above, implementation of the project would not generate GHG emissions that may have a significant impact on the environment and the project would not conflict with the 2022 Scoping Plan and the Landfill Methane Regulation.

FIGURE



Legend

- Project Site Boundary
- Planned Fill Area

0 1,250 Feet
N

Figure 1
Project Site Location

BASELINE
ENVIRONMENTAL CONSULTING

21202-23 Figures 02/13/25

North County Sanitary Landfill and Recycling Center
Solid Waste Facility Permit Amendment Project

ATTACHMENT A

Supporting GHG Calculations

Attachment A-1: LandGEM Input Parameter, Assumptions, and Results

Information about historical waste acceptance rates (1991 to 2023), closure year, and project annual increase was provided by the applicant. GHG emissions from North County Landfill were estimated using the EPA's Landfill Generation Emissions Model (LandGEM, version 3.1) and default model inputs.

LandGEM Input Parameters

Category	Value	Notes
Landfill open year	1991	
Waste design capacity (million $yard^3$)	41.2	Solid Waste Facility Permit 39-AA-0022.
Average refuse density ($lb/yard^3$)	1,000	Solid Waste Facility Permit 39-AA-0022.
Pounds per ton	2,000	
Waste design capacity (tons)	20,600,000	
Total refuse tonnage-in-place	5,069,648	Historical waste acceptance data (1991 to 2023) were provided by the applicant
Landfill closure year (project)	2043	Provided by applicant. Assumptions: increase waste acceptance rates from 250,000 tons in 2024 to 660,000 tons in 2026, then assume 3% increase annually thereafter. Under this scenario, the North County Landfill will reach the 20.6 million tons design capacity by 2043.
Landfill closure year (baseline)	2059	Predicted based on the baseline operation condition (250,000 tons in 2024) and assume 3% increase annually thereafter. Under this scenario, the North County Landfill will reach the 20.6 million tons design capacity by 2059.
Methane generation rate (k) ($year^{-1}$)	0.02	AP-42 default for areas with less than 25 inches of precipitation per year. The project site area receives an average of 17.6 inches of precipitation per year.
Degradable organic carbon content (DOC, g Carbon/g Waste)	0.2	AP-42 default
Potential methane generation capacity (L_0, m^3/megagram)	100	AP-42 default
NMOC Concentration (ppmv as hexane)	600	AP-42 default
Methane Content	50%	AP-42 default

Summary Report

Landfill Name or Identifier: North County Sanitary Landfill

Date: Sunday, March 9, 2025

Description/Comments:

Waste design capacity was estimated based on the volume design capacity of 41.2 million cubic yards of disposal and average reduse desnsity of approximately 0.5 tons per cubic yard specified in the Permit. Historical Data: 1991 to 2023. Future tonnage predicted based on 250,000 tons of waste in 2024 and assume 3% increase annually thereafter. Under this scenario, the North County Landfill will reach the 20.6 million tons design capacity by 2059.

About LandGEM:

First-Order Decomposition Rate Equation:

$$Q_{CH_4} = \sum_{i=1}^{n} \sum_{j=0.1}^{1} k L_o \left(\frac{M_i}{10} \right) e^{-k t_{ij}}$$

Where,

Q_{CH4} = annual methane generation in the year of the calculation (*m^3/year*)
i = 1-year time increment
n = (year of the calculation) - (initial year of waste acceptance)
j = 0.1-year time increment
k = methane generation rate (*$year^{-1}$*)
L_0 = potential methane generation capacity (*m^3/Mg*)

M_i = mass of waste accepted in the i^{th} year (*Mg*)
t_{ij} = age of the j^{th} section of waste mass M_i accepted in the i^{th} year (*decimal years*, e.g., 3.2 years)

LandGEM is based on a first-order decomposition rate equation for quantifying emissions from the decomposition of landfilled waste in municipal solid waste (MSW) landfills. The software provides a relatively simple approach to estimating landfill gas emissions. Model defaults are based on empirical data from U.S. landfills. Field test data can also be used in place of model defaults when available. Further guidance on EPA test methods, Clean Air Act (CAA) regulations, and other guidance regarding landfill gas emissions and control technology requirements can be found at http://www.epa.gov/ttnatw01/landfill/landflpg.html.

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for convential landfills (no leachate or liquid additions) for developing emission inventories and determining CAA applicability. Refer to the Web site identified above for future updates.

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year	**1991**	
Landfill Closure Year (with 80-year limit)	**2059**	
Actual Closure Year (without limit)	***2059***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity	**20,600,000**	*short tons*

MODEL PARAMETERS

Methane Generation Rate, k	**0.020**	*$year^{-1}$*
Potential Methane Generation Capacity, L_0	**100**	*m^3/Mg*
NMOC Concentration	**600**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1:	**Total landfill gas**
Gas / Pollutant #2:	**Methane**
Gas / Pollutant #3:	**Carbon dioxide**
Gas / Pollutant #4:	**NMOC**

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
1991	31,981	35,179	0	0
1992	112,964	124,260	31,981	35,179
1993	128,467	141,314	144,945	159,440
1994	152,987	168,286	273,412	300,753
1995	104,115	114,527	426,399	469,039
1996	96,087	105,696	530,514	583,565
1997	100,475	110,523	626,601	689,261
1998	102,551	112,806	727,076	799,784
1999	93,263	102,589	829,627	912,590
2000	93,186	102,504	922,890	1,015,179
2001	124,660	137,126	1,016,076	1,117,684
2002	132,137	145,350	1,140,736	1,254,809
2003	129,632	142,595	1,272,872	1,400,160
2004	151,301	166,431	1,402,504	1,542,755
2005	164,113	180,524	1,553,805	1,709,185
2006	164,831	181,314	1,717,917	1,889,709
2007	153,707	169,078	1,882,748	2,071,023
2008	130,163	143,179	2,036,455	2,240,100
2009	129,649	142,614	2,166,617	2,383,279
2010	122,730	135,003	2,296,266	2,525,893
2011	121,377	133,515	2,418,996	2,660,896
2012	125,754	138,329	2,540,374	2,794,411
2013	141,236	155,360	2,666,127	2,932,740
2014	152,055	167,261	2,807,364	3,088,100
2015	194,013	213,414	2,959,419	3,255,361
2016	152,964	168,260	3,153,432	3,468,775
2017	168,888	185,777	3,306,395	3,637,035
2018	176,143	193,757	3,475,283	3,822,811
2019	174,764	192,240	3,651,426	4,016,568
2020	167,371	184,108	3,826,189	4,208,808
2021	191,695	210,865	3,993,560	4,392,916
2022	180,648	198,713	4,185,256	4,603,781
2023	242,867	267,154	4,365,904	4,802,494
2024	227,273	250,000	4,608,771	5,069,648
2025	234,091	257,500	4,836,044	5,319,648
2026	241,114	265,225	5,070,135	5,577,148
2027	248,347	273,182	5,311,249	5,842,373
2028	255,797	281,377	5,559,596	6,115,555
2029	263,471	289,819	5,815,393	6,396,932
2030	271,376	298,513	6,078,864	6,686,751

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
2031	279,517	307,468	6,350,240	6,985,264
2032	287,902	316,693	6,629,757	7,292,732
2033	296,539	326,193	6,917,659	7,609,425
2034	305,436	335,979	7,214,198	7,935,618
2035	314,599	346,058	7,519,634	8,271,597
2036	324,037	356,440	7,834,233	8,617,656
2037	333,758	367,133	8,158,269	8,974,096
2038	343,770	378,147	8,492,027	9,341,229
2039	354,084	389,492	8,835,797	9,719,377
2040	364,706	401,177	9,189,881	10,108,869
2041	375,647	413,212	9,554,587	10,510,045
2042	386,917	425,608	9,930,234	10,923,257
2043	398,524	438,377	10,317,150	11,348,866
2044	410,480	451,528	10,715,675	11,787,242
2045	422,794	465,074	11,126,154	12,238,770
2046	435,478	479,026	11,548,949	12,703,843
2047	448,542	493,397	11,984,427	13,182,869
2048	461,999	508,199	12,432,969	13,676,266
2049	475,859	523,444	12,894,968	14,184,465
2050	490,134	539,148	13,370,826	14,707,909
2051	504,838	555,322	13,860,961	15,247,057
2052	519,984	571,982	14,365,799	15,802,379
2053	535,583	589,141	14,885,783	16,374,361
2054	551,651	606,816	15,421,366	16,963,502
2055	568,200	625,020	15,973,016	17,570,318
2056	585,246	643,771	16,541,216	18,195,338
2057	602,803	663,084	17,126,462	18,839,109
2058	620,888	682,976	17,729,266	19,502,193
2059	377,119	414,831	18,350,154	20,185,169
2060	0	0	18,727,273	20,600,000
2061	0	0	18,727,273	20,600,000
2062	0	0	18,727,273	20,600,000
2063	0	0	18,727,273	20,600,000
2064	0	0	18,727,273	20,600,000
2065	0	0	18,727,273	20,600,000
2066	0	0	18,727,273	20,600,000
2067	0	0	18,727,273	20,600,000
2068	0	0	18,727,273	20,600,000
2069	0	0	18,727,273	20,600,000
2070	0	0	18,727,273	20,600,000

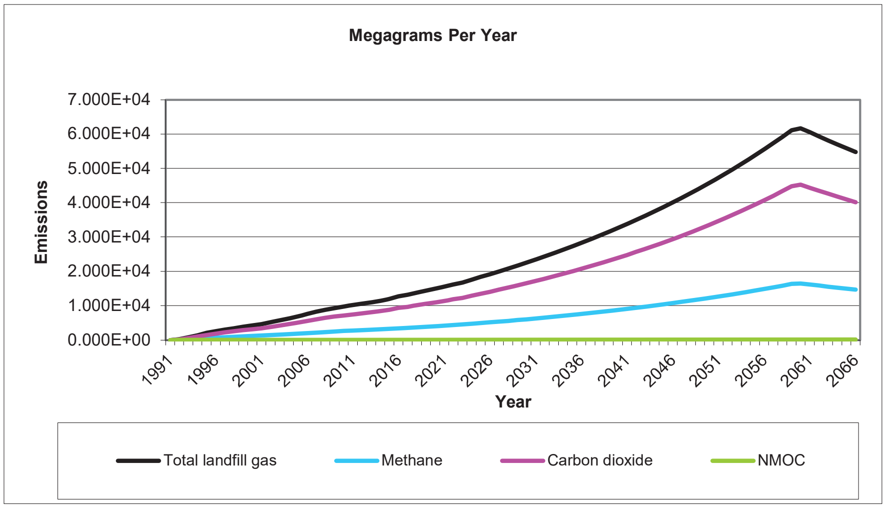
Pollutant Parameters

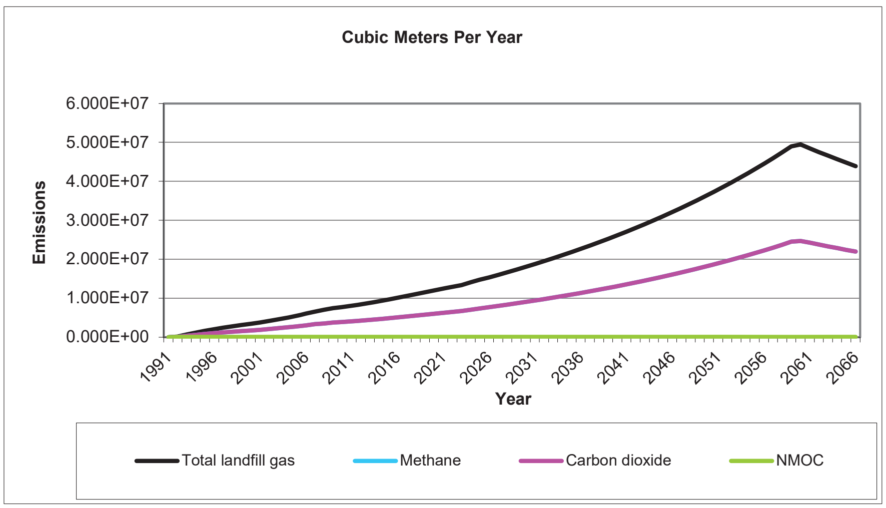
	Compound	Gas / Pollutant Default Parameters: Concentration (*ppmv*)	Molecular Weight	User-specified Pollutant Parameters: Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		30.03		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

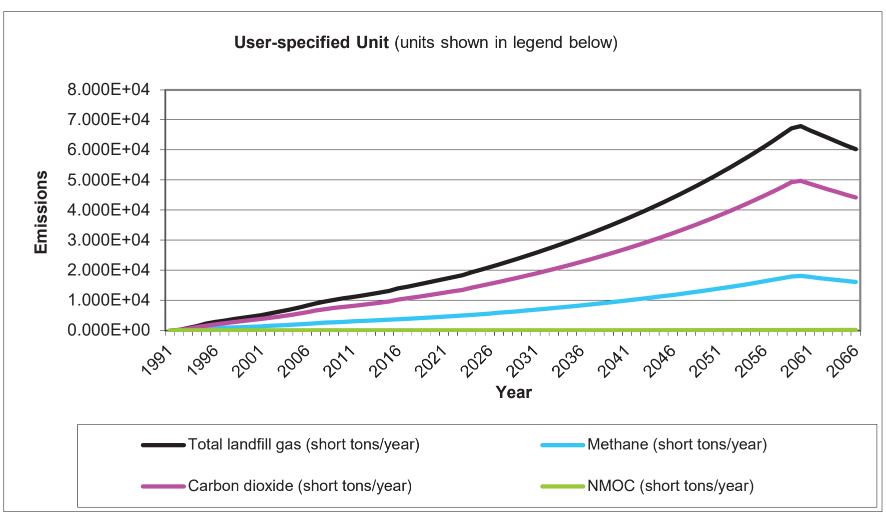
Pollutant Parameters (Continued)

	Gas / Pollutant Default Parameters:			User-specified Pollutant Parameters:	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

Graphs


Megagrams Per Year
7.000E+04
6.000E+04
5.000E+04
4.000E+04
3.000E+04
2.000E+04
1.000E+04
0.000E+00
Emissions
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
2056
2061
2066
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


Cubic Meters Per Year
6.000E+07
5.000E+07
4.000E+07
3.000E+07
2.000E+07
1.000E+07
0.000E+00
Emissions
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
2056
2061
2066
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


User-specified Unit (units shown in legend below)
8.000E+04
7.000E+04
6.000E+04
5.000E+04
4.000E+04
3.000E+04
2.000E+04
1.000E+04
0.000E+00
Emissions
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
2056
2061
2066
Year
Total landfill gas (short tons/year)
Methane (short tons/year)
Carbon dioxide (short tons/year)
NMOC (short tons/year)

Results

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(short tons/year)*	*(Mg/year)*	*(m^3/year)*	*(short tons/year)*
1991	0	0	0	0	0	0
1992	1.583E+02	1.268E+05	1.742E+02	4.229E+01	6.339E+04	4.652E+01
1993	7.144E+02	5.721E+05	7.859E+02	1.908E+02	2.860E+05	2.099E+02
1994	1.336E+03	1.070E+06	1.470E+03	3.569E+02	5.350E+05	3.926E+02
1995	2.067E+03	1.655E+06	2.274E+03	5.522E+02	8.277E+05	6.074E+02
1996	2.542E+03	2.035E+06	2.796E+03	6.789E+02	1.018E+06	7.468E+02
1997	2.967E+03	2.376E+06	3.264E+03	7.925E+02	1.188E+06	8.718E+02
1998	3.406E+03	2.727E+06	3.746E+03	9.097E+02	1.364E+06	1.001E+03
1999	3.846E+03	3.080E+06	4.231E+03	1.027E+03	1.540E+06	1.130E+03
2000	4.232E+03	3.388E+06	4.655E+03	1.130E+03	1.694E+06	1.243E+03
2001	4.609E+03	3.691E+06	5.070E+03	1.231E+03	1.845E+06	1.354E+03
2002	5.135E+03	4.112E+06	5.648E+03	1.372E+03	2.056E+06	1.509E+03
2003	5.687E+03	4.554E+06	6.256E+03	1.519E+03	2.277E+06	1.671E+03
2004	6.217E+03	4.978E+06	6.838E+03	1.661E+03	2.489E+06	1.827E+03
2005	6.842E+03	5.479E+06	7.527E+03	1.828E+03	2.740E+06	2.010E+03
2006	7.519E+03	6.021E+06	8.271E+03	2.009E+03	3.011E+06	2.209E+03
2007	8.187E+03	6.555E+06	9.005E+03	2.187E+03	3.278E+06	2.405E+03
2008	8.785E+03	7.035E+06	9.664E+03	2.347E+03	3.517E+06	2.581E+03
2009	9.256E+03	7.412E+06	1.018E+04	2.472E+03	3.706E+06	2.720E+03
2010	9.714E+03	7.779E+06	1.069E+04	2.595E+03	3.889E+06	2.854E+03
2011	1.013E+04	8.111E+06	1.114E+04	2.706E+03	4.056E+06	2.976E+03
2012	1.053E+04	8.432E+06	1.158E+04	2.813E+03	4.216E+06	3.094E+03
2013	1.094E+04	8.763E+06	1.204E+04	2.923E+03	4.382E+06	3.216E+03
2014	1.143E+04	9.150E+06	1.257E+04	3.052E+03	4.575E+06	3.357E+03
2015	1.195E+04	9.571E+06	1.315E+04	3.193E+03	4.786E+06	3.512E+03
2016	1.268E+04	1.015E+07	1.394E+04	3.386E+03	5.076E+06	3.725E+03
2017	1.318E+04	1.056E+07	1.450E+04	3.521E+03	5.278E+06	3.873E+03
2018	1.376E+04	1.102E+07	1.513E+04	3.675E+03	5.508E+06	4.042E+03
2019	1.436E+04	1.150E+07	1.579E+04	3.835E+03	5.748E+06	4.219E+03
2020	1.494E+04	1.196E+07	1.643E+04	3.990E+03	5.981E+06	4.389E+03
2021	1.547E+04	1.239E+07	1.702E+04	4.133E+03	6.194E+06	4.546E+03
2022	1.611E+04	1.290E+07	1.773E+04	4.304E+03	6.452E+06	4.735E+03
2023	1.669E+04	1.336E+07	1.836E+04	4.458E+03	6.682E+06	4.904E+03
2024	1.756E+04	1.406E+07	1.932E+04	4.691E+03	7.031E+06	5.160E+03
2025	1.834E+04	1.468E+07	2.017E+04	4.898E+03	7.342E+06	5.388E+03
2026	1.913E+04	1.532E+07	2.105E+04	5.111E+03	7.661E+06	5.622E+03
2027	1.995E+04	1.597E+07	2.194E+04	5.329E+03	7.987E+06	5.861E+03
2028	2.078E+04	1.664E+07	2.286E+04	5.552E+03	8.321E+06	6.107E+03
2029	2.164E+04	1.733E+07	2.380E+04	5.780E+03	8.664E+06	6.358E+03
2030	2.251E+04	1.803E+07	2.477E+04	6.014E+03	9.014E+06	6.615E+03
2031	2.341E+04	1.875E+07	2.575E+04	6.254E+03	9.374E+06	6.879E+03
2032	2.433E+04	1.948E+07	2.677E+04	6.499E+03	9.742E+06	7.149E+03
2033	2.528E+04	2.024E+07	2.780E+04	6.751E+03	1.012E+07	7.427E+03
2034	2.624E+04	2.101E+07	2.887E+04	7.010E+03	1.051E+07	7.711E+03
2035	2.724E+04	2.181E+07	2.996E+04	7.275E+03	1.090E+07	8.002E+03
2036	2.825E+04	2.262E+07	3.108E+04	7.547E+03	1.131E+07	8.302E+03
2037	2.930E+04	2.346E+07	3.223E+04	7.826E+03	1.173E+07	8.609E+03
2038	3.037E+04	2.432E+07	3.341E+04	8.112E+03	1.216E+07	8.924E+03
2039	3.147E+04	2.520E+07	3.462E+04	8.406E+03	1.260E+07	9.247E+03
2040	3.260E+04	2.611E+07	3.586E+04	8.708E+03	1.305E+07	9.579E+03

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	(m^3/year)	(short tons/year)	(Mg/year)	(m^3/year)	(short tons/year)
2041	3.376E+04	2.703E+07	3.714E+04	9.018E+03	1.352E+07	9.920E+03
2042	3.495E+04	2.799E+07	3.845E+04	9.336E+03	1.399E+07	1.027E+04
2043	3.618E+04	2.897E+07	3.979E+04	9.663E+03	1.448E+07	1.063E+04
2044	3.743E+04	2.997E+07	4.118E+04	9.999E+03	1.499E+07	1.100E+04
2045	3.872E+04	3.101E+07	4.260E+04	1.034E+04	1.550E+07	1.138E+04
2046	4.005E+04	3.207E+07	4.405E+04	1.070E+04	1.603E+07	1.177E+04
2047	4.141E+04	3.316E+07	4.555E+04	1.106E+04	1.658E+07	1.217E+04
2048	4.281E+04	3.428E+07	4.709E+04	1.144E+04	1.714E+07	1.258E+04
2049	4.425E+04	3.544E+07	4.868E+04	1.182E+04	1.772E+07	1.300E+04
2050	4.573E+04	3.662E+07	5.030E+04	1.222E+04	1.831E+07	1.344E+04
2051	4.725E+04	3.784E+07	5.198E+04	1.262E+04	1.892E+07	1.388E+04
2052	4.882E+04	3.909E+07	5.370E+04	1.304E+04	1.954E+07	1.434E+04
2053	5.042E+04	4.038E+07	5.547E+04	1.347E+04	2.019E+07	1.482E+04
2054	5.208E+04	4.170E+07	5.728E+04	1.391E+04	2.085E+07	1.530E+04
2055	5.378E+04	4.306E+07	5.915E+04	1.436E+04	2.153E+07	1.580E+04
2056	5.552E+04	4.446E+07	6.108E+04	1.483E+04	2.223E+07	1.631E+04
2057	5.732E+04	4.590E+07	6.305E+04	1.531E+04	2.295E+07	1.684E+04
2058	5.917E+04	4.738E+07	6.509E+04	1.581E+04	2.369E+07	1.739E+04
2059	6.107E+04	4.891E+07	6.718E+04	1.631E+04	2.445E+07	1.794E+04
2060	6.173E+04	4.943E+07	6.790E+04	1.649E+04	2.472E+07	1.814E+04
2061	6.051E+04	4.845E+07	6.656E+04	1.616E+04	2.423E+07	1.778E+04
2062	5.931E+04	4.749E+07	6.524E+04	1.584E+04	2.375E+07	1.743E+04
2063	5.814E+04	4.655E+07	6.395E+04	1.553E+04	2.328E+07	1.708E+04
2064	5.699E+04	4.563E+07	6.268E+04	1.522E+04	2.282E+07	1.674E+04
2065	5.586E+04	4.473E+07	6.144E+04	1.492E+04	2.236E+07	1.641E+04
2066	5.475E+04	4.384E+07	6.023E+04	1.462E+04	2.192E+07	1.609E+04
2067	5.367E+04	4.297E+07	5.903E+04	1.433E+04	2.149E+07	1.577E+04
2068	5.260E+04	4.212E+07	5.786E+04	1.405E+04	2.106E+07	1.546E+04
2069	5.156E+04	4.129E+07	5.672E+04	1.377E+04	2.064E+07	1.515E+04
2070	5.054E+04	4.047E+07	5.560E+04	1.350E+04	2.024E+07	1.485E+04
2071	4.954E+04	3.967E+07	5.449E+04	1.323E+04	1.983E+07	1.456E+04
2072	4.856E+04	3.888E+07	5.342E+04	1.297E+04	1.944E+07	1.427E+04
2073	4.760E+04	3.811E+07	5.236E+04	1.271E+04	1.906E+07	1.399E+04
2074	4.666E+04	3.736E+07	5.132E+04	1.246E+04	1.868E+07	1.371E+04
2075	4.573E+04	3.662E+07	5.031E+04	1.222E+04	1.831E+07	1.344E+04
2076	4.483E+04	3.589E+07	4.931E+04	1.197E+04	1.795E+07	1.317E+04
2077	4.394E+04	3.518E+07	4.833E+04	1.174E+04	1.759E+07	1.291E+04
2078	4.307E+04	3.449E+07	4.738E+04	1.150E+04	1.724E+07	1.265E+04
2079	4.222E+04	3.380E+07	4.644E+04	1.128E+04	1.690E+07	1.240E+04
2080	4.138E+04	3.314E+07	4.552E+04	1.105E+04	1.657E+07	1.216E+04
2081	4.056E+04	3.248E+07	4.462E+04	1.083E+04	1.624E+07	1.192E+04
2082	3.976E+04	3.184E+07	4.373E+04	1.062E+04	1.592E+07	1.168E+04
2083	3.897E+04	3.121E+07	4.287E+04	1.041E+04	1.560E+07	1.145E+04
2084	3.820E+04	3.059E+07	4.202E+04	1.020E+04	1.529E+07	1.122E+04
2085	3.744E+04	2.998E+07	4.119E+04	1.000E+04	1.499E+07	1.100E+04
2086	3.670E+04	2.939E+07	4.037E+04	9.803E+03	1.469E+07	1.078E+04
2087	3.597E+04	2.881E+07	3.957E+04	9.609E+03	1.440E+07	1.057E+04
2088	3.526E+04	2.824E+07	3.879E+04	9.419E+03	1.412E+07	1.036E+04
2089	3.456E+04	2.768E+07	3.802E+04	9.232E+03	1.384E+07	1.016E+04
2090	3.388E+04	2.713E+07	3.727E+04	9.049E+03	1.356E+07	9.954E+03
2091	3.321E+04	2.659E+07	3.653E+04	8.870E+03	1.330E+07	9.757E+03

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	(m^3/year)	(short tons/year)	(Mg/year)	(m^3/year)	(short tons/year)
2092	3.255E+04	2.606E+07	3.581E+04	8.695E+03	1.303E+07	9.564E+03
2093	3.191E+04	2.555E+07	3.510E+04	8.522E+03	1.277E+07	9.375E+03
2094	3.127E+04	2.504E+07	3.440E+04	8.354E+03	1.252E+07	9.189E+03
2095	3.065E+04	2.455E+07	3.372E+04	8.188E+03	1.227E+07	9.007E+03
2096	3.005E+04	2.406E+07	3.305E+04	8.026E+03	1.203E+07	8.829E+03
2097	2.945E+04	2.358E+07	3.240E+04	7.867E+03	1.179E+07	8.654E+03
2098	2.887E+04	2.312E+07	3.176E+04	7.711E+03	1.156E+07	8.483E+03
2099	2.830E+04	2.266E+07	3.113E+04	7.559E+03	1.133E+07	8.315E+03
2100	2.774E+04	2.221E+07	3.051E+04	7.409E+03	1.111E+07	8.150E+03
2101	2.719E+04	2.177E+07	2.991E+04	7.262E+03	1.089E+07	7.989E+03
2102	2.665E+04	2.134E+07	2.932E+04	7.119E+03	1.067E+07	7.830E+03
2103	2.612E+04	2.092E+07	2.873E+04	6.978E+03	1.046E+07	7.675E+03
2104	2.561E+04	2.050E+07	2.817E+04	6.839E+03	1.025E+07	7.523E+03
2105	2.510E+04	2.010E+07	2.761E+04	6.704E+03	1.005E+07	7.374E+03
2106	2.460E+04	1.970E+07	2.706E+04	6.571E+03	9.850E+06	7.228E+03
2107	2.411E+04	1.931E+07	2.653E+04	6.441E+03	9.655E+06	7.085E+03
2108	2.364E+04	1.893E+07	2.600E+04	6.314E+03	9.464E+06	6.945E+03
2109	2.317E+04	1.855E+07	2.549E+04	6.189E+03	9.276E+06	6.807E+03
2110	2.271E+04	1.818E+07	2.498E+04	6.066E+03	9.092E+06	6.673E+03
2111	2.226E+04	1.782E+07	2.449E+04	5.946E+03	8.912E+06	6.540E+03
2112	2.182E+04	1.747E+07	2.400E+04	5.828E+03	8.736E+06	6.411E+03
2113	2.139E+04	1.713E+07	2.353E+04	5.713E+03	8.563E+06	6.284E+03
2114	2.096E+04	1.679E+07	2.306E+04	5.600E+03	8.393E+06	6.160E+03
2115	2.055E+04	1.645E+07	2.260E+04	5.489E+03	8.227E+06	6.038E+03
2116	2.014E+04	1.613E+07	2.216E+04	5.380E+03	8.064E+06	5.918E+03
2117	1.974E+04	1.581E+07	2.172E+04	5.274E+03	7.905E+06	5.801E+03
2118	1.935E+04	1.550E+07	2.129E+04	5.169E+03	7.748E+06	5.686E+03
2119	1.897E+04	1.519E+07	2.087E+04	5.067E+03	7.595E+06	5.573E+03
2120	1.859E+04	1.489E+07	2.045E+04	4.966E+03	7.444E+06	5.463E+03
2121	1.823E+04	1.459E+07	2.005E+04	4.868E+03	7.297E+06	5.355E+03
2122	1.786E+04	1.430E+07	1.965E+04	4.772E+03	7.152E+06	5.249E+03
2123	1.751E+04	1.402E+07	1.926E+04	4.677E+03	7.011E+06	5.145E+03
2124	1.716E+04	1.374E+07	1.888E+04	4.585E+03	6.872E+06	5.043E+03
2125	1.682E+04	1.347E+07	1.851E+04	4.494E+03	6.736E+06	4.943E+03
2126	1.649E+04	1.320E+07	1.814E+04	4.405E+03	6.602E+06	4.845E+03
2127	1.616E+04	1.294E+07	1.778E+04	4.318E+03	6.472E+06	4.749E+03
2128	1.584E+04	1.269E+07	1.743E+04	4.232E+03	6.344E+06	4.655E+03
2129	1.553E+04	1.244E+07	1.708E+04	4.148E+03	6.218E+06	4.563E+03
2130	1.522E+04	1.219E+07	1.675E+04	4.066E+03	6.095E+06	4.473E+03
2131	1.492E+04	1.195E+07	1.641E+04	3.986E+03	5.974E+06	4.384E+03

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(short tons/year)*	*(Mg/year)*	*(m^3/year)*	*(short tons/year)*
1991	0	0	0	0	0	0
1992	1.160E+02	6.339E+04	1.276E+02	2.727E-01	7.607E+01	2.999E-01
1993	5.236E+02	2.860E+05	5.760E+02	1.230E+00	3.433E+02	1.353E+00
1994	9.793E+02	5.350E+05	1.077E+03	2.301E+00	6.420E+02	2.531E+00
1995	1.515E+03	8.277E+05	1.667E+03	3.560E+00	9.932E+02	3.916E+00
1996	1.863E+03	1.018E+06	2.049E+03	4.377E+00	1.221E+03	4.815E+00
1997	2.175E+03	1.188E+06	2.392E+03	5.110E+00	1.426E+03	5.621E+00
1998	2.496E+03	1.364E+06	2.746E+03	5.865E+00	1.636E+03	6.452E+00
1999	2.819E+03	1.540E+06	3.101E+03	6.623E+00	1.848E+03	7.286E+00
2000	3.101E+03	1.694E+06	3.411E+03	7.287E+00	2.033E+03	8.016E+00
2001	3.378E+03	1.845E+06	3.716E+03	7.938E+00	2.214E+03	8.731E+00
2002	3.763E+03	2.056E+06	4.140E+03	8.843E+00	2.467E+03	9.728E+00
2003	4.168E+03	2.277E+06	4.585E+03	9.795E+00	2.733E+03	1.077E+01
2004	4.556E+03	2.489E+06	5.012E+03	1.071E+01	2.987E+03	1.178E+01
2005	5.015E+03	2.740E+06	5.516E+03	1.178E+01	3.287E+03	1.296E+01
2006	5.511E+03	3.011E+06	6.062E+03	1.295E+01	3.613E+03	1.424E+01
2007	6.000E+03	3.278E+06	6.600E+03	1.410E+01	3.933E+03	1.551E+01
2008	6.439E+03	3.517E+06	7.083E+03	1.513E+01	4.221E+03	1.664E+01
2009	6.784E+03	3.706E+06	7.462E+03	1.594E+01	4.447E+03	1.753E+01
2010	7.120E+03	3.889E+06	7.832E+03	1.673E+01	4.667E+03	1.840E+01
2011	7.424E+03	4.056E+06	8.166E+03	1.744E+01	4.867E+03	1.919E+01
2012	7.717E+03	4.216E+06	8.489E+03	1.813E+01	5.059E+03	1.995E+01
2013	8.021E+03	4.382E+06	8.823E+03	1.885E+01	5.258E+03	2.073E+01
2014	8.374E+03	4.575E+06	9.212E+03	1.968E+01	5.490E+03	2.165E+01
2015	8.760E+03	4.786E+06	9.636E+03	2.059E+01	5.743E+03	2.264E+01
2016	9.291E+03	5.076E+06	1.022E+04	2.183E+01	6.091E+03	2.401E+01
2017	9.662E+03	5.278E+06	1.063E+04	2.270E+01	6.334E+03	2.497E+01
2018	1.008E+04	5.508E+06	1.109E+04	2.369E+01	6.610E+03	2.606E+01
2019	1.052E+04	5.748E+06	1.157E+04	2.473E+01	6.898E+03	2.720E+01
2020	1.095E+04	5.981E+06	1.204E+04	2.573E+01	7.177E+03	2.830E+01
2021	1.134E+04	6.194E+06	1.247E+04	2.664E+01	7.433E+03	2.931E+01
2022	1.181E+04	6.452E+06	1.299E+04	2.775E+01	7.742E+03	3.053E+01
2023	1.223E+04	6.682E+06	1.345E+04	2.874E+01	8.018E+03	3.162E+01
2024	1.287E+04	7.031E+06	1.416E+04	3.024E+01	8.437E+03	3.327E+01
2025	1.344E+04	7.342E+06	1.478E+04	3.158E+01	8.811E+03	3.474E+01
2026	1.402E+04	7.661E+06	1.543E+04	3.295E+01	9.193E+03	3.625E+01
2027	1.462E+04	7.987E+06	1.608E+04	3.436E+01	9.585E+03	3.779E+01
2028	1.523E+04	8.321E+06	1.676E+04	3.579E+01	9.986E+03	3.937E+01
2029	1.586E+04	8.664E+06	1.744E+04	3.726E+01	1.040E+04	4.099E+01
2030	1.650E+04	9.014E+06	1.815E+04	3.877E+01	1.082E+04	4.265E+01
2031	1.716E+04	9.374E+06	1.887E+04	4.032E+01	1.125E+04	4.435E+01
2032	1.783E+04	9.742E+06	1.962E+04	4.190E+01	1.169E+04	4.609E+01
2033	1.852E+04	1.012E+07	2.038E+04	4.353E+01	1.214E+04	4.788E+01
2034	1.923E+04	1.051E+07	2.116E+04	4.520E+01	1.261E+04	4.971E+01
2035	1.996E+04	1.090E+07	2.196E+04	4.690E+01	1.309E+04	5.159E+01
2036	2.071E+04	1.131E+07	2.278E+04	4.866E+01	1.357E+04	5.352E+01
2037	2.147E+04	1.173E+07	2.362E+04	5.046E+01	1.408E+04	5.550E+01
2038	2.226E+04	1.216E+07	2.448E+04	5.230E+01	1.459E+04	5.753E+01
2039	2.306E+04	1.260E+07	2.537E+04	5.420E+01	1.512E+04	5.962E+01
2040	2.389E+04	1.305E+07	2.628E+04	5.614E+01	1.566E+04	6.176E+01

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(short tons/year)*	*(Mg/year)*	*(m^3/year)*	*(short tons/year)*
2041	2.474E+04	1.352E+07	2.722E+04	5.814E+01	1.622E+04	6.396E+01
2042	2.562E+04	1.399E+07	2.818E+04	6.019E+01	1.679E+04	6.621E+01
2043	2.651E+04	1.448E+07	2.916E+04	6.230E+01	1.738E+04	6.853E+01
2044	2.743E+04	1.499E+07	3.018E+04	6.446E+01	1.798E+04	7.091E+01
2045	2.838E+04	1.550E+07	3.122E+04	6.669E+01	1.860E+04	7.336E+01
2046	2.935E+04	1.603E+07	3.229E+04	6.897E+01	1.924E+04	7.587E+01
2047	3.035E+04	1.658E+07	3.339E+04	7.132E+01	1.990E+04	7.845E+01
2048	3.138E+04	1.714E+07	3.451E+04	7.373E+01	2.057E+04	8.110E+01
2049	3.243E+04	1.772E+07	3.568E+04	7.621E+01	2.126E+04	8.383E+01
2050	3.352E+04	1.831E+07	3.687E+04	7.876E+01	2.197E+04	8.663E+01
2051	3.463E+04	1.892E+07	3.809E+04	8.138E+01	2.270E+04	8.951E+01
2052	3.578E+04	1.954E+07	3.935E+04	8.407E+01	2.345E+04	9.248E+01
2053	3.696E+04	2.019E+07	4.065E+04	8.684E+01	2.423E+04	9.552E+01
2054	3.817E+04	2.085E+07	4.198E+04	8.968E+01	2.502E+04	9.865E+01
2055	3.941E+04	2.153E+07	4.335E+04	9.261E+01	2.584E+04	1.019E+02
2056	4.069E+04	2.223E+07	4.476E+04	9.562E+01	2.668E+04	1.052E+02
2057	4.201E+04	2.295E+07	4.621E+04	9.872E+01	2.754E+04	1.086E+02
2058	4.337E+04	2.369E+07	4.770E+04	1.019E+02	2.843E+04	1.121E+02
2059	4.476E+04	2.445E+07	4.924E+04	1.052E+02	2.934E+04	1.157E+02
2060	4.524E+04	2.472E+07	4.977E+04	1.063E+02	2.966E+04	1.169E+02
2061	4.435E+04	2.423E+07	4.878E+04	1.042E+02	2.907E+04	1.146E+02
2062	4.347E+04	2.375E+07	4.782E+04	1.021E+02	2.850E+04	1.124E+02
2063	4.261E+04	2.328E+07	4.687E+04	1.001E+02	2.793E+04	1.101E+02
2064	4.176E+04	2.282E+07	4.594E+04	9.814E+01	2.738E+04	1.080E+02
2065	4.094E+04	2.236E+07	4.503E+04	9.619E+01	2.684E+04	1.058E+02
2066	4.013E+04	2.192E+07	4.414E+04	9.429E+01	2.631E+04	1.037E+02
2067	3.933E+04	2.149E+07	4.327E+04	9.242E+01	2.578E+04	1.017E+02
2068	3.855E+04	2.106E+07	4.241E+04	9.059E+01	2.527E+04	9.965E+01
2069	3.779E+04	2.064E+07	4.157E+04	8.880E+01	2.477E+04	9.768E+01
2070	3.704E+04	2.024E+07	4.075E+04	8.704E+01	2.428E+04	9.574E+01
2071	3.631E+04	1.983E+07	3.994E+04	8.532E+01	2.380E+04	9.385E+01
2072	3.559E+04	1.944E+07	3.915E+04	8.363E+01	2.333E+04	9.199E+01
2073	3.488E+04	1.906E+07	3.837E+04	8.197E+01	2.287E+04	9.017E+01
2074	3.419E+04	1.868E+07	3.761E+04	8.035E+01	2.242E+04	8.838E+01
2075	3.352E+04	1.831E+07	3.687E+04	7.876E+01	2.197E+04	8.663E+01
2076	3.285E+04	1.795E+07	3.614E+04	7.720E+01	2.154E+04	8.492E+01
2077	3.220E+04	1.759E+07	3.542E+04	7.567E+01	2.111E+04	8.324E+01
2078	3.156E+04	1.724E+07	3.472E+04	7.417E+01	2.069E+04	8.159E+01
2079	3.094E+04	1.690E+07	3.403E+04	7.270E+01	2.028E+04	7.997E+01
2080	3.033E+04	1.657E+07	3.336E+04	7.126E+01	1.988E+04	7.839E+01
2081	2.973E+04	1.624E+07	3.270E+04	6.985E+01	1.949E+04	7.684E+01
2082	2.914E+04	1.592E+07	3.205E+04	6.847E+01	1.910E+04	7.532E+01
2083	2.856E+04	1.560E+07	3.142E+04	6.711E+01	1.872E+04	7.382E+01
2084	2.800E+04	1.529E+07	3.079E+04	6.578E+01	1.835E+04	7.236E+01
2085	2.744E+04	1.499E+07	3.018E+04	6.448E+01	1.799E+04	7.093E+01
2086	2.690E+04	1.469E+07	2.959E+04	6.320E+01	1.763E+04	6.953E+01
2087	2.636E+04	1.440E+07	2.900E+04	6.195E+01	1.728E+04	6.815E+01
2088	2.584E+04	1.412E+07	2.843E+04	6.073E+01	1.694E+04	6.680E+01
2089	2.533E+04	1.384E+07	2.786E+04	5.952E+01	1.661E+04	6.548E+01
2090	2.483E+04	1.356E+07	2.731E+04	5.835E+01	1.628E+04	6.418E+01
2091	2.434E+04	1.330E+07	2.677E+04	5.719E+01	1.595E+04	6.291E+01

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m^3/year)	(short tons/year)	(Mg/year)	(m^3/year)	(short tons/year)
2092	2.386E+04	1.303E+07	2.624E+04	5.606E+01	1.564E+04	6.166E+01
2093	2.338E+04	1.277E+07	2.572E+04	5.495E+01	1.533E+04	6.044E+01
2094	2.292E+04	1.252E+07	2.521E+04	5.386E+01	1.503E+04	5.925E+01
2095	2.247E+04	1.227E+07	2.471E+04	5.279E+01	1.473E+04	5.807E+01
2096	2.202E+04	1.203E+07	2.422E+04	5.175E+01	1.444E+04	5.692E+01
2097	2.159E+04	1.179E+07	2.374E+04	5.072E+01	1.415E+04	5.580E+01
2098	2.116E+04	1.156E+07	2.327E+04	4.972E+01	1.387E+04	5.469E+01
2099	2.074E+04	1.133E+07	2.281E+04	4.873E+01	1.360E+04	5.361E+01
2100	2.033E+04	1.111E+07	2.236E+04	4.777E+01	1.333E+04	5.255E+01
2101	1.993E+04	1.089E+07	2.192E+04	4.682E+01	1.306E+04	5.151E+01
2102	1.953E+04	1.067E+07	2.148E+04	4.590E+01	1.280E+04	5.049E+01
2103	1.914E+04	1.046E+07	2.106E+04	4.499E+01	1.255E+04	4.949E+01
2104	1.877E+04	1.025E+07	2.064E+04	4.410E+01	1.230E+04	4.851E+01
2105	1.839E+04	1.005E+07	2.023E+04	4.322E+01	1.206E+04	4.755E+01
2106	1.803E+04	9.850E+06	1.983E+04	4.237E+01	1.182E+04	4.660E+01
2107	1.767E+04	9.655E+06	1.944E+04	4.153E+01	1.159E+04	4.568E+01
2108	1.732E+04	9.464E+06	1.906E+04	4.071E+01	1.136E+04	4.478E+01
2109	1.698E+04	9.276E+06	1.868E+04	3.990E+01	1.113E+04	4.389E+01
2110	1.664E+04	9.092E+06	1.831E+04	3.911E+01	1.091E+04	4.302E+01
2111	1.631E+04	8.912E+06	1.795E+04	3.834E+01	1.069E+04	4.217E+01
2112	1.599E+04	8.736E+06	1.759E+04	3.758E+01	1.048E+04	4.133E+01
2113	1.567E+04	8.563E+06	1.724E+04	3.683E+01	1.028E+04	4.052E+01
2114	1.536E+04	8.393E+06	1.690E+04	3.610E+01	1.007E+04	3.971E+01
2115	1.506E+04	8.227E+06	1.657E+04	3.539E+01	9.873E+03	3.893E+01
2116	1.476E+04	8.064E+06	1.624E+04	3.469E+01	9.677E+03	3.816E+01
2117	1.447E+04	7.905E+06	1.592E+04	3.400E+01	9.486E+03	3.740E+01
2118	1.418E+04	7.748E+06	1.560E+04	3.333E+01	9.298E+03	3.666E+01
2119	1.390E+04	7.595E+06	1.529E+04	3.267E+01	9.114E+03	3.593E+01
2120	1.363E+04	7.444E+06	1.499E+04	3.202E+01	8.933E+03	3.522E+01
2121	1.336E+04	7.297E+06	1.469E+04	3.139E+01	8.756E+03	3.453E+01
2122	1.309E+04	7.152E+06	1.440E+04	3.076E+01	8.583E+03	3.384E+01
2123	1.283E+04	7.011E+06	1.412E+04	3.016E+01	8.413E+03	3.317E+01
2124	1.258E+04	6.872E+06	1.384E+04	2.956E+01	8.246E+03	3.251E+01
2125	1.233E+04	6.736E+06	1.356E+04	2.897E+01	8.083E+03	3.187E+01
2126	1.209E+04	6.602E+06	1.329E+04	2.840E+01	7.923E+03	3.124E+01
2127	1.185E+04	6.472E+06	1.303E+04	2.784E+01	7.766E+03	3.062E+01
2128	1.161E+04	6.344E+06	1.277E+04	2.729E+01	7.612E+03	3.001E+01
2129	1.138E+04	6.218E+06	1.252E+04	2.675E+01	7.462E+03	2.942E+01
2130	1.116E+04	6.095E+06	1.227E+04	2.622E+01	7.314E+03	2.884E+01
2131	1.094E+04	5.974E+06	1.203E+04	2.570E+01	7.169E+03	2.827E+01

Summary Report

Landfill Name or Identifier: North County Sanitary Landfill

Date: Sunday, March 9, 2025

Description/Comments:

Waste design capacity was estimated based on the volume design capacity of 41.2 million cubic yards of disposal and average reduse desnsity of approximately 0.5 tons per cubic yard specified in the Permit. Historical Data: 1991 to 2023. Project: increase waste acceptance rates from 250,000 in 2024 to 660,000 in 2026, then assume 3% increase annually thereafter. Closure year 2043.

About LandGEM:

First-Order Decomposition Rate Equation:

$$Q_{CH_4} = \sum_{i=1}^{n} \sum_{j=0.1}^{1} k L_o \left(\frac{M_i}{10} \right) e^{-k t_{ij}}$$

Where,

Q_{CH4} = annual methane generation in the year of the calculation *(m^3/year)*
i = 1-year time increment
n = (year of the calculation) - (initial year of waste acceptance)
j = 0.1-year time increment
k = methane generation rate *($year^{-1}$)*
L_0 = potential methane generation capacity *(m^3/Mg)*

M_i = mass of waste accepted in the i^{th} year *(Mg)*
t_{ij} = age of the j^{th} section of waste mass M_i accepted in the i^{th} year (*decimal years*, e.g., 3.2 years)

LandGEM is based on a first-order decomposition rate equation for quantifying emissions from the decomposition of landfilled waste in municipal solid waste (MSW) landfills. The software provides a relatively simple approach to estimating landfill gas emissions. Model defaults are based on empirical data from U.S. landfills. Field test data can also be used in place of model defaults when available. Further guidance on EPA test methods, Clean Air Act (CAA) regulations, and other guidance regarding landfill gas emissions and control technology requirements can be found at http://www.epa.gov/ttnatw01/landfill/landflpg.html.

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for convential landfills (no leachate or liquid additions) for developing emission inventories and determining CAA applicability. Refer to the Web site identified above for future updates.

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year	**1991**	
Landfill Closure Year (with 80-year limit)	**2043**	
Actual Closure Year (without limit)	***2043***	
Have Model Calculate Closure Year?	**No**	
Waste Design Capacity	**20,600,000**	*short tons*

MODEL PARAMETERS

Methane Generation Rate, k	**0.020**	*$year^{-1}$*
Potential Methane Generation Capacity, L_0	**100**	*m^3/Mg*
NMOC Concentration	**600**	*ppmv as hexane*
Methane Content	**50**	*% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1: **Total landfill gas**
Gas / Pollutant #2: **Methane**
Gas / Pollutant #3: **Carbon dioxide**
Gas / Pollutant #4: **NMOC**

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
1991	31,981	35,179	0	0
1992	112,964	124,260	31,981	35,179
1993	128,467	141,314	144,945	159,440
1994	152,987	168,286	273,412	300,753
1995	104,115	114,527	426,399	469,039
1996	96,087	105,696	530,514	583,565
1997	100,475	110,523	626,601	689,261
1998	102,551	112,806	727,076	799,784
1999	93,263	102,589	829,627	912,590
2000	93,186	102,504	922,890	1,015,179
2001	124,660	137,126	1,016,076	1,117,684
2002	132,137	145,350	1,140,736	1,254,809
2003	129,632	142,595	1,272,872	1,400,160
2004	151,301	166,431	1,402,504	1,542,755
2005	164,113	180,524	1,553,805	1,709,185
2006	164,831	181,314	1,717,917	1,889,709
2007	153,707	169,078	1,882,748	2,071,023
2008	130,163	143,179	2,036,455	2,240,100
2009	129,649	142,614	2,166,617	2,383,279
2010	122,730	135,003	2,296,266	2,525,893
2011	121,377	133,515	2,418,996	2,660,896
2012	125,754	138,329	2,540,374	2,794,411
2013	141,236	155,360	2,666,127	2,932,740
2014	152,055	167,261	2,807,364	3,088,100
2015	194,013	213,414	2,959,419	3,255,361
2016	152,964	168,260	3,153,432	3,468,775
2017	168,888	185,777	3,306,395	3,637,035
2018	176,143	193,757	3,475,283	3,822,811
2019	174,764	192,240	3,651,426	4,016,568
2020	167,371	184,108	3,826,189	4,208,808
2021	191,695	210,865	3,993,560	4,392,916
2022	180,648	198,713	4,185,256	4,603,781
2023	242,867	267,154	4,365,904	4,802,494
2024	227,273	250,000	4,608,771	5,069,648
2025	413,636	455,000	4,836,044	5,319,648
2026	600,000	660,000	5,249,680	5,774,648
2027	618,000	679,800	5,849,680	6,434,648
2028	636,540	700,194	6,467,680	7,114,448
2029	655,636	721,200	7,104,220	7,814,642
2030	675,305	742,836	7,759,857	8,535,842

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
2031	695,564	765,121	8,435,162	9,278,678
2032	716,431	788,075	9,130,726	10,043,799
2033	737,924	811,717	9,847,158	10,831,873
2034	760,062	836,068	10,585,082	11,643,590
2035	782,864	861,150	11,345,144	12,479,658
2036	806,350	886,985	12,128,008	13,340,809
2037	830,540	913,594	12,934,358	14,227,794
2038	855,457	941,002	13,764,898	15,141,388
2039	881,120	969,232	14,620,355	16,082,390
2040	907,554	998,309	15,501,475	17,051,622
2041	934,780	1,028,258	16,409,029	18,049,932
2042	962,824	1,059,106	17,343,809	19,078,190
2043	420,640	462,704	18,306,633	20,137,296
2044	0	0	18,727,273	20,600,000
2045	0	0	18,727,273	20,600,000
2046	0	0	18,727,273	20,600,000
2047	0	0	18,727,273	20,600,000
2048	0	0	18,727,273	20,600,000
2049	0	0	18,727,273	20,600,000
2050	0	0	18,727,273	20,600,000
2051	0	0	18,727,273	20,600,000
2052	0	0	18,727,273	20,600,000
2053	0	0	18,727,273	20,600,000
2054	0	0	18,727,273	20,600,000
2055	0	0	18,727,273	20,600,000
2056	0	0	18,727,273	20,600,000
2057	0	0	18,727,273	20,600,000
2058	0	0	18,727,273	20,600,000
2059	0	0	18,727,273	20,600,000
2060	0	0	18,727,273	20,600,000
2061	0	0	18,727,273	20,600,000
2062	0	0	18,727,273	20,600,000
2063	0	0	18,727,273	20,600,000
2064	0	0	18,727,273	20,600,000
2065	0	0	18,727,273	20,600,000
2066	0	0	18,727,273	20,600,000
2067	0	0	18,727,273	20,600,000
2068	0	0	18,727,273	20,600,000
2069	0	0	18,727,273	20,600,000
2070	0	0	18,727,273	20,600,000

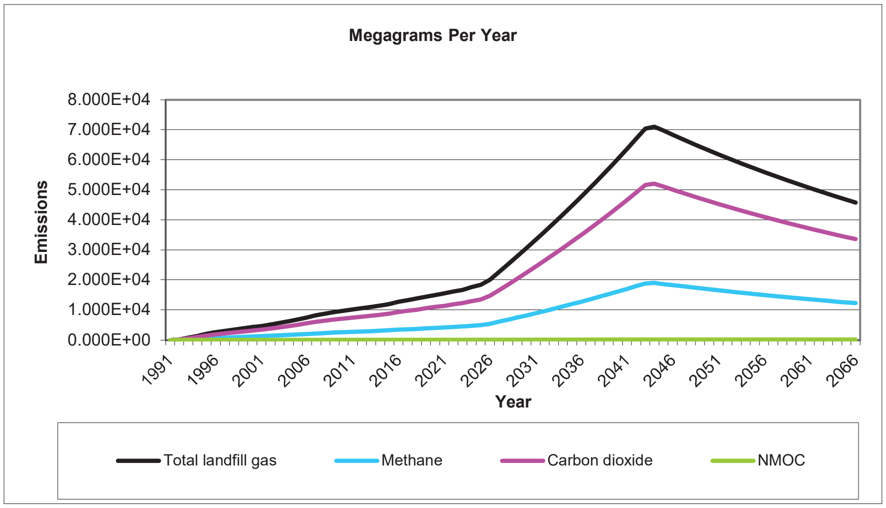
Pollutant Parameters

	Compound	Gas / Pollutant Default Parameters: Concentration (*ppmv*)	Molecular Weight	User-specified Pollutant Parameters: Concentration (*ppmv*)	Molecular Weight
Gases	Total landfill gas		30.03		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

Pollutant Parameters (Continued)

	Gas / Pollutant Default Parameters:			User-specified Pollutant Parameters:	
	Compound	Concentration (*ppmv*)	Molecular Weight	Concentration (*ppmv*)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

Graphs


Megagrams Per Year
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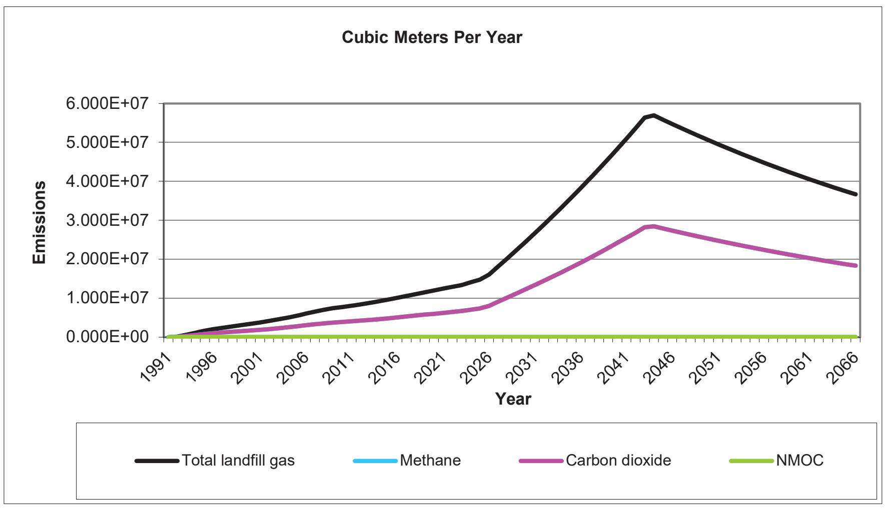
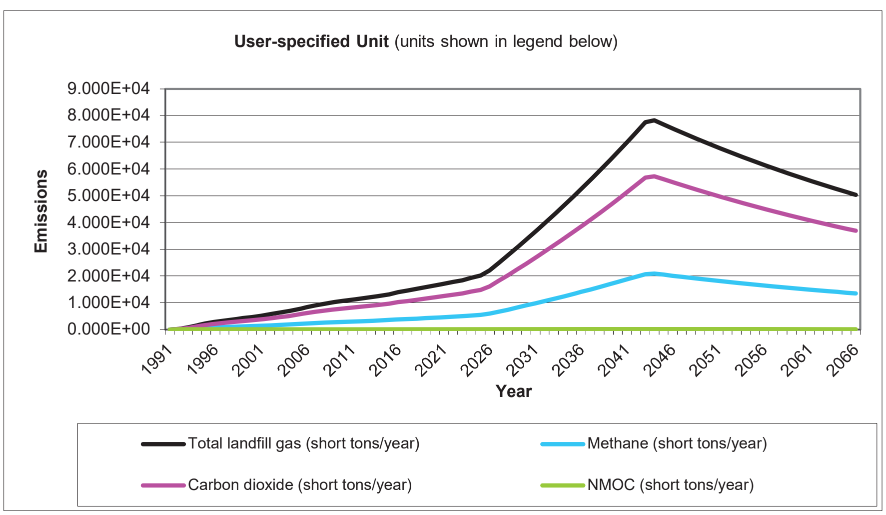
7.000E+04
6.000E+04
5.000E+04
4.000E+04
3.000E+04
2.000E+04
1.000E+04
0.000E+00
Emissions
1991 1996 2001 2006 2011 2016 2021 2026 2031 2036 2041 2046 2051 2056 2061 2066
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


Cubic Meters Per Year
6.000E+07
5.000E+07
4.000E+07
3.000E+07
2.000E+07
1.000E+07
0.000E+00
Emissions
1991 1996 2001 2006 2011 2016 2021 2026 2031 2036 2041 2046 2051 2056 2061 2066
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


User-specified Unit (units shown in legend below)
9.000E+04
8.000E+04
7.000E+04
6.000E+04
5.000E+04
4.000E+04
3.000E+04
2.000E+04
1.000E+04
0.000E+00
Emissions
1991 1996 2001 2006 2011 2016 2021 2026 2031 2036 2041 2046 2051 2056 2061 2066
Year
Total landfill gas (short tons/year)
Methane (short tons/year)
Carbon dioxide (short tons/year)
NMOC (short tons/year)

Results

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(short tons/year)*	*(Mg/year)*	*(m^3/year)*	*(short tons/year)*
1991	0	0	0	0	0	0
1992	1.583E+02	1.268E+05	1.742E+02	4.229E+01	6.339E+04	4.652E+01
1993	7.144E+02	5.721E+05	7.859E+02	1.908E+02	2.860E+05	2.099E+02
1994	1.336E+03	1.070E+06	1.470E+03	3.569E+02	5.350E+05	3.926E+02
1995	2.067E+03	1.655E+06	2.274E+03	5.522E+02	8.277E+05	6.074E+02
1996	2.542E+03	2.035E+06	2.796E+03	6.789E+02	1.018E+06	7.468E+02
1997	2.967E+03	2.376E+06	3.264E+03	7.925E+02	1.188E+06	8.718E+02
1998	3.406E+03	2.727E+06	3.746E+03	9.097E+02	1.364E+06	1.001E+03
1999	3.846E+03	3.080E+06	4.231E+03	1.027E+03	1.540E+06	1.130E+03
2000	4.232E+03	3.388E+06	4.655E+03	1.130E+03	1.694E+06	1.243E+03
2001	4.609E+03	3.691E+06	5.070E+03	1.231E+03	1.845E+06	1.354E+03
2002	5.135E+03	4.112E+06	5.648E+03	1.372E+03	2.056E+06	1.509E+03
2003	5.687E+03	4.554E+06	6.256E+03	1.519E+03	2.277E+06	1.671E+03
2004	6.217E+03	4.978E+06	6.838E+03	1.661E+03	2.489E+06	1.827E+03
2005	6.842E+03	5.479E+06	7.527E+03	1.828E+03	2.740E+06	2.010E+03
2006	7.519E+03	6.021E+06	8.271E+03	2.009E+03	3.011E+06	2.209E+03
2007	8.187E+03	6.555E+06	9.005E+03	2.187E+03	3.278E+06	2.405E+03
2008	8.785E+03	7.035E+06	9.664E+03	2.347E+03	3.517E+06	2.581E+03
2009	9.256E+03	7.412E+06	1.018E+04	2.472E+03	3.706E+06	2.720E+03
2010	9.714E+03	7.779E+06	1.069E+04	2.595E+03	3.889E+06	2.854E+03
2011	1.013E+04	8.111E+06	1.114E+04	2.706E+03	4.056E+06	2.976E+03
2012	1.053E+04	8.432E+06	1.158E+04	2.813E+03	4.216E+06	3.094E+03
2013	1.094E+04	8.763E+06	1.204E+04	2.923E+03	4.382E+06	3.216E+03
2014	1.143E+04	9.150E+06	1.257E+04	3.052E+03	4.575E+06	3.357E+03
2015	1.195E+04	9.571E+06	1.315E+04	3.193E+03	4.786E+06	3.512E+03
2016	1.268E+04	1.015E+07	1.394E+04	3.386E+03	5.076E+06	3.725E+03
2017	1.318E+04	1.056E+07	1.450E+04	3.521E+03	5.278E+06	3.873E+03
2018	1.376E+04	1.102E+07	1.513E+04	3.675E+03	5.508E+06	4.042E+03
2019	1.436E+04	1.150E+07	1.579E+04	3.835E+03	5.748E+06	4.219E+03
2020	1.494E+04	1.196E+07	1.643E+04	3.990E+03	5.981E+06	4.389E+03
2021	1.547E+04	1.239E+07	1.702E+04	4.133E+03	6.194E+06	4.546E+03
2022	1.611E+04	1.290E+07	1.773E+04	4.304E+03	6.452E+06	4.735E+03
2023	1.669E+04	1.336E+07	1.836E+04	4.458E+03	6.682E+06	4.904E+03
2024	1.756E+04	1.406E+07	1.932E+04	4.691E+03	7.031E+06	5.160E+03
2025	1.834E+04	1.468E+07	2.017E+04	4.898E+03	7.342E+06	5.388E+03
2026	2.002E+04	1.603E+07	2.203E+04	5.348E+03	8.017E+06	5.883E+03
2027	2.260E+04	1.809E+07	2.486E+04	6.036E+03	9.047E+06	6.640E+03
2028	2.521E+04	2.019E+07	2.773E+04	6.734E+03	1.009E+07	7.407E+03
2029	2.786E+04	2.231E+07	3.065E+04	7.442E+03	1.115E+07	8.186E+03
2030	3.056E+04	2.447E+07	3.361E+04	8.162E+03	1.223E+07	8.978E+03
2031	3.329E+04	2.666E+07	3.662E+04	8.893E+03	1.333E+07	9.782E+03
2032	3.608E+04	2.889E+07	3.969E+04	9.637E+03	1.444E+07	1.060E+04
2033	3.891E+04	3.116E+07	4.280E+04	1.039E+04	1.558E+07	1.143E+04
2034	4.179E+04	3.347E+07	4.597E+04	1.116E+04	1.673E+07	1.228E+04
2035	4.473E+04	3.582E+07	4.920E+04	1.195E+04	1.791E+07	1.314E+04
2036	4.772E+04	3.821E+07	5.249E+04	1.275E+04	1.911E+07	1.402E+04
2037	5.077E+04	4.065E+07	5.584E+04	1.356E+04	2.033E+07	1.492E+04
2038	5.387E+04	4.314E+07	5.926E+04	1.439E+04	2.157E+07	1.583E+04
2039	5.704E+04	4.567E+07	6.274E+04	1.524E+04	2.284E+07	1.676E+04
2040	6.027E+04	4.826E+07	6.630E+04	1.610E+04	2.413E+07	1.771E+04

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	*(m^3/year)*	*(short tons/year)*	*(Mg/year)*	*(m^3/year)*	*(short tons/year)*
2041	6.357E+04	5.091E+07	6.993E+04	1.698E+04	2.545E+07	1.868E+04
2042	6.694E+04	5.360E+07	7.363E+04	1.788E+04	2.680E+07	1.967E+04
2043	7.038E+04	5.636E+07	7.742E+04	1.880E+04	2.818E+07	2.068E+04
2044	7.107E+04	5.691E+07	7.818E+04	1.898E+04	2.846E+07	2.088E+04
2045	6.966E+04	5.578E+07	7.663E+04	1.861E+04	2.789E+07	2.047E+04
2046	6.828E+04	5.468E+07	7.511E+04	1.824E+04	2.734E+07	2.006E+04
2047	6.693E+04	5.360E+07	7.363E+04	1.788E+04	2.680E+07	1.967E+04
2048	6.561E+04	5.253E+07	7.217E+04	1.752E+04	2.627E+07	1.928E+04
2049	6.431E+04	5.149E+07	7.074E+04	1.718E+04	2.575E+07	1.889E+04
2050	6.303E+04	5.047E+07	6.934E+04	1.684E+04	2.524E+07	1.852E+04
2051	6.179E+04	4.948E+07	6.796E+04	1.650E+04	2.474E+07	1.815E+04
2052	6.056E+04	4.850E+07	6.662E+04	1.618E+04	2.425E+07	1.779E+04
2053	5.936E+04	4.754E+07	6.530E+04	1.586E+04	2.377E+07	1.744E+04
2054	5.819E+04	4.659E+07	6.401E+04	1.554E+04	2.330E+07	1.710E+04
2055	5.704E+04	4.567E+07	6.274E+04	1.523E+04	2.284E+07	1.676E+04
2056	5.591E+04	4.477E+07	6.150E+04	1.493E+04	2.238E+07	1.643E+04
2057	5.480E+04	4.388E+07	6.028E+04	1.464E+04	2.194E+07	1.610E+04
2058	5.371E+04	4.301E+07	5.909E+04	1.435E+04	2.151E+07	1.578E+04
2059	5.265E+04	4.216E+07	5.792E+04	1.406E+04	2.108E+07	1.547E+04
2060	5.161E+04	4.133E+07	5.677E+04	1.379E+04	2.066E+07	1.516E+04
2061	5.059E+04	4.051E+07	5.564E+04	1.351E+04	2.025E+07	1.486E+04
2062	4.958E+04	3.970E+07	5.454E+04	1.324E+04	1.985E+07	1.457E+04
2063	4.860E+04	3.892E+07	5.346E+04	1.298E+04	1.946E+07	1.428E+04
2064	4.764E+04	3.815E+07	5.240E+04	1.273E+04	1.907E+07	1.400E+04
2065	4.670E+04	3.739E+07	5.137E+04	1.247E+04	1.870E+07	1.372E+04
2066	4.577E+04	3.665E+07	5.035E+04	1.223E+04	1.833E+07	1.345E+04
2067	4.487E+04	3.593E+07	4.935E+04	1.198E+04	1.796E+07	1.318E+04
2068	4.398E+04	3.522E+07	4.838E+04	1.175E+04	1.761E+07	1.292E+04
2069	4.311E+04	3.452E+07	4.742E+04	1.151E+04	1.726E+07	1.267E+04
2070	4.225E+04	3.383E+07	4.648E+04	1.129E+04	1.692E+07	1.241E+04
2071	4.142E+04	3.316E+07	4.556E+04	1.106E+04	1.658E+07	1.217E+04
2072	4.060E+04	3.251E+07	4.466E+04	1.084E+04	1.625E+07	1.193E+04
2073	3.979E+04	3.186E+07	4.377E+04	1.063E+04	1.593E+07	1.169E+04
2074	3.900E+04	3.123E+07	4.290E+04	1.042E+04	1.562E+07	1.146E+04
2075	3.823E+04	3.061E+07	4.206E+04	1.021E+04	1.531E+07	1.123E+04
2076	3.748E+04	3.001E+07	4.122E+04	1.001E+04	1.500E+07	1.101E+04
2077	3.673E+04	2.941E+07	4.041E+04	9.812E+03	1.471E+07	1.079E+04
2078	3.601E+04	2.883E+07	3.961E+04	9.617E+03	1.442E+07	1.058E+04
2079	3.529E+04	2.826E+07	3.882E+04	9.427E+03	1.413E+07	1.037E+04
2080	3.459E+04	2.770E+07	3.805E+04	9.240E+03	1.385E+07	1.016E+04
2081	3.391E+04	2.715E+07	3.730E+04	9.057E+03	1.358E+07	9.963E+03
2082	3.324E+04	2.661E+07	3.656E+04	8.878E+03	1.331E+07	9.766E+03
2083	3.258E+04	2.609E+07	3.584E+04	8.702E+03	1.304E+07	9.572E+03
2084	3.193E+04	2.557E+07	3.513E+04	8.530E+03	1.279E+07	9.383E+03
2085	3.130E+04	2.507E+07	3.443E+04	8.361E+03	1.253E+07	9.197E+03
2086	3.068E+04	2.457E+07	3.375E+04	8.195E+03	1.228E+07	9.015E+03
2087	3.007E+04	2.408E+07	3.308E+04	8.033E+03	1.204E+07	8.837E+03
2088	2.948E+04	2.361E+07	3.243E+04	7.874E+03	1.180E+07	8.662E+03
2089	2.890E+04	2.314E+07	3.178E+04	7.718E+03	1.157E+07	8.490E+03
2090	2.832E+04	2.268E+07	3.116E+04	7.565E+03	1.134E+07	8.322E+03
2091	2.776E+04	2.223E+07	3.054E+04	7.416E+03	1.112E+07	8.157E+03

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	(m^3/year)	(short tons/year)	(Mg/year)	(m^3/year)	(short tons/year)
2092	2.721E+04	2.179E+07	2.993E+04	7.269E+03	1.090E+07	7.996E+03
2093	2.667E+04	2.136E+07	2.934E+04	7.125E+03	1.068E+07	7.837E+03
2094	2.615E+04	2.094E+07	2.876E+04	6.984E+03	1.047E+07	7.682E+03
2095	2.563E+04	2.052E+07	2.819E+04	6.845E+03	1.026E+07	7.530E+03
2096	2.512E+04	2.012E+07	2.763E+04	6.710E+03	1.006E+07	7.381E+03
2097	2.462E+04	1.972E+07	2.709E+04	6.577E+03	9.858E+06	7.235E+03
2098	2.414E+04	1.933E+07	2.655E+04	6.447E+03	9.663E+06	7.091E+03
2099	2.366E+04	1.894E+07	2.602E+04	6.319E+03	9.472E+06	6.951E+03
2100	2.319E+04	1.857E+07	2.551E+04	6.194E+03	9.284E+06	6.813E+03
2101	2.273E+04	1.820E+07	2.500E+04	6.071E+03	9.100E+06	6.679E+03
2102	2.228E+04	1.784E+07	2.451E+04	5.951E+03	8.920E+06	6.546E+03
2103	2.184E+04	1.749E+07	2.402E+04	5.833E+03	8.744E+06	6.417E+03
2104	2.141E+04	1.714E+07	2.355E+04	5.718E+03	8.571E+06	6.290E+03
2105	2.098E+04	1.680E+07	2.308E+04	5.605E+03	8.401E+06	6.165E+03
2106	2.057E+04	1.647E+07	2.262E+04	5.494E+03	8.234E+06	6.043E+03
2107	2.016E+04	1.614E+07	2.218E+04	5.385E+03	8.071E+06	5.923E+03
2108	1.976E+04	1.582E+07	2.174E+04	5.278E+03	7.912E+06	5.806E+03
2109	1.937E+04	1.551E+07	2.131E+04	5.174E+03	7.755E+06	5.691E+03
2110	1.899E+04	1.520E+07	2.088E+04	5.071E+03	7.601E+06	5.578E+03
2111	1.861E+04	1.490E+07	2.047E+04	4.971E+03	7.451E+06	5.468E+03
2112	1.824E+04	1.461E+07	2.007E+04	4.872E+03	7.303E+06	5.360E+03
2113	1.788E+04	1.432E+07	1.967E+04	4.776E+03	7.159E+06	5.253E+03
2114	1.753E+04	1.403E+07	1.928E+04	4.681E+03	7.017E+06	5.149E+03
2115	1.718E+04	1.376E+07	1.890E+04	4.589E+03	6.878E+06	5.048E+03
2116	1.684E+04	1.348E+07	1.852E+04	4.498E+03	6.742E+06	4.948E+03
2117	1.651E+04	1.322E+07	1.816E+04	4.409E+03	6.608E+06	4.850E+03
2118	1.618E+04	1.295E+07	1.780E+04	4.321E+03	6.477E+06	4.754E+03
2119	1.586E+04	1.270E+07	1.744E+04	4.236E+03	6.349E+06	4.659E+03
2120	1.554E+04	1.245E+07	1.710E+04	4.152E+03	6.223E+06	4.567E+03
2121	1.524E+04	1.220E+07	1.676E+04	4.070E+03	6.100E+06	4.477E+03
2122	1.493E+04	1.196E+07	1.643E+04	3.989E+03	5.979E+06	4.388E+03
2123	1.464E+04	1.172E+07	1.610E+04	3.910E+03	5.861E+06	4.301E+03
2124	1.435E+04	1.149E+07	1.578E+04	3.833E+03	5.745E+06	4.216E+03
2125	1.406E+04	1.126E+07	1.547E+04	3.757E+03	5.631E+06	4.133E+03
2126	1.379E+04	1.104E+07	1.516E+04	3.682E+03	5.520E+06	4.051E+03
2127	1.351E+04	1.082E+07	1.486E+04	3.610E+03	5.410E+06	3.971E+03
2128	1.325E+04	1.061E+07	1.457E+04	3.538E+03	5.303E+06	3.892E+03
2129	1.298E+04	1.040E+07	1.428E+04	3.468E+03	5.198E+06	3.815E+03
2130	1.273E+04	1.019E+07	1.400E+04	3.399E+03	5.095E+06	3.739E+03
2131	1.247E+04	9.989E+06	1.372E+04	3.332E+03	4.994E+06	3.665E+03

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(short tons/year)*	*(Mg/year)*	*(m^3/year)*	*(short tons/year)*
1991	0	0	0	0	0	0
1992	1.160E+02	6.339E+04	1.276E+02	2.727E-01	7.607E+01	2.999E-01
1993	5.236E+02	2.860E+05	5.760E+02	1.230E+00	3.433E+02	1.353E+00
1994	9.793E+02	5.350E+05	1.077E+03	2.301E+00	6.420E+02	2.531E+00
1995	1.515E+03	8.277E+05	1.667E+03	3.560E+00	9.932E+02	3.916E+00
1996	1.863E+03	1.018E+06	2.049E+03	4.377E+00	1.221E+03	4.815E+00
1997	2.175E+03	1.188E+06	2.392E+03	5.110E+00	1.426E+03	5.621E+00
1998	2.496E+03	1.364E+06	2.746E+03	5.865E+00	1.636E+03	6.452E+00
1999	2.819E+03	1.540E+06	3.101E+03	6.623E+00	1.848E+03	7.286E+00
2000	3.101E+03	1.694E+06	3.411E+03	7.287E+00	2.033E+03	8.016E+00
2001	3.378E+03	1.845E+06	3.716E+03	7.938E+00	2.214E+03	8.731E+00
2002	3.763E+03	2.056E+06	4.140E+03	8.843E+00	2.467E+03	9.728E+00
2003	4.168E+03	2.277E+06	4.585E+03	9.795E+00	2.733E+03	1.077E+01
2004	4.556E+03	2.489E+06	5.012E+03	1.071E+01	2.987E+03	1.178E+01
2005	5.015E+03	2.740E+06	5.516E+03	1.178E+01	3.287E+03	1.296E+01
2006	5.511E+03	3.011E+06	6.062E+03	1.295E+01	3.613E+03	1.424E+01
2007	6.000E+03	3.278E+06	6.600E+03	1.410E+01	3.933E+03	1.551E+01
2008	6.439E+03	3.517E+06	7.083E+03	1.513E+01	4.221E+03	1.664E+01
2009	6.784E+03	3.706E+06	7.462E+03	1.594E+01	4.447E+03	1.753E+01
2010	7.120E+03	3.889E+06	7.832E+03	1.673E+01	4.667E+03	1.840E+01
2011	7.424E+03	4.056E+06	8.166E+03	1.744E+01	4.867E+03	1.919E+01
2012	7.717E+03	4.216E+06	8.489E+03	1.813E+01	5.059E+03	1.995E+01
2013	8.021E+03	4.382E+06	8.823E+03	1.885E+01	5.258E+03	2.073E+01
2014	8.374E+03	4.575E+06	9.212E+03	1.968E+01	5.490E+03	2.165E+01
2015	8.760E+03	4.786E+06	9.636E+03	2.059E+01	5.743E+03	2.264E+01
2016	9.291E+03	5.076E+06	1.022E+04	2.183E+01	6.091E+03	2.401E+01
2017	9.662E+03	5.278E+06	1.063E+04	2.270E+01	6.334E+03	2.497E+01
2018	1.008E+04	5.508E+06	1.109E+04	2.369E+01	6.610E+03	2.606E+01
2019	1.052E+04	5.748E+06	1.157E+04	2.473E+01	6.898E+03	2.720E+01
2020	1.095E+04	5.981E+06	1.204E+04	2.573E+01	7.177E+03	2.830E+01
2021	1.134E+04	6.194E+06	1.247E+04	2.664E+01	7.433E+03	2.931E+01
2022	1.181E+04	6.452E+06	1.299E+04	2.775E+01	7.742E+03	3.053E+01
2023	1.223E+04	6.682E+06	1.345E+04	2.874E+01	8.018E+03	3.162E+01
2024	1.287E+04	7.031E+06	1.416E+04	3.024E+01	8.437E+03	3.327E+01
2025	1.344E+04	7.342E+06	1.478E+04	3.158E+01	8.811E+03	3.474E+01
2026	1.467E+04	8.017E+06	1.614E+04	3.448E+01	9.620E+03	3.793E+01
2027	1.656E+04	9.047E+06	1.822E+04	3.892E+01	1.086E+04	4.281E+01
2028	1.848E+04	1.009E+07	2.032E+04	4.341E+01	1.211E+04	4.776E+01
2029	2.042E+04	1.115E+07	2.246E+04	4.798E+01	1.339E+04	5.278E+01
2030	2.239E+04	1.223E+07	2.463E+04	5.262E+01	1.468E+04	5.788E+01
2031	2.440E+04	1.333E+07	2.684E+04	5.734E+01	1.600E+04	6.307E+01
2032	2.644E+04	1.444E+07	2.909E+04	6.213E+01	1.733E+04	6.834E+01
2033	2.852E+04	1.558E+07	3.137E+04	6.701E+01	1.869E+04	7.371E+01
2034	3.063E+04	1.673E+07	3.369E+04	7.197E+01	2.008E+04	7.917E+01
2035	3.278E+04	1.791E+07	3.606E+04	7.703E+01	2.149E+04	8.473E+01
2036	3.497E+04	1.911E+07	3.847E+04	8.218E+01	2.293E+04	9.040E+01
2037	3.721E+04	2.033E+07	4.093E+04	8.743E+01	2.439E+04	9.617E+01
2038	3.948E+04	2.157E+07	4.343E+04	9.278E+01	2.588E+04	1.021E+02
2039	4.180E+04	2.284E+07	4.598E+04	9.823E+01	2.740E+04	1.081E+02
2040	4.417E+04	2.413E+07	4.859E+04	1.038E+02	2.896E+04	1.142E+02

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m^3/year)	(short tons/year)	(Mg/year)	(m^3/year)	(short tons/year)
2041	4.659E+04	2.545E+07	5.125E+04	1.095E+02	3.054E+04	1.204E+02
2042	4.906E+04	2.680E+07	5.397E+04	1.153E+02	3.216E+04	1.268E+02
2043	5.158E+04	2.818E+07	5.674E+04	1.212E+02	3.382E+04	1.333E+02
2044	5.209E+04	2.846E+07	5.730E+04	1.224E+02	3.415E+04	1.346E+02
2045	5.106E+04	2.789E+07	5.616E+04	1.200E+02	3.347E+04	1.320E+02
2046	5.004E+04	2.734E+07	5.505E+04	1.176E+02	3.281E+04	1.294E+02
2047	4.905E+04	2.680E+07	5.396E+04	1.153E+02	3.216E+04	1.268E+02
2048	4.808E+04	2.627E+07	5.289E+04	1.130E+02	3.152E+04	1.243E+02
2049	4.713E+04	2.575E+07	5.184E+04	1.107E+02	3.090E+04	1.218E+02
2050	4.620E+04	2.524E+07	5.082E+04	1.086E+02	3.028E+04	1.194E+02
2051	4.528E+04	2.474E+07	4.981E+04	1.064E+02	2.969E+04	1.170E+02
2052	4.439E+04	2.425E+07	4.882E+04	1.043E+02	2.910E+04	1.147E+02
2053	4.351E+04	2.377E+07	4.786E+04	1.022E+02	2.852E+04	1.125E+02
2054	4.265E+04	2.330E+07	4.691E+04	1.002E+02	2.796E+04	1.102E+02
2055	4.180E+04	2.284E+07	4.598E+04	9.822E+01	2.740E+04	1.080E+02
2056	4.097E+04	2.238E+07	4.507E+04	9.628E+01	2.686E+04	1.059E+02
2057	4.016E+04	2.194E+07	4.418E+04	9.437E+01	2.633E+04	1.038E+02
2058	3.937E+04	2.151E+07	4.330E+04	9.250E+01	2.581E+04	1.018E+02
2059	3.859E+04	2.108E+07	4.245E+04	9.067E+01	2.530E+04	9.974E+01
2060	3.782E+04	2.066E+07	4.161E+04	8.888E+01	2.480E+04	9.777E+01
2061	3.707E+04	2.025E+07	4.078E+04	8.712E+01	2.430E+04	9.583E+01
2062	3.634E+04	1.985E+07	3.997E+04	8.539E+01	2.382E+04	9.393E+01
2063	3.562E+04	1.946E+07	3.918E+04	8.370E+01	2.335E+04	9.207E+01
2064	3.491E+04	1.907E+07	3.841E+04	8.204E+01	2.289E+04	9.025E+01
2065	3.422E+04	1.870E+07	3.765E+04	8.042E+01	2.244E+04	8.846E+01
2066	3.355E+04	1.833E+07	3.690E+04	7.883E+01	2.199E+04	8.671E+01
2067	3.288E+04	1.796E+07	3.617E+04	7.727E+01	2.156E+04	8.499E+01
2068	3.223E+04	1.761E+07	3.545E+04	7.574E+01	2.113E+04	8.331E+01
2069	3.159E+04	1.726E+07	3.475E+04	7.424E+01	2.071E+04	8.166E+01
2070	3.097E+04	1.692E+07	3.406E+04	7.277E+01	2.030E+04	8.004E+01
2071	3.035E+04	1.658E+07	3.339E+04	7.133E+01	1.990E+04	7.846E+01
2072	2.975E+04	1.625E+07	3.273E+04	6.991E+01	1.950E+04	7.690E+01
2073	2.916E+04	1.593E+07	3.208E+04	6.853E+01	1.912E+04	7.538E+01
2074	2.859E+04	1.562E+07	3.144E+04	6.717E+01	1.874E+04	7.389E+01
2075	2.802E+04	1.531E+07	3.082E+04	6.584E+01	1.837E+04	7.243E+01
2076	2.747E+04	1.500E+07	3.021E+04	6.454E+01	1.800E+04	7.099E+01
2077	2.692E+04	1.471E+07	2.961E+04	6.326E+01	1.765E+04	6.959E+01
2078	2.639E+04	1.442E+07	2.903E+04	6.201E+01	1.730E+04	6.821E+01
2079	2.587E+04	1.413E+07	2.845E+04	6.078E+01	1.696E+04	6.686E+01
2080	2.535E+04	1.385E+07	2.789E+04	5.958E+01	1.662E+04	6.553E+01
2081	2.485E+04	1.358E+07	2.734E+04	5.840E+01	1.629E+04	6.424E+01
2082	2.436E+04	1.331E+07	2.680E+04	5.724E+01	1.597E+04	6.296E+01
2083	2.388E+04	1.304E+07	2.626E+04	5.611E+01	1.565E+04	6.172E+01
2084	2.340E+04	1.279E+07	2.574E+04	5.500E+01	1.534E+04	6.050E+01
2085	2.294E+04	1.253E+07	2.523E+04	5.391E+01	1.504E+04	5.930E+01
2086	2.249E+04	1.228E+07	2.474E+04	5.284E+01	1.474E+04	5.812E+01
2087	2.204E+04	1.204E+07	2.425E+04	5.179E+01	1.445E+04	5.697E+01
2088	2.160E+04	1.180E+07	2.377E+04	5.077E+01	1.416E+04	5.584E+01
2089	2.118E+04	1.157E+07	2.329E+04	4.976E+01	1.388E+04	5.474E+01
2090	2.076E+04	1.134E+07	2.283E+04	4.878E+01	1.361E+04	5.365E+01
2091	2.035E+04	1.112E+07	2.238E+04	4.781E+01	1.334E+04	5.259E+01

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	*(m^3/year)*	*(short tons/year)*	*(Mg/year)*	*(m^3/year)*	*(short tons/year)*
2092	1.994E+04	1.090E+07	2.194E+04	4.686E+01	1.307E+04	5.155E+01
2093	1.955E+04	1.068E+07	2.150E+04	4.594E+01	1.282E+04	5.053E+01
2094	1.916E+04	1.047E+07	2.108E+04	4.503E+01	1.256E+04	4.953E+01
2095	1.878E+04	1.026E+07	2.066E+04	4.414E+01	1.231E+04	4.855E+01
2096	1.841E+04	1.006E+07	2.025E+04	4.326E+01	1.207E+04	4.759E+01
2097	1.805E+04	9.858E+06	1.985E+04	4.240E+01	1.183E+04	4.665E+01
2098	1.769E+04	9.663E+06	1.946E+04	4.156E+01	1.160E+04	4.572E+01
2099	1.734E+04	9.472E+06	1.907E+04	4.074E+01	1.137E+04	4.482E+01
2100	1.699E+04	9.284E+06	1.869E+04	3.994E+01	1.114E+04	4.393E+01
2101	1.666E+04	9.100E+06	1.832E+04	3.914E+01	1.092E+04	4.306E+01
2102	1.633E+04	8.920E+06	1.796E+04	3.837E+01	1.070E+04	4.221E+01
2103	1.601E+04	8.744E+06	1.761E+04	3.761E+01	1.049E+04	4.137E+01
2104	1.569E+04	8.571E+06	1.726E+04	3.686E+01	1.028E+04	4.055E+01
2105	1.538E+04	8.401E+06	1.692E+04	3.613E+01	1.008E+04	3.975E+01
2106	1.507E+04	8.234E+06	1.658E+04	3.542E+01	9.881E+03	3.896E+01
2107	1.477E+04	8.071E+06	1.625E+04	3.472E+01	9.686E+03	3.819E+01
2108	1.448E+04	7.912E+06	1.593E+04	3.403E+01	9.494E+03	3.743E+01
2109	1.420E+04	7.755E+06	1.561E+04	3.336E+01	9.306E+03	3.669E+01
2110	1.391E+04	7.601E+06	1.531E+04	3.270E+01	9.122E+03	3.597E+01
2111	1.364E+04	7.451E+06	1.500E+04	3.205E+01	8.941E+03	3.525E+01
2112	1.337E+04	7.303E+06	1.471E+04	3.141E+01	8.764E+03	3.456E+01
2113	1.310E+04	7.159E+06	1.441E+04	3.079E+01	8.590E+03	3.387E+01
2114	1.284E+04	7.017E+06	1.413E+04	3.018E+01	8.420E+03	3.320E+01
2115	1.259E+04	6.878E+06	1.385E+04	2.958E+01	8.254E+03	3.254E+01
2116	1.234E+04	6.742E+06	1.357E+04	2.900E+01	8.090E+03	3.190E+01
2117	1.210E+04	6.608E+06	1.331E+04	2.842E+01	7.930E+03	3.127E+01
2118	1.186E+04	6.477E+06	1.304E+04	2.786E+01	7.773E+03	3.065E+01
2119	1.162E+04	6.349E+06	1.278E+04	2.731E+01	7.619E+03	3.004E+01
2120	1.139E+04	6.223E+06	1.253E+04	2.677E+01	7.468E+03	2.945E+01
2121	1.117E+04	6.100E+06	1.228E+04	2.624E+01	7.320E+03	2.886E+01
2122	1.095E+04	5.979E+06	1.204E+04	2.572E+01	7.175E+03	2.829E+01
2123	1.073E+04	5.861E+06	1.180E+04	2.521E+01	7.033E+03	2.773E+01
2124	1.052E+04	5.745E+06	1.157E+04	2.471E+01	6.894E+03	2.718E+01
2125	1.031E+04	5.631E+06	1.134E+04	2.422E+01	6.757E+03	2.664E+01
2126	1.010E+04	5.520E+06	1.111E+04	2.374E+01	6.624E+03	2.612E+01
2127	9.904E+03	5.410E+06	1.089E+04	2.327E+01	6.492E+03	2.560E+01
2128	9.708E+03	5.303E+06	1.068E+04	2.281E+01	6.364E+03	2.509E+01
2129	9.515E+03	5.198E+06	1.047E+04	2.236E+01	6.238E+03	2.460E+01
2130	9.327E+03	5.095E+06	1.026E+04	2.192E+01	6.114E+03	2.411E+01
2131	9.142E+03	4.994E+06	1.006E+04	2.148E+01	5.993E+03	2.363E+01

Attachment A-2: Methane Emissions Input Parameters and Emissions Calculations

Total LFG emissions were calculated using LandGem. Fugitive emissions were estimated using parameters from the U.S. Environmental Protection Agency's Compilation of Air Pollutant Emissions Factors (AP-42), Section 2.4 Municipal Solid Waste Landfills.

Total LFG Derived Methane Emissions over 50 years post project (2026 - 2076)

Emission Scenario	Total Uncontrolled CH_4 Emissions (2026-2076) (short tons)	Total CH_4 (2026-2076) (short tons)			Total CO_{2e} Emissions (2026-2076) (metric tons)	Annual Average CH_4 Emissions (short tons)	Annual Average CO_{2e} Emissions (metric tons)	Net Difference CO_{2e} Emissions (metric tons)
		Fugitive Emissions	Flare Emissions	Total				
Baseline	635,191	121,311	5,004	126,315	2,864,788	2,526	57,296	1,533
Project	742,112	123,649	6,047	129,696	2,941,459	2,594	58,829	

Notes

Baseline Condition	Predicted based on the baseline operation condition (250,000 tons in 2024) and assume 3% increase annually thereafter.
Project Condition	Provided by applicant. Assumptions: increase waste acceptance rates from 250,000 tons in 2024 to 660,000 tons in 2026, then assume 3% increase annually thereafter.

Assumptions

Project year	2026	
Landfill closure year (current)	2059	
Landfill closure year (project)	2043	
Landfill gas collection system collection efficiently E_col		CFR Part 98 Table HH-3. According to the North County Landfill Status Impact Report dated Feb 14, 2023, final cover placement phase 1 would occur on 2029 under the baseline condition. Assumed final cover placement phase 1 would occur on the same year for project condition.
E_col (2026 to 2029)	0.65	Assume most of the filled area covered by intermediate cover.
E_col (2030 to closure year)	0.75	Assume 50% final cover and 50% intermediate cover on average.
E_col (after closure year)	0.85	Assume all modules will have final cover by the closure year.
Inventory end year	2076	50-year period used to represent the overall impacts.
Methane oxidation in landfill soil cover E_oxi	10%	EPA default.
Flare methane destruction efficiency E_fla	99%	Title V Permit minimum requirement.
Metric tons per short ton	0.907	
Global Warming Potential	25	CARB 2022. GHG Global Warming Potentials. Available at https://ww2.arb.ca.gov/ghg-gwps. Accessed on September 9, 2024.

Abbreviations

CH_4 =methane; CO_{2e} = carbon dioxide equivalents; LFG = landfill gas

Equations:

Emissions [short ton/yr] = total uncontrolled emissions [short tons/year] × (1-Ecol [%]) × (1 - E_oxi [%]) + total uncontrolled emissions [short tons/year] × (1-Efla [%])

LFG Derived Methane Emissions per Year

Year	Total Uncontrolled CH_4 Emissions (short tons)		Total CH_4 Emissions (short tons)				Annual CH_4 Emissions (short tons)		Annual CO_{2e} Emissions (metric tons)		Net Difference CO_{2e} Emissions (metric tons)
			Baseline		Project						
	Baseline	Project	Landfill Surface	Flare	Landfill Surface	Flare	Baseline	Project	Baseline	Project	
2026	5,622	5,883	1,771	37	1,853	38	1,807	1,891	40,993	42,898	1,904
2027	5,861	6,640	1,846	38	2,091	43	1,884	2,135	42,739	48,412	5,673
2028	6,107	7,407	1,924	40	2,333	48	1,963	2,381	44,527	54,008	9,481
2029	6,358	8,186	2,003	41	2,579	53	2,044	2,632	46,358	59,690	13,332
2030	6,615	8,978	1,488	50	2,020	67	1,538	2,087	34,882	47,340	12,458
2031	6,879	9,782	1,548	52	2,201	73	1,599	2,274	36,273	51,582	15,310
2032	7,149	10,600	1,609	54	2,385	80	1,662	2,465	37,698	55,896	18,198
2033	7,427	11,433	1,671	56	2,572	86	1,727	2,658	39,160	60,284	21,124
2034	7,711	12,280	1,735	58	2,763	92	1,793	2,855	40,659	64,751	24,091
2035	8,002	13,142	1,801	60	2,957	99	1,861	3,056	42,197	69,298	27,101
2036	8,302	14,021	1,868	62	3,155	105	1,930	3,260	43,774	73,931	30,156
2037	8,609	14,916	1,937	65	3,356	112	2,001	3,468	45,393	78,652	33,259
2038	8,924	15,829	2,008	67	3,561	119	2,075	3,680	47,054	83,465	36,411
2039	9,247	16,760	2,081	69	3,771	126	2,150	3,897	48,759	88,373	39,614
2040	9,579	17,709	2,155	72	3,985	133	2,227	4,117	50,509	93,382	42,872
2041	9,920	18,679	2,232	74	4,203	140	2,306	4,343	52,307	98,494	46,187
2042	10,270	19,669	2,311	77	4,425	148	2,388	4,573	54,152	103,713	49,561
2043	10,629	20,680	2,392	80	4,653	155	2,471	4,808	56,048	109,045	52,997
2044	10,998	20,882	2,475	82	2,819	177	2,557	2,997	57,994	67,961	9,967
2045	11,378	20,469	2,560	85	2,763	174	2,645	2,937	59,995	66,616	6,621
2046	11,767	20,063	2,648	88	2,709	171	2,736	2,879	62,049	65,297	3,247
2047	12,168	19,666	2,738	91	2,655	167	2,829	2,822	64,161	64,004	-157
2048	12,579	19,277	2,830	94	2,602	164	2,925	2,766	66,331	62,736	-3,595
2049	13,002	18,895	2,926	98	2,551	161	3,023	2,711	68,561	61,494	-7,067
2050	13,437	18,521	3,023	101	2,500	157	3,124	2,658	70,853	60,276	-10,577
2051	13,884	18,154	3,124	104	2,451	154	3,228	2,605	73,210	59,083	-14,127
2052	14,343	17,795	3,227	108	2,402	151	3,335	2,554	75,632	57,913	-17,719
2053	14,816	17,442	3,334	111	2,355	148	3,445	2,503	78,123	56,766	-21,357
2054	15,301	17,097	3,443	115	2,308	145	3,558	2,453	80,684	55,642	-25,042
2055	15,801	16,758	3,555	119	2,262	142	3,674	2,405	83,318	54,540	-28,777
2056	16,314	16,426	3,671	122	2,218	140	3,793	2,357	86,026	53,460	-32,566
2057	16,843	16,101	3,790	126	2,174	137	3,916	2,311	88,811	52,402	-36,410
2058	17,386	15,782	3,912	130	2,131	134	4,042	2,265	91,676	51,364	-40,312
2059	17,945	15,470	4,038	135	2,088	131	4,172	2,220	94,623	50,347	-44,276
2060	18,138	15,164	2,449	154	2,047	129	2,603	2,176	59,031	49,350	-9,681
2061	17,779	14,863	2,400	151	2,007	126	2,551	2,133	57,862	48,373	-9,489
2062	17,427	14,569	2,353	148	1,967	124	2,501	2,091	56,716	47,415	-9,301
2063	17,082	14,280	2,306	145	1,928	121	2,451	2,049	55,593	46,476	-9,117
2064	16,744	13,998	2,260	142	1,890	119	2,403	2,009	54,492	45,556	-8,936
2065	16,412	13,721	2,216	140	1,852	117	2,355	1,969	53,413	44,654	-8,759
2066	16,087	13,449	2,172	137	1,816	114	2,308	1,930	52,356	43,770	-8,586
2067	15,768	13,183	2,129	134	1,780	112	2,263	1,892	51,319	42,903	-8,416
2068	15,456	12,922	2,087	131	1,744	110	2,218	1,854	50,303	42,053	-8,249
2069	15,150	12,666	2,045	129	1,710	108	2,174	1,818	49,307	41,221	-8,086
2070	14,850	12,415	2,005	126	1,676	106	2,131	1,782	48,330	40,404	-7,926
2071	14,556	12,169	1,965	124	1,643	103	2,089	1,746	47,373	39,604	-7,769
2072	14,268	11,928	1,926	121	1,610	101	2,047	1,712	46,435	38,820	-7,615
2073	13,985	11,692	1,888	119	1,578	99	2,007	1,678	45,516	38,051	-7,464
2074	13,708	11,460	1,851	117	1,547	97	1,967	1,645	44,615	37,298	-7,317
2075	13,437	11,233	1,814	114	1,517	95	1,928	1,612	43,731	36,559	-7,172
2076	13,171	11,011	1,778	112	1,486	94	1,890	1,580	42,865	35,836	-7,030

Attachment A-3: Off-Road Equipment Model Input Parameters and Emissions Calculations

Overview

Information about existing and project off-road diesel equipment usage was provided by the project applicant. Exhaust emissions of greenhouse gases from off-road equipment use were estimated using the methodology from the California Emissions Estimator Model (CalEEMod) version 2022.1.1.

Summary of Off-Road Equipment Usage

Project Equipment	CalEEMod Equipment Category	Number	Fuel Type	Horse-power	Low HP	High HP	Engine Tier	Load Factor	Weekly Usage Hours		Annual Usage Hours	
									Existing	Project	Existing	Project
94-073 825C Compactor	Rubber Tired Dozers	1	Diesel	315	300	599	Tier 1	0.40	3	3.3	156	172
95-025 Storm Water Pump	Pumps	1	Diesel	30	25	49	Average	0.74	--	--	50	50
96-002 Genie	Aerial Lifts	1	Diesel	25	25	49	Tier 1	0.31	1	1	52	52
96-003 Forklift-Clark	Forklifts	1	Diesel	40	25	49	Average	0.20	3	3	156	156
96-041 Cat 950F Loader	Rubber Tired Loaders	1	Diesel	100	75	199	Tier 1	0.36	10	12	520	624
02-035 623 Scraper	Scrapers	1	Diesel	365	300	599	Tier 1	0.48	12	14	624	728
02-910 Sweeper	Sweepers/Scrubbers	1	Diesel	25	25	49	Tier 1	0.46	1	1.5	52	77
23-112 Pressure Washer	Pressure Washers	1	Gas	10	0	24	Gas	0.30	2	2	104	104
03-909 AL-JON 81K - Compactor	Rubber Tired Dozers	1	Diesel	360	300	599	Tier 1	0.40	1	2.5	52	129
04-042 836G COMPACTOR	Rubber Tired Dozers	1	Diesel	525	300	599	Tier 2	0.40	31	33	1,612	1,716
04-075 JD 850C Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 2	0.40	14	15	728	780
04-971 JD Grader	Graders	1	Diesel	217	175	299	Tier 1	0.41	2	3	104	156
06-041 CAT 950H	Rubber Tired Loaders	1	Diesel	150	120	174	Tier 2	0.36	32	34	1,664	1,768
06-18571 Portable Light Tower	Other General Industrial Equipment	1	Diesel	15	25	49	Tier 2	0.34	6	6.3	312	330
10-020 CAT D8 Dozer	Rubber Tired Dozers	1	Diesel	310	300	599	Tier 2	0.40	42	44	2,184	2,288
15-071 CAT 420 F2 Backhoe	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	9	10	468	520
18-042 CAT 836K Compactor	Rubber Tired Dozers	1	Diesel	540	300	599	Tier 4 Interim	0.40	31	33	1,612	1,716
18-075 JD 850K Dozer	Rubber Tired Dozers	1	Diesel	270	175	299	Tier 4 Interim	0.40	22	24	1,144	1,248
19-041 JD 644K Hybrid Loader	Rubber Tired Loaders	1	Diesel	150	75	199	Tier 4 Interim	0.36	36	38	1,872	1,976
19-073 JD Track Loader	Rubber Tired Loaders	1	Diesel	165	75	199	Tier 4 Interim	0.36	2	3	104	156
20-009 JD SKID STEER 333G	Skid Steer Loaders	1	Diesel	80	75	199	Tier 4 Interim	0.37	8	9	416	468
20-020 JD 1050K LARGE DOZER	Rubber Tired Dozers	1	Diesel	325	300	599	Tier 4 Interim	0.40	40	42	2,080	2,184
20-071 JD 310SL/HL BACKHOE	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	19	20	988	1,040
20-714 KUBOTA	Tractors/Loaders/Backhoes	1	Diesel	40	25	49	Tier 4 Interim	0.37	13	13.3	676	693
22-073 JD 755K Track Loader	Tractors/Loaders/Backhoes	1	Diesel	165	75	199	Tier 4 Interim	0.37	6	6	312	312
TARPOMATIC Landfill Covers - 04-001	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 1	0.40	1	2	52	104
TARPOMATIC Landfill Covers - 18-002	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 4 Interim	0.40	2	3	104	156
Fire Pump	Pumps	1	Diesel	25	25	49	Tier 1	0.74	--	--	50	50
KARCHER PRESSURE WASHER	Pressure Washers	1	Gas	10	0	24	Gas	0.30	1	2	52	104
03-908 Sterling Water Truck (tan)	Off-Highway Trucks	1	Diesel	200	175	299	Average	0.38	2	3	104	143
20-908 International Water Truck	Off-Highway Trucks	1	Diesel	225	175	299	Tier 4 Interim	0.38	5	7	260	347
2025 CAT LPG D-6 Finish Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 4 Final	0.40	--	48	0.0	2,500
2025-26 CAT 836 Compactor	Plate Compactors	1	Diesel	540	300	599	Tier 4 Final	0.43	--	45	0.0	2,350
2025-26 CAT 623 Scraper	Scrapers	1	Diesel	370	300	599	Tier 4 Final	0.48	--	19	0.0	1,000
2025-26 Large Dozer	Rubber Tired Dozers	1	Diesel	400	300	599	Tier 4 Final	0.40	--	43	0.0	2,250
2025 Loader mid size	Rubber Tired Loaders	1	Diesel	165	120	174	Tier 4 Final	0.36	--	37	0.0	1,900

Notes:

Information on project equipment list, quantity, fuel type, horsepower, engine tier, and hours of operation per week were provided the applicant. CalEEMod default was used when engine Tier is unknown. CalEEMod default load factors were used for the corresponding equipment categories. Assumed fire pump and storm water pump, which are for emergency uses, will be used 50 hours per year. Water truck usage was converted from vehicle miles travelled assuming 5 mph speed.

Off-Road Construction Equipment CO_2 Emissions

Project Equipment	CalEEMod Equipment Category	Number	Fuel Type	Horse-power	Low HP	High HP	Engine Tier	Load Factor	EF (g/hp-hr)	CO_2 Emissions (lbs per year) Existing	Project
94-073 825C Compactor	Rubber Tired Dozers	1	Diesel	315	300	599	Tier 1	0.4	528	22,880.40	25,227.11
95-025 Storm Water Pump	Pumps	1	Diesel	30	25	49	Average	0.74	568	1,389.97	1,389.97
96-002 Genie	Aerial Lifts	1	Diesel	25	25	49	Tier 1	0.31	528	469.11	469.11
96-003 Forklift-Clark	Forklifts	1	Diesel	40	25	49	Average	0.2	568	1,562.78	1,562.78
96-041 Cat 950F Loader	Rubber Tired Loaders	1	Diesel	100	75	199	Tier 1	0.36	528	21,790.86	26,149.03
02-035 623 Scraper	Scrapers	1	Diesel	365	300	599	Tier 1	0.48	528	127,258.63	148,468.40
02-910 Sweeper	Sweepers/Scrubbers	1	Diesel	25	25	49	Tier 1	0.46	528	696.10	1,030.76
23-112 Pressure Washer	Pressure Washers	1	Gas	10	0	24	Gas	0.3	429	295.08	295.08
03-909 AL-JON 81K - Compactor	Rubber Tired Dozers	1	Diesel	360	300	599	Tier 1	0.4	528	8,716.34	21,623.24
04-042 836G COMPACTOR	Rubber Tired Dozers	1	Diesel	525	300	599	Tier 2	0.4	528	394,051.39	419,474.06
04-075 JD 850C Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 2	0.4	528	89,826.77	96,242.97
04-971 JD Grader	Graders	1	Diesel	217	175	299	Tier 1	0.41	528	10,770.74	16,156.11
06-041 CAT 950H	Rubber Tired Loaders	1	Diesel	150	120	174	Tier 2	0.36	528	104,596.13	111,133.39
06-18571 Portable Light Tower	Other General Industrial Equipment	1	Diesel	15	25	49	Tier 2	0.34	528	1,852.22	1,959.08
10-020 CAT D8 Dozer	Rubber Tired Dozers	1	Diesel	512	300	599	Tier 2	0.4	528	520,656.29	545,449.45
15-071 CAT 420 F2 Backhoe	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	528	22,172.20	24,635.78
18-042 CAT 836K Compactor	Rubber Tired Dozers	1	Diesel	540	300	599	Tier 4 Interim	0.4	528	405,310.01	431,459.04
18-075 JD 850K Dozer	Rubber Tired Dozers	1	Diesel	270	175	299	Tier 4 Interim	0.4	528	143,819.68	156,894.20
19-041 JD 644K Hybrid Loader	Rubber Tired Loaders	1	Diesel	150	75	199	Tier 4 Interim	0.36	528	117,670.65	124,207.90
19-073 JD Track Loader	Rubber Tired Loaders	1	Diesel	165	75	199	Tier 4 Interim	0.36	528	7,190.98	10,786.48
20-009 JD SKID STEER 333G	Skid Steer Loaders	1	Diesel	80	75	199	Tier 4 Interim	0.37	528	14,333.54	16,125.24
20-020 JD 1050K LARGE DOZER	Rubber Tired Dozers	1	Diesel	325	300	599	Tier 4 Interim	0.4	528	314,756.87	330,494.72
20-071 JD 310SL/HL BACKHOE	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	528	46,807.98	49,271.56
20-714 KUBOTA	Tractors/Loaders/Backhoes	1	Diesel	40	25	49	Tier 4 Interim	0.37	528	11,646.00	11,938.88
22-073 JD 755K Track Loader	Tractors/Loaders/Backhoes	1	Diesel	165	75	199	Tier 4 Interim	0.37	528	22,172.20	22,172.20
TARPOMATIC Landfill Covers - 04-001	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 1	0.4	528	484.24	968.48
TARPOMATIC Landfill Covers - 18-002	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 4 Interim	0.4	528	968.48	1,452.72
Fire Pump	Pumps	1	Diesel	25	25	49	Tier 1	0.74	528	1,076.74	1,076.74
KARCHER PRESSURE WASHER	Pressure Washers	1	Gas	10	0	24	Gas	0.3	429	147.54	295.08
03-908 Sterling Water Truck (tan)	Off-Highway Trucks	1	Diesel	200	175	299	Average	0.38	526	9,165.73	12,638.14
20-908 International Water Truck	Off-Highway Trucks	1	Diesel	225	175	299	Tier 4 Interim	0.38	528	25,876.65	34,495.56
2025 CAT LPG D-6 Finish Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 4 Final	0.4	528	0.00	308,471.05
2025-26 CAT 836 Compactor	Plate Compactors	1	Diesel	540	300	599	Tier 4 Final	0.43	528	0.00	635,182.63
2025-26 CAT 623 Scraper	Scrapers	1	Diesel	370	300	599	Tier 4 Final	0.48	528	0.00	206,733.80
2025-26 Large Dozer	Rubber Tired Dozers	1	Diesel	400	300	599	Tier 4 Final	0.4	528	0.00	419,055.01
2025 Loader mid size	Rubber Tired Loaders	1	Diesel	165	120	174	Tier 4 Final	0.36	528	0.00	131,373.75
									Total emissions per Year (lbs)	**2,450,412**	**4,346,359**
									Total emissions per Year (metric tons)	**1,111**	**1,971**
									Total CO_{2e} emissions per Year (metric tons)	**1,111**	**1,971**

Assumptions

Grams per pound	453.592
Pounds per metric ton	2,205
Global Warming Potential	1

Abbreviations

CO_2 = carbon dioxide; EF = emission factor; g/hp-hr = gram per horsepower-hour; lbs = pounds

Notes:

Emission factors were obtained from CalEEMod.

Equations:

Emissions [lbs] = emission factor [g/hp-gr] × number of pieces of equipment × horsepower × load factor × hours of annual operation/ 453.592 grams per pound

Off-Road Construction Equipment CH_4 Emissions

Project Equipment	CalEEMod Equipment Category	Number	Fuel Type	Horse-power	Low HP	High HP	Engine Tier	Load Factor	EF (g/hp-hr)	CH_4 Emissions (lbs per year)	
										Existing	Project
94-073 825C Compactor	Rubber Tired Dozers	1	Diesel	315	300	599	Tier 1	0.4	0.021	0.91	1.00
95-025 Storm Water Pump	Pumps	1	Diesel	30	25	49	Average	0.74	0.023	0.06	0.06
96-002 Genie	Aerial Lifts	1	Diesel	25	25	49	Tier 1	0.31	0.021	0.02	0.02
96-003 Forklift-Clark	Forklifts	1	Diesel	40	25	49	Average	0.2	0.023	0.06	0.06
96-041 Cat 950F Loader	Rubber Tired Loaders	1	Diesel	100	75	199	Tier 1	0.36	0.021	0.87	1.04
02-035 623 Scraper	Scrapers	1	Diesel	365	300	599	Tier 1	0.48	0.021	5.06	5.90
02-910 Sweeper	Sweepers/Scrubbers	1	Diesel	25	25	49	Tier 1	0.46	0.021	0.03	0.04
23-112 Pressure Washer	Pressure Washers	1	Gas	10	0	24	Gas	0.3	0.018	0.01	0.01
03-909 AL-JON 81K - Compactor	Rubber Tired Dozers	1	Diesel	360	300	599	Tier 1	0.4	0.021	0.35	0.86
04-042 836G COMPACTOR	Rubber Tired Dozers	1	Diesel	525	300	599	Tier 2	0.4	0.021	15.67	16.68
04-075 JD 850C Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 2	0.4	0.021	3.57	3.83
04-971 JD Grader	Graders	1	Diesel	217	175	299	Tier 1	0.41	0.021	0.43	0.64
06-041 CAT 950H	Rubber Tired Loaders	1	Diesel	150	120	174	Tier 2	0.36	0.021	4.16	4.42
06-18571 Portable Light Tower	Other General Industrial Equipment	1	Diesel	15	25	49	Tier 2	0.34	0.021	0.07	0.08
10-020 CAT D8 Dozer	Rubber Tired Dozers	1	Diesel	512	300	599	Tier 2	0.4	0.021	20.71	21.69
15-071 CAT 420 F2 Backhoe	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.021	0.88	0.98
18-042 CAT 836K Compactor	Rubber Tired Dozers	1	Diesel	540	300	599	Tier 4 Interim	0.4	0.021	16.12	17.16
18-075 JD 850K Dozer	Rubber Tired Dozers	1	Diesel	270	175	299	Tier 4 Interim	0.4	0.021	5.72	6.24
19-041 JD 644K Hybrid Loader	Rubber Tired Loaders	1	Diesel	150	75	199	Tier 4 Interim	0.36	0.021	4.68	4.94
19-073 JD Track Loader	Rubber Tired Loaders	1	Diesel	165	75	199	Tier 4 Interim	0.36	0.021	0.29	0.43
20-009 JD SKID STEER 333G	Skid Steer Loaders	1	Diesel	80	75	199	Tier 4 Interim	0.37	0.021	0.57	0.64
20-020 JD 1050K LARGE DOZER	Rubber Tired Dozers	1	Diesel	325	300	599	Tier 4 Interim	0.4	0.021	12.52	13.14
20-071 JD 310SL/HL BACKHOE	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.021	1.86	1.96
20-714 KUBOTA	Tractors/Loaders/Backhoes	1	Diesel	40	25	49	Tier 4 Interim	0.37	0.021	0.46	0.47
22-073 JD 755K Track Loader	Tractors/Loaders/Backhoes	1	Diesel	165	75	199	Tier 4 Interim	0.37	0.021	0.88	0.88
TARPOMATIC Landfill Covers - 04-001	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 1	0.4	0.021	0.02	0.04
TARPOMATIC Landfill Covers - 18-002	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 4 Interim	0.4	0.021	0.04	0.06
Fire Pump	Pumps	1	Diesel	25	25	49	Tier 1	0.74	0.021	0.04	0.04
KARCHER PRESSURE WASHER	Pressure Washers	1	Gas	10	0	24	Gas	0.3	0.018	0.01	0.01
03-908 Sterling Water Truck (tan)	Off-Highway Trucks	1	Diesel	200	175	299	Average	0.38	0.021	0.37	0.50
20-908 International Water Truck	Off-Highway Trucks	1	Diesel	225	175	299	Tier 4 Interim	0.38	0.021	1.03	1.37
2025 CAT LPG D-6 Finish Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 4 Final	0.4	0.021	0.00	12.27
2025-26 CAT 836 Compactor	Plate Compactors	1	Diesel	540	300	599	Tier 4 Final	0.43	0.021	0.00	25.26
2025-26 CAT 623 Scraper	Scrapers	1	Diesel	370	300	599	Tier 4 Final	0.48	0.021	0.00	8.22
2025-26 Large Dozer	Rubber Tired Dozers	1	Diesel	400	300	599	Tier 4 Final	0.4	0.021	0.00	16.67
2025 Loader mid size	Rubber Tired Loaders	1	Diesel	165	120	174	Tier 4 Final	0.36	0.021	0.00	5.23
Total CH_4 emissions per Year (lbs)										**97**	**173**
Total CH_4 emissions per Year (metric tons)										**0.04**	**0.08**
Total CO_{2e} emissions per Year (metric tons)										**1.11**	**1.96**

Assumptions

Grams per pound 453.592

Pounds per metric ton 2,205

Global Warming Potential 25 CARB 2022. GHG Global Warming Potentials. Available at via https://ww2.arb.ca.gov/ghg-gwps. Accessed on September 9, 2024.

Abbreviations

CH_4 =methane; EF = emission factor; g/hp-hr = gram per horsepower-hour; lbs = pounds

Notes:

Emission factors were obtained from CalEEMod.

Equations:

Emissions [lbs] = emission factor [g/hp-gr] × number of pieces of equipment × horsepower × load factor × hours of annual operation/ 453.592 grams per pound

Off-Road Construction Equipment N_2O Emissions

Project Equipment	CalEEMod Equipment Category	Number	Fuel Type	Horse-power	Low HP	High HP	Engine Tier	Load Factor	EF (g/hp-hr)	N_2O Emissions (lbs per year) Existing	Project
94-073 825C Compactor	Rubber Tired Dozers	1	Diesel	315	300	599	Tier 1	0.4	0.004	0.173	0.191
95-025 Storm Water Pump	Pumps	1	Diesel	30	25	49	Average	0.74	0.005	0.012	0.012
96-002 Genie	Aerial Lifts	1	Diesel	25	25	49	Tier 1	0.31	0.004	0.004	0.004
96-003 Forklift-Clark	Forklifts	1	Diesel	40	25	49	Average	0.2	0.005	0.014	0.014
96-041 Cat 950F Loader	Rubber Tired Loaders	1	Diesel	100	75	199	Tier 1	0.36	0.004	0.165	0.198
02-035 623 Scraper	Scrapers	1	Diesel	365	300	599	Tier 1	0.48	0.004	0.964	1.125
02-910 Sweeper	Sweepers/Scrubbers	1	Diesel	25	25	49	Tier 1	0.46	0.004	0.005	0.008
23-112 Pressure Washer	Pressure Washers	1	Gas	10	0	24	Gas	0.3	0.004	0.003	0.003
03-909 AL-JON 81K - Compactor	Rubber Tired Dozers	1	Diesel	360	300	599	Tier 1	0.4	0.004	0.066	0.164
04-042 836G COMPACTOR	Rubber Tired Dozers	1	Diesel	525	300	599	Tier 2	0.4	0.004	2.985	3.178
04-075 JD 850C Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 2	0.4	0.004	0.681	0.729
04-971 JD Grader	Graders	1	Diesel	217	175	299	Tier 1	0.41	0.004	0.082	0.122
06-041 CAT 950H	Rubber Tired Loaders	1	Diesel	150	120	174	Tier 2	0.36	0.004	0.792	0.842
06-18571 Portable Light Tower	Other General Industrial Equipment	1	Diesel	15	25	49	Tier 2	0.34	0.004	0.014	0.015
10-020 CAT D8 Dozer	Rubber Tired Dozers	1	Diesel	512	300	599	Tier 2	0.4	0.004	3.944	4.132
15-071 CAT 420 F2 Backhoe	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.004	0.168	0.187
18-042 CAT 836K Compactor	Rubber Tired Dozers	1	Diesel	540	300	599	Tier 4 Interim	0.4	0.004	3.071	3.269
18-075 JD 850K Dozer	Rubber Tired Dozers	1	Diesel	270	175	299	Tier 4 Interim	0.4	0.004	1.090	1.189
19-041 JD 644K Hybrid Loader	Rubber Tired Loaders	1	Diesel	150	75	199	Tier 4 Interim	0.36	0.004	0.891	0.941
19-073 JD Track Loader	Rubber Tired Loaders	1	Diesel	165	75	199	Tier 4 Interim	0.36	0.004	0.054	0.082
20-009 JD SKID STEER 333G	Skid Steer Loaders	1	Diesel	80	75	199	Tier 4 Interim	0.37	0.004	0.109	0.122
20-020 JD 1050K LARGE DOZER	Rubber Tired Dozers	1	Diesel	325	300	599	Tier 4 Interim	0.4	0.004	2.385	2.504
20-071 JD 310SL/HL BACKHOE	Tractors/Loaders/Backhoes	1	Diesel	110	75	199	Tier 4 Interim	0.37	0.004	0.355	0.373
20-714 KUBOTA	Tractors/Loaders/Backhoes	1	Diesel	40	25	49	Tier 4 Interim	0.37	0.004	0.088	0.090
22-073 JD 755K Track Loader	Tractors/Loaders/Backhoes	1	Diesel	165	75	199	Tier 4 Interim	0.37	0.004	0.168	0.168
TARPOMATIC Landfill Covers - 04-001	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 1	0.4	0.004	0.004	0.007
TARPOMATIC Landfill Covers - 18-002	Rubber Tired Dozers	1	Diesel	20	25	49	Tier 4 Interim	0.4	0.004	0.007	0.011
Fire Pump	Pumps	1	Diesel	25	25	49	Tier 1	0.74	0.004	0.008	0.008
KARCHER PRESSURE WASHER	Pressure Washers	1	Gas	10	0	24	Gas	0.3	0.004	0.001	0.003
03-908 Sterling Water Truck (tan)	Off-Highway Trucks	1	Diesel	200	175	299	Average	0.38	0.004	0.070	0.096
20-908 International Water Truck	Off-Highway Trucks	1	Diesel	225	175	299	Tier 4 Interim	0.38	0.004	0.196	0.261
2025 CAT LPG D-6 Finish Dozer	Rubber Tired Dozers	1	Diesel	265	175	299	Tier 4 Final	0.4	0.004	0.000	2.337
2025-26 CAT 836 Compactor	Plate Compactors	1	Diesel	540	300	599	Tier 4 Final	0.43	0.004	0.000	4.812
2025-26 CAT 623 Scraper	Scrapers	1	Diesel	370	300	599	Tier 4 Final	0.48	0.004	0.000	1.566
2025-26 Large Dozer	Rubber Tired Dozers	1	Diesel	400	300	599	Tier 4 Final	0.4	0.004	0.000	3.175
2025 Loader mid size	Rubber Tired Loaders	1	Diesel	165	120	174	Tier 4 Final	0.36	0.004	0.000	0.995
									Total N_2O emissions per Year (lbs)	**19**	**33**
									Total N_2O emissions per Year (metric tons)	**0.008**	**0.015**
									Total CO_{2e} emissions per Year (metric tons)	**2.51**	**4.45**

Assumptions

Grams per pound 453.592

Pounds per metric ton 2,205

Global Warming Potential 298 CARB 2022. GHG Global Warming Potentials. Available at via https://ww2.arb.ca.gov/ghg-gwps. Accessed on September 9, 2024.

Abbreviations

N_2O =nitrous oxide; EF = emission factor; g/hp-hr = gram per horsepower-hour; lbs = pounds

Notes:

Emission factors were obtained from CalEEMod.

Equations:

Emissions [lbs] = emission factor [g/hp-gr] × number of pieces of equipment × horsepower × load factor × hours of annual operation/ 453.592 grams per pound

Attachment A-4: On-Road Vehicle Model Input Parameters and Emissions Calculations

Overview

Information about on-road vehicles used for on-site activities and off-site travel was provided by the project applicant. Emissions of greenhouse gases from on-road vehicles were estimated using emissions factors from the California Air Resources Board's EMFAC2021 database for the San Joaquin Valley Air District. Baseline year 2024 emission factors were used in this analysis to be conservative.

Summary of On-Road Vehicle Miles Travelled (VMT)

Activity Description			Vehicle	Model	Fuel	Annual Trips (One-Way)			Annual VMT	
Origin	Destination	Vehicle Type	Classification	Year	Type	Existing	Project	Miles/Trip	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	13,728	0	48.0	658,944	0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	15,600	0	31.1	485,160	0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	2,496	0	8.0	19,968	0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	0	13,728	43.0	0	590,304
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	8,736	26,832	26.4	230,630	708,365
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	7488	7488	11.7	87,610	87,610
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	4160	4160	17.0	70,720	70,720
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	8112	8112	15.0	121,680	121,680
Regional		Misc Comm	LHDT1	Aggregate	Diesel	8,112	8,112	15.0	121,680	121,680
Worker Commute		Worker cars	LDA	Aggregate	Gas	35,040	39,420	11.9	416,626	468,704
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	6864	8236.8	0.5	3,432	4,118
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	9,776	10,680	0.5	4,888	5,340

On-Road Vehicle CO_2 Emissions

Activity Description			Vehicle	Model	Fuel	RUNEX	IDLEX	STREX	CO_2 Emissions (lbs per year)	
Origin	Destination	Vehicle Type	Classification	Year	Type	(g/VMT)	(g/trip)	(g/trip)	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	1569.98	925.22	0.00	3,624,834	0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	1569.98	925.22	0.00	2,668,853	0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	1569.98	925.22	0.00	109,843	0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	1569.98	925.22	0.00	0	3247247
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	1569.98	925.22	0.00	1,268,692	3896697
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	1569.98	925.22	0.00	481,938	481938
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	998.84	112.15	0.00	173,215	173215
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	1122.62	46.19	0.00	313,545	313545
Regional		Misc Comm	LHDT1	Aggregate	Diesel	638.99	10.79	0.00	174,309	174309
Worker Commute		Worker cars	LDA	Aggregate	Gas	282.34	0.00	70.30	323,893	364380
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	1569.98	925.22	0.00	18,879	22655
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	638.99	10.79	0.00	7,002	7650
								Total emissions per Year (lbs)	**9,165,006**	**8,681,637**
								Total emissions per Year (Metric tons)	**4,156**	**3,937**
								Total CO2e emissions per Year (metric tons)	**4,156**	**3,937**

Assumptions

Grams per pound	453.6
Pounds per metric ton	2,205
CO_2 GWP	1

Abbreviations

CO_2 = carbon dioxide; lbs = pounds; g = grams; VMT = vehicle mile travelled; RUNEX = running exhaust emission factor; IDLEX = idle exhaust emission factor; STREX = start exhaust emission factor

Equations:

Emissions = [Annual VMT * RUNEX + Annual trips * (IDLEX+STREX)]/ 453.592 grams per pound

On-Road Vehicle CH_4 Emissions

Activity Description			Vehicle	Model	Fuel	RUNEX	IDLEX	STREX	CH_4 Emissions (lbs per year)	
Origin	Destination	Vehicle Type	Classification	Year	Type	(g/VMT)	(g/trip)	(g/trip)	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0056	0.0185	0.0000	35.0	0.0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0056	0.0185	0.0000	25.8	0.0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0056	0.0185	0.0000	1.1	0.0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.0056	0.0185	0.0000	0.0	31.4
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	0.0056	0.0185	0.0000	12.3	37.6
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	0.0056	0.0185	0.0000	4.7	4.7
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	0.7931	0.3233	0.0000	174.1	174.1
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	0.0012	0.0002	0.0000	0.4	0.4
Regional		Misc Comm	LHDT1	Aggregate	Diesel	0.0288	0.0004	0.0000	7.8	7.8
Worker Commute		Worker cars	LDA	Aggregate	Gas	0.0198	0.0000	0.0715	83.9	94.4
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	0.0056	0.0185	0.0000	0.2	0.2
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	0.0288	0.0004	0.0000	0.3	0.3
								Total emissions per Year (lbs)	**345.5**	**350.9**
								Total emissions per Year (Metric tons)	**0.157**	**0.159**
								Total CO2e emissions per Year (metric tons)	**3.92**	**3.98**

Assumptions

Grams per pound 453.6
Pounds per metric ton 2,205
Global Warming Potential 25 CARB 2022. GHG Global Warming Potentials. Available at via https://ww2.arb.ca.gov/ghg-gwps. Accessed on September, 9, 2024.

Abbreviations

CH_4 = methane; g = grams; VMT = vehicle mile travelled; RUNEX = running exhaust emission factor; IDLEX = idle exhaust emission factor; STREX = start exhaust emission factor

Equations:

Emissions = [Annual VMT * RUNEX + Annual trips * (IDLEX+STREX)]/ 453.592 grams per pound

On-Road Vehicle N_2O Emissions

Activity Description			Vehicle	Model	Fuel	RUNEX	IDLEX	STREX	N_2O Emissions (lbs per year)	
Origin	Destination	Vehicle Type	Classification	Year	Type	(g/VMT)	(g/trip)	(g/trip)	Existing	Project
Tracy	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.2474	0.1458	0.0000	571.1	0.0
Lovelace TS	Foothill Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.2474	0.1458	0.0000	420.5	0.0
Lovelace TS	Forward Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.2474	0.1458	0.0000	17.3	0.0
Tracy	North County Landfill	48' Transfer	HHDT	Aggregate	Diesel	0.2474	0.1458	0.0000	0.0	511.6
Lovelace TS		48' Transfer	HHDT	Aggregate	Diesel	0.2474	0.1458	0.0000	199.9	613.9
Lodi TS - WM		48' Transfer	HHDT	Aggregate	Diesel	0.2474	0.1458	0.0000	75.9	75.9
Stockton Scavenger		Garbage Truck	MHDT (NG)	Aggregate	Natural Gas	0.2036	0.0229	0.0000	35.3	35.3
Cal Waste - Area F/Galt		Garbage Truck	MHDT	Aggregate	Diesel	0.1769	0.0073	0.0000	49.4	49.4
Regional		Misc Comm	LHDT1	Aggregate	Diesel	0.1007	0.0017	0.0000	27.5	27.5
Worker Commute		Worker cars	LDA	Aggregate	Gas	0.0047	0.0000	0.0334	35.0	39.4
On-Site Transfer		48' Transfer	HHDT	Aggregate	Diesel	0.2474	0.1458	0.0000	3.0	3.6
On-Site Service Trucks		Service Truck, Roll-off Truck, Gator	LHDT1	Aggregate	Diesel	0.1007	0.0017	0.0000	1.1	1.2
								Total emissions per Year (lbs)	**1,435.9**	**1,357.8**
								Total emissions per Year (Metric tons)	**0.651**	**0.616**
								Total CO2e emissions per Year (metric tons)	**194.06**	**183.50**

Assumptions

Grams per pound 453.6
Pounds per metric ton 2,205
Global Warming Potential 298 CARB 2022. GHG Global Warming Potentials. Available at via https://ww2.arb.ca.gov/ghg-gwps. Accessed on September, 9, 2024.

Abbreviations

N_2O =nitrous oxide; g = grams; VMT = vehicle mile travelled; RUNEX = running exhaust emission factor; IDLEX = idle exhaust emission factor; STREX = start exhaust emission factor

Equations:

Emissions = [Annual VMT * RUNEX + Annual trips * (IDLEX+STREX)]/ 453.592 grams per pound