APPENDIX A

NOTICE OF PREPARATION (NOP)

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August 28, 2020

NOTICE OF PREPARATION
Environmental Impact Report (EIR) &
Notice of Public Scoping Meeting

To: California State Clearinghouse, Responsible Agencies, Trustee Agencies, and Interested Parties

Project Title:	Yolo County Central Landfill Permit Revisions
Project Proponent:	Yolo County Department of Community Services, Division of Integrated Waste Management
Project Location:	44090 County Road 28H, Woodland, CA 95776
Comment Period:	Closes at 4:00 p.m. on September 28, 2020

Environmental Impact Report: The Yolo County Department of Community Services, Division of Integrated Waste Management (DIWM) is preparing an Environmental Impact Report (EIR) for several major changes to the design and operation of the Yolo County Central Landfill (YCCL) (the "Project"). The County will be the lead agency under the California Environmental Quality Act (CEQA) for the Project. This Notice of Preparation (NOP) describes the Project that will be analyzed in the EIR and identifies areas of probable environmental effects.

Agencies and interested members of the public are invited to provide input on the scope of the environmental analysis. If you are a responsible or trustee agency, we need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the Project. Due to the time limits mandated by state law, your response must be sent as soon as possible, but no later than 30 days after the receipt of this notice.

Written Scoping Comments:

Please submit written comments on the scope of the environmental analysis by Email or Regular Mail by 4:00 p.m. on September 28, 2020:

Email: Stephanie.Cormier@yolocounty.org

Regular Mail: Yolo County Department of Community Services, Attn: Stephanie Cormier, 292 W. Beamer Street, Woodland, CA 95695

For questions regarding this notice, please contact Stephanie Cormier, at (530) 666-8041 or the email address above.

Public Scoping Meeting: To avoid a public gathering during the COVID-19 crisis, a Zoom Webinar will be held on Wednesday September 16, 2020 at 2:00 p.m. to explain the Project and provide an opportunity for public and agency comments. For those who are unable to participate in the Zoom Webinar, a video of the live Webinar will be posted on the County's website below, shortly after the Webinar.

Zoom Webinar Details:

Please click or enter the link below to join the webinar:

https://us02web.zoom.us/j/82061822938?pwd=ZUdvVGhUeG1pNi94NDZKUGZtTkd1dz09

Webinar ID: 820 6182 2938
Passcode: 595333

Or by Phone (669) 900-6833 or (253) 215-8782 Webinar ID: 820 6182 2938 Passcode 595333

Details of the webinar will also be posted on the County's website:

https://www.yolocounty.org/community-services/planning-public-works/planning-division/current-projects

Project Location:

Figure 1 shows the regional location of the YCCL. **Figure 2** shows the layout of the existing landfill and locations of the proposed Project Description Elements/Activities (discussed below).

Current Landfill Operations:

The YCCL is a municipal solid waste (MSW) landfill located in unincorporated Yolo County about four miles northeast of Davis, and three miles southeast of Woodland, near the intersection of County Roads 28H and 104. The YCCL is owned by Yolo County and operated by the County's Department of Community Services, Division of Integrated Waste Management (DIWM); it has been in operation since 1975. The landfill is open seven days per week, accepting non-hazardous MSW from both incorporated and unincorporated areas of Yolo County. YCCL is permitted to accept up to 1,800 tons per day of waste. In recent years, average daily throughput has exceeded 1,000 tons per day.

The site covers 725 acres and includes several discrete areas, totaling 473 acres, that are permitted for disposal. These include seven Class III landfill areas for disposal of MSW (designated as Waste Management Units [WMUs] 1 through 7) and four Class II surface impoundments for holding liquid wastes. The site also includes one existing composting facility and one under development, a construction, demolition and inerts debris (CDI) recycling facility, areas for metal, wood, and inert material (concrete, rock, etc.) recovery and recycling, and a permanent household hazardous waste collection facility. Five of the Class III landfill areas (WMUs 1-5) have undergone final closure. WMU 6 is operational now and includes eight 20-acre modules (100 acres are active, and 60 acres remain to be developed). WMU 7 is approved for future development and consists of eight modules (160 acres total).

Purpose and Need for The Project:

The Project evaluated in this EIR consists of several proposed changes to the design and operation of the YCCL. The DIWM is proposing these changes to achieve the following objectives:

(1) To decrease the environmental impacts of landfill development, operations, and final closure, and increase the environmental benefits that can be derived from certain aspects of landfill operations;

(2) To increase the County's ability to divert waste (including organics) from the landfill and continue to meet the state-mandated diversion goals provided in AB 1383, other state-mandates to reduce waste from landfill (AB 341), and reduce greenhouse gas (GHG) emissions (AB 32);

(3) To increase efficiency, diversify operations, and operate more economically; and

(4) To extend the overall site life through new operational methodologies.

Project Description/ Elements:

The Project consists of several changes to YCCL's existing operations and permits including but not limited to the Solid Waste Facility Permit, Yolo-Solano Air Quality Management District Permits, and Waste Discharge Requirements. These changes would be undertaken to allow the County greater flexibility in developing and implementing processes and operations that would reduce waste from the landfill, reduce environmental impacts of landfill operations, decrease GHG emissions, increase the recovery of materials and energy from waste, operate more efficiently and economically, and extend the facility's lifespan.

While some of the Project elements, such as construction and operation of a biomass gasification facility, are entirely new, many of the Project elements are revisions or improvements to existing designs and operations. The following proposed changes to the design and operation of the YCCL constitute the Project proposed for evaluation in this EIR. Some of the elements may appear to be increasing landfill disposal, but that is not the goal or intent. The increases are reflective of additional waste streams that can benefit from new processing elements, effects of population increases and/or accommodations for peak days/months that have higher tonnage of certain waste streams that can be processed at YCCL (not increased landfill disposal). Some of the Project elements would potentially process out-of-County waste streams more efficiently than other options and generate revenues for the County.

A. Increased Daily Permitted Tonnage

DIWM is proposing to expand the overall permitted tonnage for the YCCL to a monthly average of 2,500 tons per day (TPD) with a daily peak of 3,000 TPD. Currently, the YCCL Solid Waste Facilities Permit limits YCCL incoming waste tonnage (disposed and recycled) to a maximum of 1,800 TPD. The 1,800 TPD includes various waste streams, including waste for landfill disposal, organics (yard waste, food waste), wood waste, CDI, liquid waste and recyclables. The current average daily waste disposed in the landfill at the YCCL is about 500 tons. County intends to increase the overall tonnage of waste processed at YCCL (recycling, composting, gasification, etc.) and expand construction of various waste conversion technologies in order to extend landfill life and reduce landfill disposal of wastes, reducing GHG emissions. The current TPD limit also does not distinguish between a monthly average and "peak" daily. YCCL currently has days when waste tonnage would exceed 1,800 tons if not for the daily limit. Such peak days are typically the result of heavy vehicles delivering liquid wastes to the Class II surface impoundments or seasonal peaks for yard waste collection (i.e., leaf fall season).

B. Biomass Gasification Facility

DIWM is proposing to develop a biomass gasification facility to utilize biomass fuel (clean wood waste) to generate power. The facility would accept up to 30,000 tons of feedstock per year, producing up to 3 megawatts (MW) of power. While the footprint of the gasification units is small, the facility operations would need approximately 2 acres, including the area for receiving and grinding feedstock. The facility would be sited on or near the CDI Facility, east of Compost Facility #2. The facility would be integrated with the electrical grid, which would allow the YCCL to sell excess power when more electricity is produced than needed. The facility would divert waste from the landfill and create renewable energy, which would reduce GHG emissions. The facility would be eligible for the Bioenergy Market Adjusting Tariff (BioMAT) program. The BioMAT program uses a standard long-term contract and a market-based mechanism to arrive at offered contract prices for eligible projects up to 3 MW.

Gasification is a process that uses a feedstock, often municipal or industrial waste, for a thermo chemical conversion of waste in high heat. This is done in a low oxygen environment and causes material breakdown at the molecular level. Once the molecular breakdown occurs, the gasification process recombines them to form a syngas, a gas similar to natural gas that can be used as fuel in a natural gas fueled generator (genset) to create electricity and heat, and biochar, a high carbon charcoal-like substance (biochar) that can be used as a soil amendment that helps soil retain water and nutrients. With a feedstock limited to only clean wood waste, there is no mixing of materials. The chipped wood goes directly into the gasification reactor. By depriving the fire of sufficient oxygen the wood does not burn, but rather gives off a flammable gas (syngas). As the wood gives off the syngas, it is transformed into biochar. The syngas is then captured, cleaned, and cooled before being sent as fuel to the genset which converts the syngas into electricity and heat.

C. Wood Pellet Facility

DIWM is proposing to develop a wood pellet facility that would utilize biomass fuel (e.g., wood, woody fraction of green waste, compost overs) to create pellets as an energy source that could be sold. The facility would be sited within an approximately five-acre portion in the approximately 80-acre north central area at the YCCL identified for future facility development. Much of the facility's operations would be in a building and/or under a covered awning and would also include outdoor storage. The facility could generate up to 50,000 tons per year, which would require approximately 100,000 tons of incoming biomass feedstock per year. However, incoming biomass feedstock availability and regional demand for wood pellets is still under review by DIWM. The facility would include conveyors, debarkers/, shredders/chippers, dryers/ovens, mixer/agitators, pelletizers, screeners/sifters, coolers, baghouses/cyclones, storage silos, and other necessary material handling and storage equipment. Wood pellet facilities currently operate in California in Stockton, Rocklin and Mendocino County (Capella).

D. Large Scale Floating Solar Project & Small-Scale Roof and Parking Lot Style Solar Panels

DIWM is proposing the installation of a Solar Photovoltaic (PV) System to address energy usage and demand on-site as well as selling electrical power off-site. The proposed system design would include a floating PV array that would tie into seven PG&E meters for on-site use and off-site sale through county owned power poles along County Road 28H and substation at the intersection of County Road 28H and County Road 102. The floating solar panels would cover a large portion of the existing Water Storage Reservoir and would be part of a public-private partnership by the County to generate renewable energy locally.

DIWM is also proposing small-scale roof and parking lot style solar panels, in the future, as locations become available. These small-scale installations would be exempt from CEQA through SB 226, which was established with the intent to not require in-depth environmental review for rooftop and parking lot solar projects (Public Resources Code §21080.35). As such, no additional CEQA review will be included for these small-scale systems and they can be developed when locations and funding are available.

E. Waste Gasification

DIWM is proposing to develop a gasification facility using MSW for power generation. The facility would be sized to handle current waste inflow as well as importation within the greater Sacramento region following pilot scale demonstration (200 TPD facility) of the technology. The facility would be a Sierra Energy FastOX® gasifier or similar technology. Davis-based Sierra Energy has built the first commercial FastOX® system at US Army Base Fort Hunter Liggett in Monterey County.

Wastes to be processed by the system would have preprocessing, shredding, and metal and inert removal. The FastOx® system treats wastes at high temperatures (4000º F). The organic materials turn into syngas (hydrogen and carbon monoxide) and inorganic materials form a non-leaching stone that can be used as construction material. The syngas is then conditioned to produce renewable energy products in the form of hydrogen, electricity or transportation fuels. Similar systems (i.e., plasma arc gasification) have been pilot tested for decades worldwide, but none can claim to be commercially available now or for processing large amounts of MSW. The EIR will provide, as made available, non-proprietary available emissions and waste product information from Sierra Energy. Receiving and processing would be in a new building, and the facility would be sited in the approximately 80-acre north central area at the YCCL, which has been identified for future facility development.

F. Expanded Biogas Utilization Options

DIWM is proposing expanded biogas uses. The landfill gas is all dedicated to the landfill gas to energy generators (LFG to Energy), with the electricity going to SMUD. Additional biogas sources (not dedicated to producing electricity for SMUD) could include the biogas produced from City of Davis Wastewater Treatment Plant (WWTP) digester that is just east of the landfill, the anaerobic compost facility (Compost Facility #1), and the existing In-Vessel Digester (IV Digester). The IV Digester is a covered pond that digests slurry food wastes to generate biogas. The Project will consider other biogas utilization options for these non-landfill activities that produce biogas. Options for the non-landfill biogas sources include producing Renewable Compressed Natural Gas (RCNG) vehicle fuel (at a location just north of the LFG to Energy facility) or injection of RCNG gas into a pipeline (PG&E or SMUD high pressure gas line). PG&E gas line is directly next to the LFG to Energy facility and SMUD gas line runs past YCCL along County Road 28H just south of the landfill main entrance. Removal of biogas contaminants such as volatile organic compounds (VOC's), hydrogen sulfide (H_2S) and other contaminants would be considered as part of the environmental evaluation for these options.

G. New Class 2 Surface Impoundment

DIWM is proposing to develop a new Class 2 liquid surface impoundment to store and treat leachate and liquid waste received at the YCCL. The pond would be a Class 2 double lined liquid surface impoundment. The surface impoundment would be approximately 10 acres and located directly south of the existing WMU H3 surface impoundment. This impoundment would include treatment of the liquids (i.e., more aeration) that could then be sent to Davis wastewater treatment plant.

H. Organic Waste Fertilizer Facility

DIWM is proposing to develop an organic fertilizer facility that utilizes organic waste (compost, compost feedstock, liquid waste, and animal manures) and converts it into fertilizer. The facility would be sized to handle up to 50,000 tons to 100,000 tons of organic waste per year. Digestate would be removed from the Compost Facility #1 (anaerobic composter) and transported to the fertilizer facility to be processed. Digestate will be heated to dry, sorted by size, and mixed with other products to produce a specific organic fertilizer for sale.

I. Stormwater Treatment System and Discharge

DIWM is proposing to develop a storm water treatment system to treat collected storm water that would meet EPA benchmarks for discharge into Willow Slough bypass. The system would be sized in conjunction with storage capacity to manage the 100-year, 24-hour storm, as required by the facility's Waste Discharge Requirements (WDRs).

J. Additional Groundwater Pumping (possible treatment and discharge)

DIWM is proposing to increase groundwater pumping at the YCCL. The YCCL area has naturally high groundwater. The landfill also has a groundwater extraction and treatment system to lower groundwater under several modules and treat volatile organic compounds (VOC's) detected in several wells. Currently this water is retained on-site due to naturally occurring boron and selenium. Recent groundwater readings indicate that this system is not completely effective at lowering groundwater under several of the closed landfill units and the Central Valley Regional Water Quality Control Board (CVRWQCB) has directed the County to address the issue. DIWM proposes to increase the groundwater pumping to address this and there may not be space to retain this water on-site. Currently, plant production (growing fescue for phytoremediation on 45 acres each year) is used to treat groundwater because of the high levels of naturally occurring boron and selenium. Additional treatment options may be necessary to allow this water to be discharged off-site. Various treatment options will be reviewed and evaluated in the EIR.

K. Transfer Station

DIWM is proposing to develop a transfer station to transfer solid waste to an off-site landfill in approximately ten years. The transfer station would be in the 80-acre north central area at the YCCL identified for future facility development (**see Figure 2**). The physical size of the main transfer station building will be evaluated in the EIR, as well as tipping floor operations and transfer trailer loading options. The transfer station would be designed to handle County's current and projected waste disposal. Transfer stations are typically quite tall to accommodate several levels of traffic and transfer trailer loading. The transfer station is being analyzed due to the increased soil needs and cost to develop new landfill modules as well as the associated air pollution and GHG emissions. The transfer station would be sized to handle the landfill's current and future waste flow and the reductions of landfill disposal as required by the regulatory agencies. After loading waste into transfer trailers, it would be transferred to another landfill in the region.

Incoming materials now generally go to the organics recycling area or directly to landfill disposal. Materials going directly to landfill disposal are wastes that are low in organics content and low in recoverable recyclable materials. These loads would be directed to the transfer station, where they would be consolidated for transport to an off-site landfill. Transportation impacts and off-site impacts would be analyzed.

L. Non-specific Future Borrow Site

DIWM may need to purchase a new soil borrow area. YCCL has a shortage of soil for daily, intermediate, and final cover material, and DIWM imports soil from off-site sources for these purposes. The County may need to purchase additional property for development of an off-site soil borrow area that would supply soil to the facility. In 2014 the DIWM purchased a 320-acre parcel directly to the west of the landfill as a soil borrow source [EIR SCH # 2014102015]. No additional parcel of land has yet been identified for this purpose, but DIWM estimates that up to an additional 640-acre parcel would be needed. Ideally, the parcel would adjoin or be near the existing landfill property. Candidate properties would be surveyed for any important biological, archaeological, or historical resources, and appropriate mitigation measures would be developed and employed prior to commencement of borrow operations. This aspect of the Project may require additional or future land use and zoning considerations to allow soil borrow operations, including a mining permit. Another option that will be considered in the EIR is using soil from the Cache Creek Settling Basin. Sacramento Area Flood Control Agency (SAFCA) has been evaluating soil reuse options for the settling basin.

Project Alternatives:

The EIR will evaluate a reasonable range of Project alternatives, including the required No Project Alternative.

Potential Environmental Effect Areas:

The EIR will describe the reasonably foreseeable and potentially significant adverse effects of the Project (both direct and indirect). The EIR also will evaluate the cumulative impacts of the Project when considered in conjunction with other related past, present, and reasonably foreseeable future projects. The County anticipates that the Project could result in potentially significant environmental impacts in the following topic areas, which will be further evaluated in the EIR.

- Aesthetics/Visual
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire
- Cumulative Effects

As environmental documentation for this Project is completed, it will be available for review at the Yolo County Department of Community Services offices located at 292 W. Beamer Street, Woodland, CA, and online at:

https://www.yolocounty.org/community-services/planning-public-works/planning-division/current-projects

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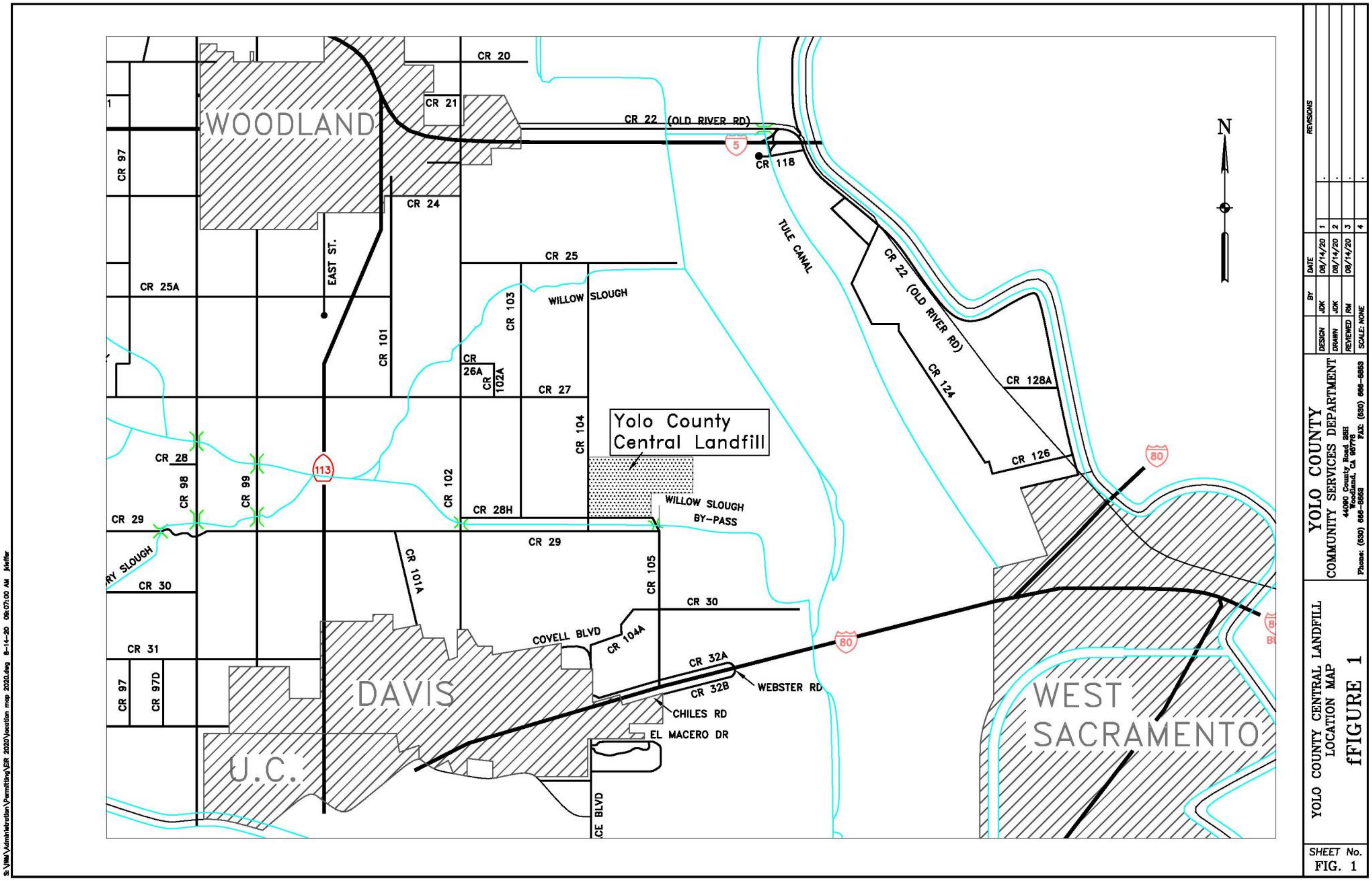

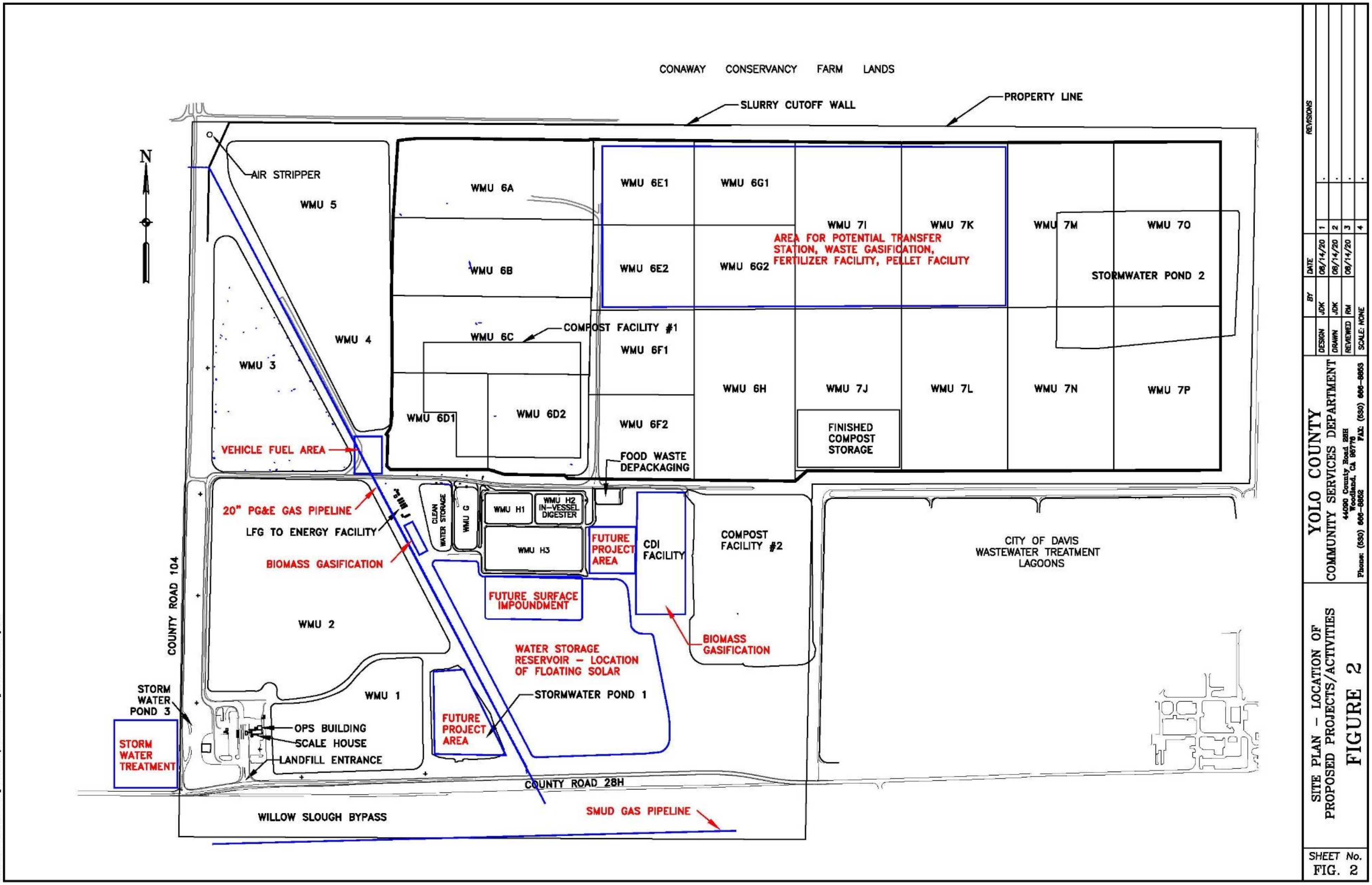
CONAWAY CONSERVANCY FARM LANDS
SLURRY CUTOFF WALL
PROPERTY LINE
N
AIR STRIPPER
WMU 5
WMU 6A
WMU 6E1
WMU 6G1
WMU 7I
WMU 7K
WMU 7M
WMU 7O
AREA FOR POTENTIAL TRANSFER STATION, WASTE GASIFICATION, FERTILIZER FACILITY, PELLET FACILITY
WMU 6B
WMU 6E2
WMU 6G2
STORMWATER POND 2
WMU 4
WMU 6C
COMPOST FACILITY #1
WMU 6F1
WMU 3
WMU 6H
WMU 7J
WMU 7L
WMU 7N
WMU 7P
WMU 6D1
WMU 6D2
WMU 6F2
FINISHED COMPOST STORAGE
VEHICLE FUEL AREA
FOOD WASTE DEPACKAGING
20" PG&E GAS PIPELINE
CLEAN WATER STORAGE
WMU G
WMU H1
WMU H2 IN-VESSEL DIGESTER
LFG TO ENERGY FACILITY
WMU H3
FUTURE PROJECT AREA
CDI FACILITY
COMPOST FACILITY #2
CITY OF DAVIS WASTEWATER TREATMENT LAGOONS
BIOMASS GASIFICATION
FUTURE SURFACE IMPOUNDMENT
COUNTY ROAD 104
WMU 2
WATER STORAGE RESERVOIR – LOCATION OF FLOATING SOLAR
BIOMASS GASIFICATION
STORM WATER POND 3
WMU 1
STORMWATER POND 1
STORM WATER TREATMENT
OPS BUILDING
SCALE HOUSE
LANDFILL ENTRANCE
FUTURE PROJECT AREA
COUNTY ROAD 28H
SMUD GAS PIPELINE
WILLOW SLOUGH BYPASS
REVISIONS
DESIGN JDK 08/14/20 1
DRAWN JDK 08/14/20 2
REVIEWED RM 08/14/20 3
SCALE: NONE
YOLO COUNTY
COMMUNITY SERVICES DEPARTMENT
44090 County Road 28H
Woodland, CA 95776
Phone: (530) 666-8852 FAX: (530) 666-8853
SITE PLAN – LOCATION OF PROPOSED PROJECTS/ACTIVITIES
FIGURE 2
SHEET No.
FIG. 2

APPENDIX B

AGENCY COMMENTS ON NOP

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9/28/2020
Governor's Office of Planning & Research
Sep 28 2020
STATE CLEARINGHOUSE

September 28, 2020

Stephanie Cormier
Yolo County Department of Community Services
292 W. Beamer Street
Woodland, CA 95695

Subject: SCH No. 2020080465 –Notice of Preparation for the Yolo County Central Landfill Permit Revisions

Dear Ms. Cormier:

Thank you for allowing the Department of Resources Recycling and Recovery (CalRecycle) staff to provide comments on the proposed project and for your agency's consideration of these comments as part of the California Environmental Quality Act (CEQA) process.

PROJECT DESCRIPTION

Yolo County Department of Community Services, acting as Lead Agency, has prepared and circulated a Notice of Preparation (NOP) for Yolo County Central Landfill (YCCL) for preparing an Environment Impact Report (EIR) in order to comply with CEQA and to provide information to, and solicit consultation with, Responsible Agencies in the approval of the proposed project.

The YCCL is a municipal solid waste (MSW) landfill located in unincorporated Yolo County about four miles northeast of Davis, and three miles southeast of Woodland, near the intersection of County Roads 28H and 104. The YCCL is owned by Yolo County and operated by the County's Department of Community Services, Division of Integrated Waste Management (DIWM); it has been in operation since 1975. The landfill is open seven days per week, accepting non-hazardous MSW from both incorporated and unincorporated areas of Yolo County. YCCL is permitted to accept up to 1,800 tons per day of waste.

The site covers 725 acres, 473 of the acres are permitted for disposal of MSW and an area for Class II surface impoundments for holding liquid wastes. The site also includes one existing composting facility and one under development, a construction, demolition and inert debris (CDI) recycling facility, areas for metal, wood, and inert material (concrete, rock, etc.) recovery and recycling, and a permanent household hazardous waste collection facility.

The proposed changes that will be evaluated in the EIR include: an increase in daily permitted tonnage, a biomass gasification facility, a wood pellet facility, a large scale floating solar project & small-scale roof and parking lot solar panels, waste gasification, expanded biogas utilization, a new class 2 surface impoundment, an organic waste fertilizer facility, a storm water treatment system and discharge, an additional groundwater pumping with possible treatment and discharge, a transfer station, and a non-specific future borrow site.

COMMENTS

When preparing the EIR, please make an effort to use terminology that is consistent with definitions in the applicable sections of the California Code of Regulations, Titles 14 and 27, respectively.

Solid Waste Regulatory Oversight

The County of Yolo, Environmental Health Division, Local Enforcement Agency (LEA), and CalRecycle are responsible for providing regulatory oversight of solid waste handling activities, including permitting and inspections.

A change to the disposal facility design or operation such as an increase in permitted tons per operating day and the addition of new solid waste handling activities are considered significant changes and will require a revision to the solid waste facilities permit. Prior to implementation of such a changes, the operator shall submit an application package for a solid waste facilities permit revision pursuant to 27 CCR, section 21570 which shall be processed by the Local Enforcement Agency pursuant to 27 CCR, section 21650.

Please contact the LEA, Suzie Dawley, at 530.666.8591 or by email at Suzie.dawley@yolocounty.org to discuss the regulatory requirements for the proposed project.

CONCLUSION

CalRecycle staff thanks the Lead Agency for the opportunity to review and comment on the environmental document and hopes that this comment letter will be useful to the Lead Agency preparing the EIR and in carrying out their responsibilities in the CEQA process. Staff also thanks the Lead Agency for making the public scoping meeting available online.

CalRecycle staff requests copies of any subsequent environmental documents, copies of public notices and any Notices of Determination for this proposed project.

If the environmental document is certified during a public hearing, CalRecycle staff requests 10 days advance notice of this hearing.

If you have any questions regarding these comments, please contact me at 916.341.6066 or by e-mail at Alyssa.Williams@calrecycle.ca.gov.

Sincerely,

Alyssa Williams

Alyssa Williams, Environmental Scientist
Permitting & Assistance Branch – Central Unit
Waste Permitting, Compliance & Mitigation Division
CalRecycle

cc: Patrick Snider, Supervisor, Permitting & Assistance Branch – Central Unit
Suzie Dawley, LEA

DEPARTMENT OF TRANSPORTATION
District 3
703 B Street
MARYSVILLE, CA 95901–5556
(530) 634-7616
TTY 711
www.dot.ca.gov

Making Conservation
a California Way of Life.

September 28, 2020

GTS# 03-YOL-2020-00120
SCH# 2020080465

9/28/2020

Governor's Office of Planning & Research

Sep 28 2020

STATE CLEARINGHOUSE

Ms. Stephanie Cormier
Principal Planner
Yolo County Department of Community Services
292 W. Beamer Street, Woodland, CA 95695

Yolo County Central Landfill Permit Revisions

Dear Ms. Cormier:

Thank you for including the California Department of Transportation (Caltrans) in the review process for the project referenced above. Caltrans' new mission, vision, and goals signal a modernization of our approach to California's transportation system. We review this local development for impacts to the State Highway System (SHS) in keeping with our mission, vision, and goals for sustainability/livability/economy, and safety/health. We provide these comments consistent with the State's smart mobility goals that support a vibrant economy, and build communities, not sprawl.

The Yolo County Central Landfill (YCCL) Permit Revisions (Project) proposes several changes to the design and operation of the YCCL, including increasing the permitted tonnage from 1,800 tons per day (TPD)to a monthly average of 2,500 TPD and a daily peak of 3,000 TPD. YCCL is a municipal solid waste landfill, owned by Yolo County and operated by the County's Department of Community Services, Division of Integrated Waste Management. The site covers 725 acres and includes several discrete areas, totaling 473 acres, that are permitted for disposal. The Project is located in unincorporated Yolo County about four miles northeast of the city of Davis and three miles southeast of the city of Woodland, near the intersection of County Roads 28H and 104. Based on the information received, Caltrans provides the following comments.

Traffic Operations

The Project location will be served by the I-80 Webster/Chiles Road interchange. The approximate distance from this site to I-80 is 4.50 miles. Webster/Chiles Road is a hook type (L-6 design) interchange with stop sign control at the ramp intersections.

The permit application showed project plans of the proposed landfill project on County Routes 28H and 104. There is no transportation study included in the NOP/EIR presentation. It is recommended that a transportation study be completed to evaluate VMT, operational, and trip generation impacts from this future Project. The existing hook type ramps of Webster/Chiles Road interchange and its proximity to the Yolo Bypass structure may affect merging and diverging especially with large trucks. Ramp queuing, merging, and turn movements analysis based on existing and future traffic conditions should also be included as part of the traffic study.

Please provide our office with copies of any further actions regarding this project. We would appreciate the opportunity to review and comment on any changes related to this development. If you have any questions regarding these comments or require additional information, please contact Anissa Raja, Intergovernmental Review Coordinator, at (530) 741-4507 or by email at: anissa.raja@dot.ca.gov.

Sincerely,

David James Smith
for

ALEXANDER FONG
Assistant Division Chief – Planning, Local Assistance, and Sustainability

NATIVE AMERICAN HERITAGE COMMISSION

9/28/2020
Governor's Office of Planning & Research
Sep 04 2020
STATE CLEARINGHOUSE

August 31, 2020

Stephanie Cormier
Yolo County Department of Community Services, DIWM
292 W. Beamer Street
Woodland CA 95695

Re: 2020080465, Yolo County Central Landfill Permit Revisions Project, Yolo County

Dear Ms. Cormier:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of <u>portions</u> of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

a. A brief description of the project.
b. The lead agency contact information.
c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

a. Alternatives to the project.
b. Recommended mitigation measures.
c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

a. Type of environmental review necessary.
b. Significance of the tribal cultural resources.
c. Significance of the project's impacts on tribal cultural resources.
d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
- **a.** The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
- **b.** Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
- **a.** If part or all of the APE has been previously surveyed for cultural resources.
- **b.** If any known cultural resources have already been recorded on or adjacent to the APE.
- **c.** If the probability is low, moderate, or high that cultural resources are located in the APE.
- **d.** If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
- **a.** The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
- **b.** The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:

a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.

c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Nancy.Gonzalez-Lopez@nahc.ca.gov.

Sincerely,

Nancy Gonzalez-Lopez
Cultural Resources Analyst

cc: State Clearinghouse

Central Valley Regional Water Quality Control Board

28 September 2020

Governor's Office of Planning & Research

Sep 29 2020

STATE CLEARINGHOUSE

Stephanie Cormier
Yolo County
Department of Community Services
292 West Beamer Street
Woodland, CA 95695

COMMENTS TO REQUEST FOR REVIEW FOR THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, YOLO COUNTY CENTRAL LANDFILL PERMIT REVISIONS PROJECT, SCH#2020080465, YOLO COUNTY

Pursuant to the State Clearinghouse's 27 August 2020 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Notice of Preparation for the Draft Environmental Impact Report* for the Yolo County Central Landfill Permit Revisions Project, located in Yolo County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of

Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:
https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]
The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit
Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 2014-0057-DWQ. For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml

Clean Water Act Section 404 Permit
If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification
If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

Waste Discharge Requirements – Discharges to Waters of the State
If USACE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

Waste Discharge Requirements – Discharges to Land
For more information on waste discharges to land, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_land/index.shtml

Dewatering Permit
If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/help/permit/

If you have questions regarding these comments, please contact me at (916) 464-4812 or Jordan.Hensley@waterboards.ca.gov.

JHsly

Jordan Hensley
Environmental Scientist

cc: State Clearinghouse unit, Governor’s Office of Planning and Research, Sacramento

VERBAL COMMENTS DURING NOP SCOPING MEETING ON SEPTEMBER 16, 2020

Question from Suzie Dawley, LEA at Yolo County:

Suzie Dawley asked whether chip and grind would be part of the Proposed Biomass Gasification Facility and if the Proposed Biomass Gasification Facility would be located near the existing C&D (Construction and Demolition) Facility.

APPENDIX C

NOISE APPENDIX

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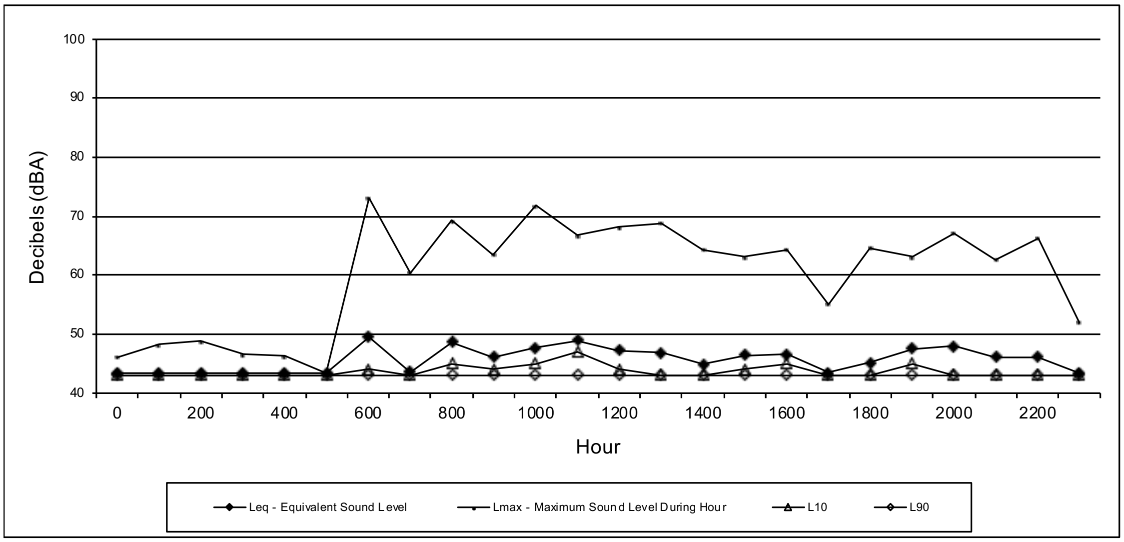
Noise Appendix

Long Term Noise Measurement Graphs for Sites 1-3

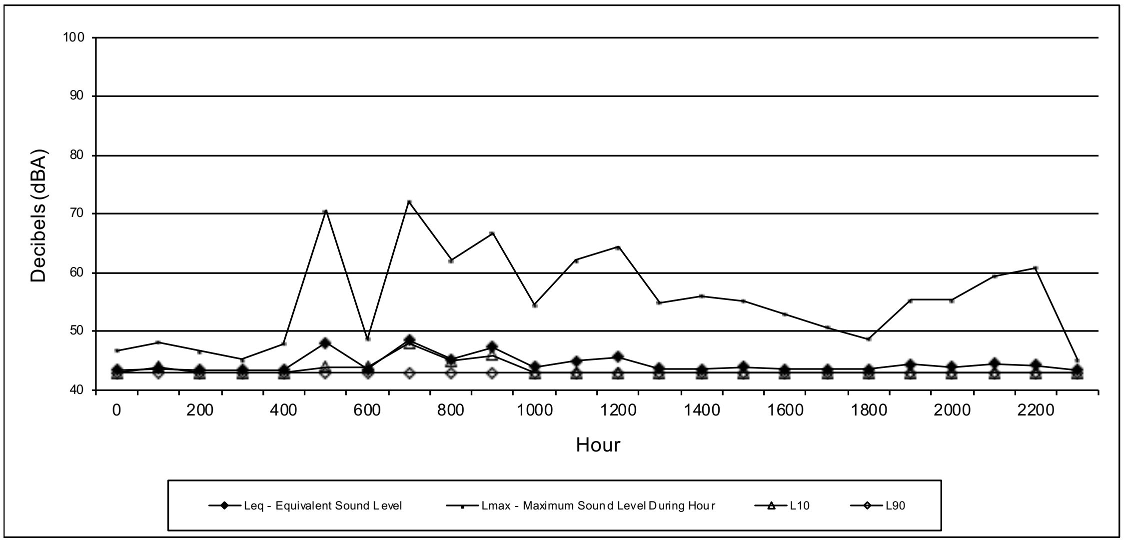
RCHGROUP
planning & environmental consulting



Site 1: Western Boundary of YCCL - 300 feet west of center of Unit 3
Saturday November 14, 2020

Hour	Leq - Equivalent Sound Level	Lmax - Maximum Sound Level During Hour	L10	L90
0	43	46	43	43
100	43	48	43	43
200	43	49	43	43
300	43	47	43	43
400	43	46	43	43
500	43	43	43	43
600	50	73	44	43
700	44	60	43	43
800	49	69	45	43
900	46	64	44	43
1000	48	72	45	43
1100	49	67	47	43
1200	47	68	44	43
1300	47	69	43	43
1400	45	64	43	43
1500	46	63	44	43
1600	47	64	45	43
1700	44	55	43	43
1800	45	65	43	43
1900	48	63	45	43
2000	48	67	43	43
2100	46	63	43	43
2200	46	66	43	43
2300	43	52	43	43

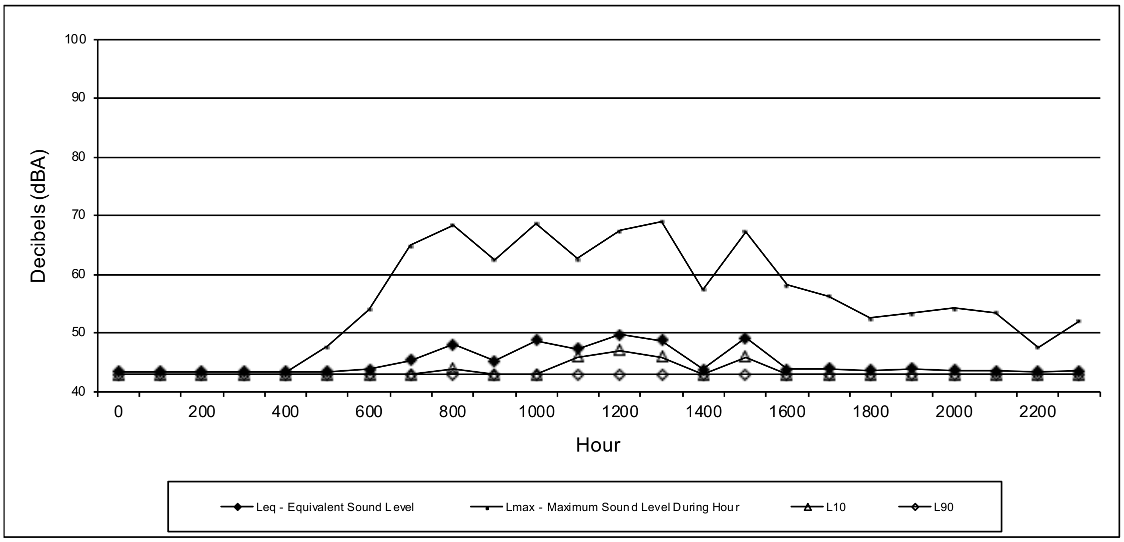
CNEL 52



Site 1: Western Boundary of YCCL - 300 feet west of center of Unit 3
Sunday November 15, 2020

Hour	Leq - Equivalent Sound Level	Lmax - Maximum Sound Level During Hour	L10	L90
0	43	47	43	43
100	44	48	44	43
200	43	47	43	43
300	43	45	43	43
400	43	48	43	43
500	48	71	44	43
600	44	49	44	43
700	49	72	48	43
800	45	62	45	43
900	47	67	46	43
1000	44	55	43	43
1100	45	62	43	43
1200	46	64	43	43
1300	44	55	43	43
1400	44	56	43	43
1500	44	55	43	43
1600	44	53	43	43
1700	44	51	43	43
1800	44	49	43	43
1900	44	55	43	43
2000	44	55	43	43
2100	45	59	43	43
2200	44	61	43	43
2300	43	45	43	43

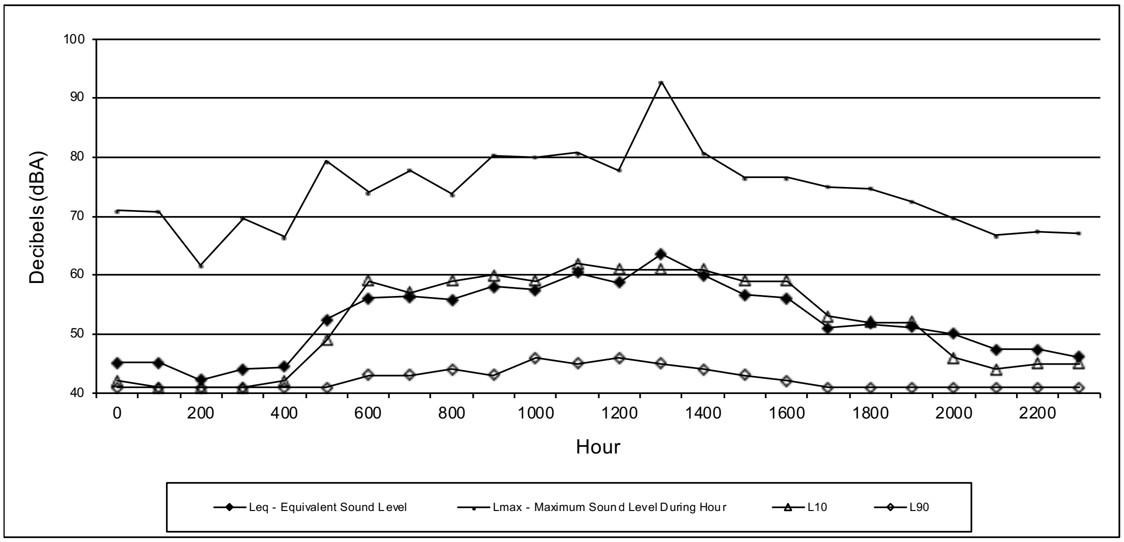
CNEL: 51



Site 1: Western Boundary of YCCL - 300 feet west of center of Unit 3
Monday November 16, 2020

Hour	Leq - Equivalent Sound Level	Lmax - Maximum Sound Level During Hour	L10	L90
0	43	43	43	43
100	43	43	43	43
200	43	43	43	43
300	43	43	43	43
400	43	43	43	43
500	43	48	43	43
600	44	54	43	43
700	45	65	43	43
800	48	69	44	43
900	45	63	43	43
1000	49	69	43	43
1100	47	63	46	43
1200	50	67	47	43
1300	49	69	46	43
1400	44	58	43	43
1500	49	67	46	43
1600	44	58	43	43
1700	44	56	43	43
1800	44	53	43	43
1900	44	53	43	43
2000	44	54	43	43
2100	44	54	43	43
2200	43	48	43	43
2300	44	52	43	43

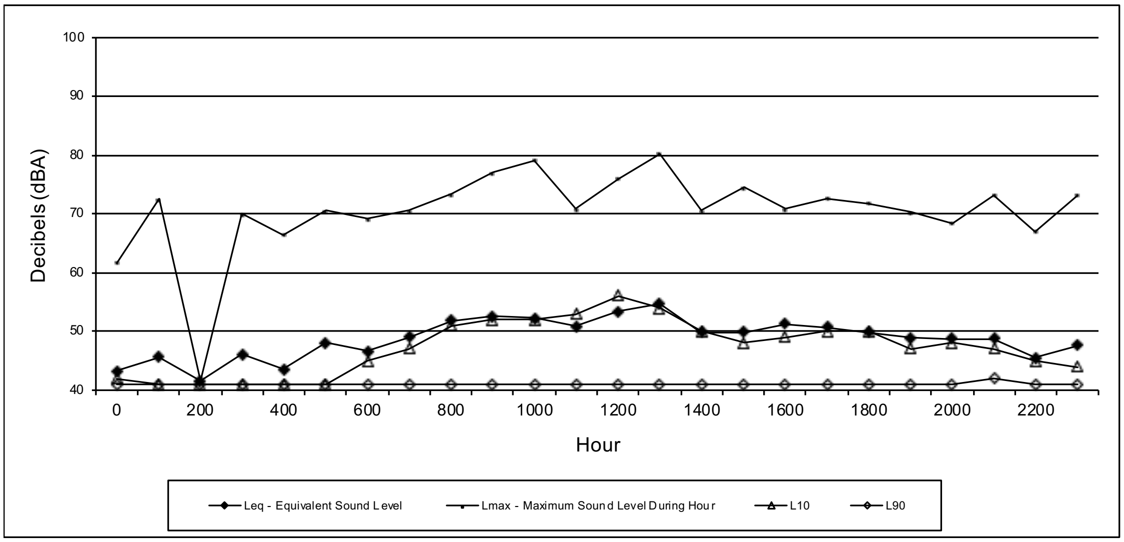
CNEL: 51



Site 2: Southwestern boundary of YCCL, 150' west of entrance gate and 60' north of centerline of Road 28H
Saturday November 14, 2020

Hour	Leq - Equivalent Sound Level	Lmax - Maximum Sound Level During Hour	L10	L90
0	45	71	42	41
100	45	71	41	41
200	42	62	41	41
300	44	70	41	41
400	45	67	42	41
500	52	79	49	41
600	56	74	59	43
700	56	78	57	43
800	56	74	59	44
900	58	80	60	43
1000	58	80	59	46
1100	61	81	62	45
1200	59	78	61	46
1300	64	93	61	45
1400	60	81	61	44
1500	57	77	59	43
1600	56	77	59	42
1700	51	75	53	41
1800	52	75	52	41
1900	51	73	52	41
2000	50	70	46	41
2100	47	67	44	41
2200	47	68	45	41
2300	46	67	45	41

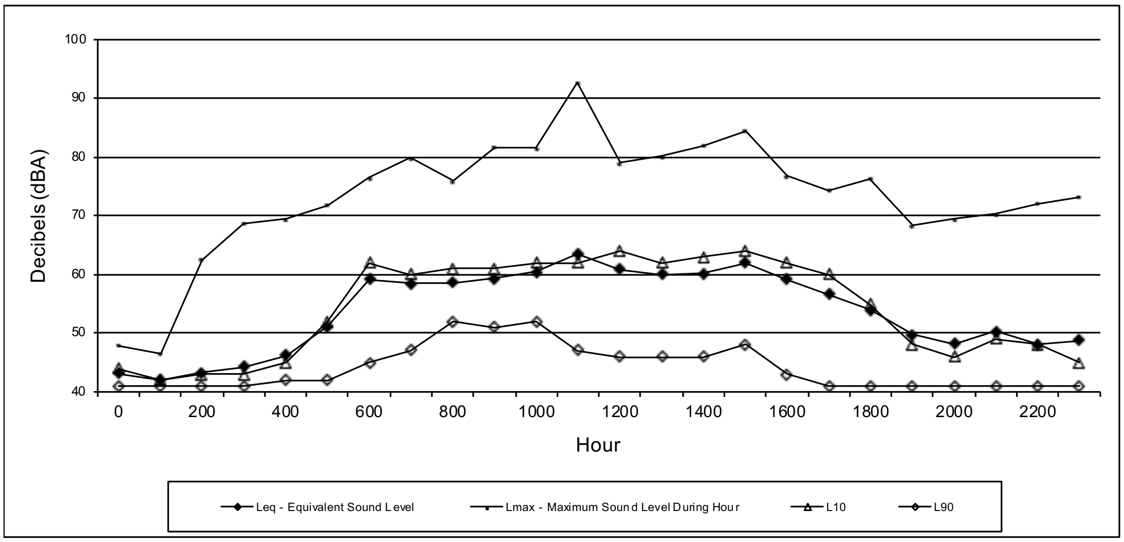
CNEL 59



Site 2: Southwestern boundary of YCCL, 150' west of entrance gate and 60' north of centerline of Road 28H
Sunday November 15, 2020

Hour	Leq - Equivalent Sound Level	Lmax - Maximum Sound Level During Hour	L10	L90
0	43	62	42	41
100	46	73	41	41
200	42	42	41	41
300	46	70	41	41
400	44	67	41	41
500	48	71	41	41
600	47	69	45	41
700	49	71	47	41
800	52	73	51	41
900	53	77	52	41
1000	52	79	52	41
1100	51	71	53	41
1200	53	76	56	41
1300	55	80	54	41
1400	50	71	50	41
1500	50	75	48	41
1600	51	71	49	41
1700	51	73	50	41
1800	50	72	50	41
1900	49	70	47	41
2000	49	69	48	41
2100	49	73	47	42
2200	46	67	45	41
2300	48	73	44	41

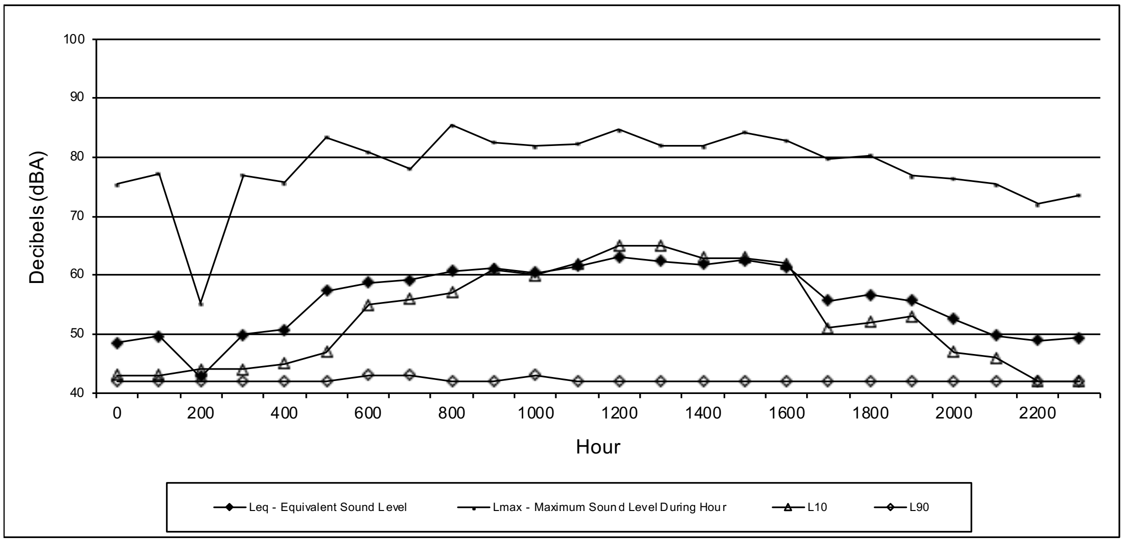
CNEL: 54



Site 2: Southwestern boundary of YCCL, 150' west of entrance gate and 60' north of centerline of Road 28H
Monday November 16, 2020

Hour	Leq - Equivalent Sound Level	Lmax - Maximum Sound Level During Hour	L10	L90
0	43	48	44	41
100	42	47	42	41
200	43	63	43	41
300	44	69	43	41
400	46	69	45	42
500	51	72	52	42
600	59	77	62	45
700	59	80	60	47
800	59	76	61	52
900	59	82	61	51
1000	61	82	62	52
1100	64	93	62	47
1200	61	79	64	46
1300	60	80	62	46
1400	60	82	63	46
1500	62	85	64	48
1600	59	77	62	43
1700	57	74	60	41
1800	54	76	55	41
1900	50	68	48	41
2000	48	69	46	41
2100	50	70	49	41
2200	48	72	48	41
2300	49	73	45	41

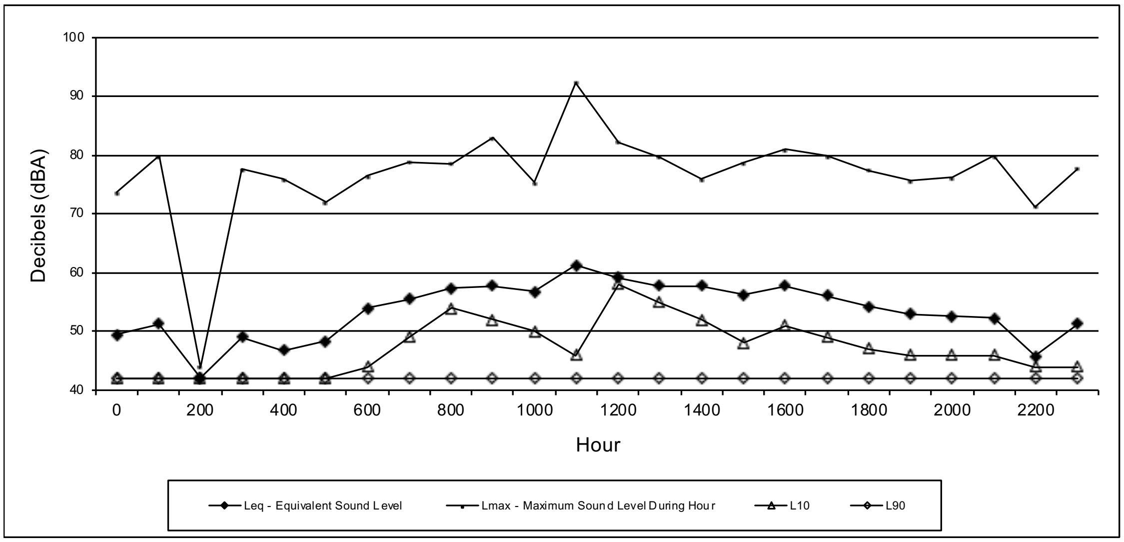
CNEL: 60



Site 3: Southeastern boundary of YCCL, 50' north of centerline of Road 28H
Saturday November 14, 2020

Hour	Leq - Equivalent Sound Level	Lmax - Maximum Sound Level During Hour	L10	L90
0	49	76	43	42
100	50	77	43	42
200	43	55	44	42
300	50	77	44	42
400	51	76	45	42
500	57	83	47	42
600	59	81	55	43
700	59	78	56	43
800	61	86	57	42
900	61	83	61	42
1000	60	82	60	43
1100	62	82	62	42
1200	63	85	65	42
1300	62	82	65	42
1400	62	82	63	42
1500	63	84	63	42
1600	61	83	62	42
1700	56	80	51	42
1800	57	80	52	42
1900	56	77	53	42
2000	53	76	47	42
2100	50	75	46	42
2200	49	72	42	42
2300	49	74	42	42

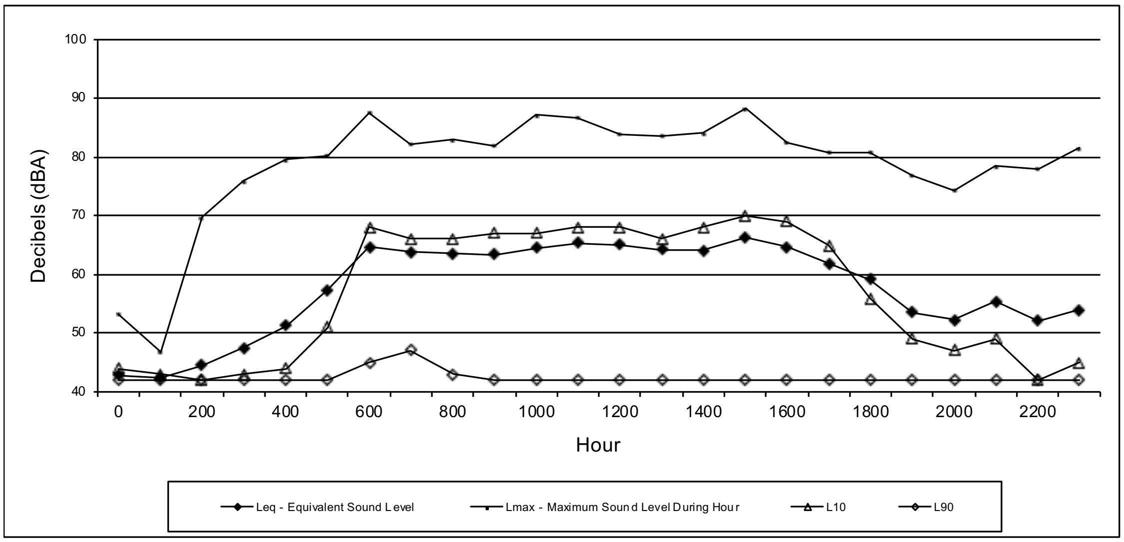
CNEL 62



Site 3: Southeastern boundary of YCCL, 50' north of centerline of Road 28H
Sunday November 15, 2020

Hour	Leq - Equivalent Sound Level	Lmax - Maximum Sound Level During Hour	L10	L90
0	49	74	42	42
100	51	80	42	42
200	42	44	42	42
300	49	78	42	42
400	47	76	42	42
500	48	72	42	42
600	54	77	44	42
700	56	79	49	42
800	57	79	54	42
900	58	83	52	42
1000	57	75	50	42
1100	61	92	46	42
1200	59	82	58	42
1300	58	80	55	42
1400	58	76	52	42
1500	56	79	48	42
1600	58	81	51	42
1700	56	80	49	42
1800	54	78	47	42
1900	53	76	46	42
2000	53	76	46	42
2100	52	80	46	42
2200	46	71	44	42
2300	51	78	44	42

CNEL: 59



Site 3: Southeastern boundary of YCCL, 50' north of centerline of Road 28H
Monday November 16, 2020

Hour	Leq - Equivalent Sound Level	Lmax - Maximum Sound Level During Hour	L10	L90
0	43	53	44	42
100	42	47	43	42
200	45	70	42	42
300	48	76	43	42
400	51	80	44	42
500	57	80	51	42
600	65	88	68	45
700	64	82	66	47
800	64	83	66	43
900	63	82	67	42
1000	65	87	67	42
1100	65	87	68	42
1200	65	84	68	42
1300	64	84	66	42
1400	64	84	68	42
1500	66	88	70	42
1600	65	83	69	42
1700	62	81	65	42
1800	59	81	56	42
1900	54	77	49	42
2000	52	74	47	42
2100	55	78	49	42
2200	52	78	42	42
2300	54	82	45	42

CNEL: 65

APPENDIX D

BIOLOGICAL RESOURCES – LITERATURE REVIEW AND DATABASE REVIEW SOURCE INFORMATION

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CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

26 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3812167, 3812166, 3812165, 3812157, 3812156, 3812155, 3812147 3812146 and 3812145;

Modify Search Criteria Export to Excel Modify Columns Modify Sort Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Astragalus pauperculus	depauperate milk-vetch	Fabaceae	annual herb	Mar-Jun	4.3	S4	G4
Astragalus tener var. ferrisiae	Ferris' milk-vetch	Fabaceae	annual herb	Apr-May	1B.1	S1	G2T1
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S1	G2T1
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G3T2
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Carex comosa	bristly sedge	Cyperaceae	perennial rhizomatous herb	May-Sep	2B.1	S2	G5
Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	May-Nov	1B.2	S2	G3T2
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	4.2	S3	G3T3
Chloropyron palmatum	palmate-bracted bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	May-Oct	1B.1	S1	G1
Eryngium jepsonii	Jepson's coyote thistle	Apiaceae	perennial herb	Apr-Aug	1B.2	S2?	G2?
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Fritillaria pluriflora	adobe-lily	Liliaceae	perennial bulbiferous herb	Feb-Apr	1B.2	S2S3	G2G3
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	4.2	S3	G3
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	1B.2	S3	G5T3
Juglans hindsii	Northern California black walnut	Juglandaceae	perennial deciduous tree	Apr-May	1B.1	S1	G1
Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	1B.2	S1	G4T1
Lessingia hololeuca	woolly-headed	Asteraceae	annual herb	Jun-Oct	3	S2S3	G3?

	lessingia						
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	1B.1	S2	G2
Myosurus minimus ssp. apus	little mousetail	Ranunculaceae	annual herb	Mar-Jun	3.1	S2	G5T2Q
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G4T2
Neostapfia colusana	Colusa grass	Poaceae	annual herb	May-Aug	1B.1	S1	G1
Plagiobothrys hystriculus	bearded popcornflower	Boraginaceae	annual herb	Apr-May	1B.1	S2	G2
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	1B.2	S2	G2
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2
Tuctoria mucronata	Crampton's tuctoria or Solano grass	Poaceae	annual herb	Apr-Aug	1B.1	S1	G1

Suggested Citation

California Native Plant Society, Rare Plant Program. 2021. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 04 January 2021].

Search the Inventory

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The California Lichen Society

California Natural Diversity Database

The Jepson Flora Project

The Consortium of California Herbaria

CalPhotos

Questions and Comments

rareplants@cnps.org

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

IPaC resource list

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

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

Location

Yolo County, California

Local office

Sacramento Fish And Wildlife Office

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

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

Endangered species

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

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

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

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

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

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

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

---

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Birds

NAME	STATUS

Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake Thamnophis gigas Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

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

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp Branchinecta conservatio Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp Lepidurus packardi Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

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

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

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

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/

conservation-measures.php

- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

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

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Burrowing Owl Athene cunicularia This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9737	Breeds Mar 15 to Aug 31

Clark's Grebe Aechmophorus clarkii — Breeds Jan 1 to Dec 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Costa's Hummingbird Calypte costae — Breeds Jan 15 to Jun 10

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9470

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Long-billed Curlew Numenius americanus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5511

Marbled Godwit Limosa fedoa — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Rufous Hummingbird selasphorus rufus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Song Sparrow Melospiza melodia — Breeds Feb 20 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Spotted Towhee Pipilo maculatus clementae — Breeds Apr 15 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/4243

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

Whimbrel Numenius phaeopus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9483

Willet Tringa semipalmata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Yellow-billed Magpie Pica nuttalli — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9726

Probability of Presence Summary

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

Probability of Presence (■)

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

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

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that

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

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

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

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

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

No Data (–)
A week is marked as having no data if there were no survey events for that week.

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

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

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

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

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

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

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

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

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

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

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

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1Cx
- PEM1Fx
- PEM1C

FRESHWATER POND

- PUSCx
- PUBHx

LAKE

- L1UBKx

RIVERINE

- R5UBFx
- R2UBFx
- R5UBF

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

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

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

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

Data exclusions

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

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

United States Department of Agriculture

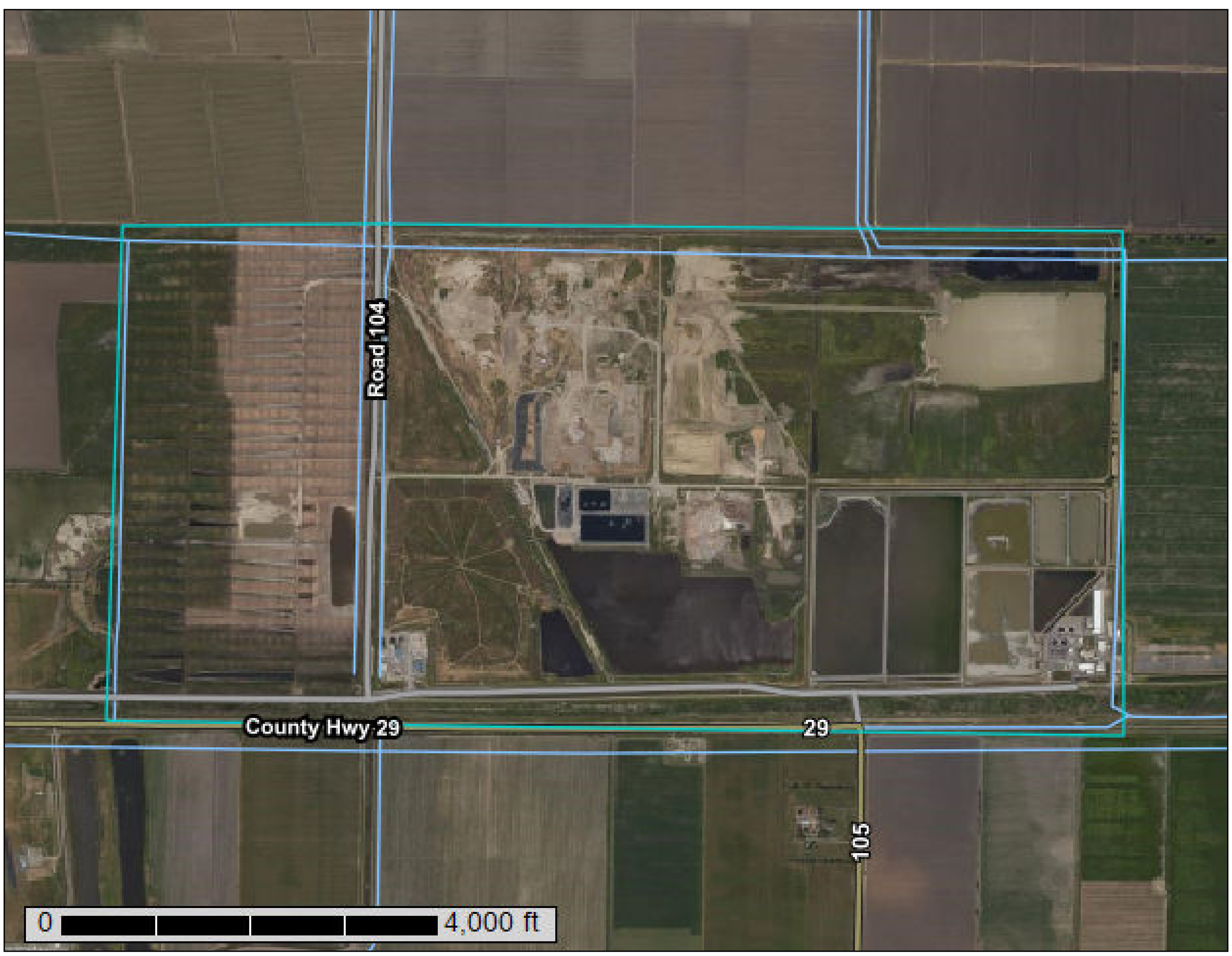
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Yolo County, California



December 16, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map

Map Scale: 1:18,100 if printed on A landscape (11" x 8.5") sheet.

Meters: 0, 250, 500, 1000, 1500

Feet: 0, 500, 1000, 2000, 3000

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Yolo County, California
Survey Area Data: Version 16, Jun 1, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 26, 2019—May 1, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ca	Capy silty clay, 0 percent slopes, MLRA 17	810.6	61.8%
Ck	Clear Lake clay, 0 to 1 percent slopes, MLRA 17	211.5	16.1%
Cn	Clear Lake soils, flooded	6.4	0.5%
Mf	Marvin silty clay loam	2.1	0.2%
Pa	Pescadero silty clay	28.9	2.2%
Pb	Pescadero silty clay, saline-alkali	74.9	5.7%
Rg	Rincon silty clay loam	10.4	0.8%
Rk	Riz loam	4.2	0.3%
W	Water	25.8	2.0%
Wb	Willows clay, 0 percent slopes, MLRA 17	65.5	5.0%
Wd	Willows clay, 0 percent slopes, drained, sodic, MLRA 17	71.2	5.4%
Totals for Area of Interest		**1,311.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Yolo County, California

Ca—Capy silty clay, 0 percent slopes, MLRA 17

Map Unit Setting

National map unit symbol: 2xc8z
Elevation: 20 to 180 feet
Mean annual precipitation: 20 to 24 inches
Mean annual air temperature: 61 to 62 degrees F
Frost-free period: 317 to 326 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Capay and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Capay

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty and clayey alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap - 0 to 11 inches: silty clay
A - 11 to 18 inches: silty clay
Bss1 - 18 to 36 inches: silty clay
Bkss - 36 to 49 inches: silty clay
B'ss2 - 49 to 64 inches: silty clay

Properties and qualities

Slope: 0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: RareNone
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline (0.2 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water capacity: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Willows

Percent of map unit: 4 percent
Landform: Basin floors
Hydric soil rating: Yes

Clear lake

Percent of map unit: 4 percent
Landform: Basin floors
Hydric soil rating: Yes

Marvin

Percent of map unit: 4 percent
Hydric soil rating: No

Myers

Percent of map unit: 3 percent
Hydric soil rating: No

Ck—Clear Lake clay, 0 to 1 percent slopes, MLRA 17

Map Unit Setting

National map unit symbol: 2vbsz
Elevation: 20 to 400 feet
Mean annual precipitation: 17 to 19 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 260 to 280 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Clear lake and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Clear Lake

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Basin alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap - 0 to 10 inches: clay
Ag - 10 to 25 inches: clay
Bssg1 - 25 to 42 inches: clay
Bssg2 - 42 to 68 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 35 inches
Frequency of flooding: Rare
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 4 percent
Maximum salinity: Nonsaline to very slightly saline (1.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 14.0
Available water capacity: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Capay

Percent of map unit: 4 percent
Landform: Basin floors
Hydric soil rating: Yes

Subaco

Percent of map unit: 3 percent
Landform: Flood plains
Hydric soil rating: Yes

Oswald

Percent of map unit: 3 percent
Landform: Basin floors
Hydric soil rating: Yes

Cn—Clear Lake soils, flooded

Map Unit Setting

National map unit symbol: hdvj
Elevation: 10 to 400 feet
Mean annual precipitation: 10 to 35 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 225 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Clear lake, long flooding duration, and similar soils: 60 percent

Clear lake, brief flooding duration, and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Clear Lake, Long Flooding Duration

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 25 inches: clay loam
H2 - 25 to 60 inches: clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Description of Clear Lake, Brief Flooding Duration

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 13 inches: fine sandy loam
H2 - 13 to 60 inches: clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: Moderate (about 8.8 inches)

Interpretive groups
Land capability classification (irrigated): 4w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Willows
Percent of map unit: 5 percent
Landform: Basin floors
Hydric soil rating: Yes

Capay
Percent of map unit: 5 percent
Landform: Basin floors
Hydric soil rating: Yes

Sacramento
Percent of map unit: 5 percent
Landform: Basin floors
Hydric soil rating: Yes

Mf—Marvin silty clay loam

Map Unit Setting
National map unit symbol: hdwb
Elevation: 20 to 100 feet
Mean annual precipitation: 20 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 280 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Marvin and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Marvin

Setting

Landform: Rims on basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Rise, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed silty and clayey alluvium

Typical profile

H1 - 0 to 12 inches: silty clay loam
H2 - 12 to 41 inches: silty clay
H3 - 41 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: RareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water capacity: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Capay

Percent of map unit: 5 percent
Landform: Rims
Hydric soil rating: Yes

Rincon

Percent of map unit: 5 percent
Hydric soil rating: No

Pescadero

Percent of map unit: 3 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 2 percent
Hydric soil rating: No

Pa—Pescadero silty clay

Map Unit Setting

National map unit symbol: hdwm
Elevation: 10 to 100 feet
Mean annual precipitation: 10 to 19 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 320 days
Farmland classification: Not prime farmland

Map Unit Composition

Pescadero and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pescadero

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 3 inches: silty clay
H2 - 3 to 40 inches: silty clay
H3 - 40 to 67 inches: silty clay loam
H4 - 67 to 95 inches: stratified loam to silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 24 to 48 inches
Frequency of flooding: RareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water capacity: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Willows

Percent of map unit: 5 percent
Landform: Basin floors
Hydric soil rating: Yes

Capay

Percent of map unit: 5 percent
Hydric soil rating: No

Marvin

Percent of map unit: 5 percent
Hydric soil rating: No

Pb—Pescadero silty clay, saline-alkali

Map Unit Setting

National map unit symbol: hdwn
Elevation: 10 to 100 feet
Mean annual precipitation: 16 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Pescadero and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pescadero

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 3 inches: silty clay
H2 - 3 to 40 inches: silty clay
H3 - 40 to 67 inches: silty clay loam
H4 - 67 to 95 inches: stratified loam to silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained

Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 24 to 48 inches
Frequency of flooding: RareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 90.0
Available water capacity: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Riz

Percent of map unit: 5 percent
Hydric soil rating: No

Capay

Percent of map unit: 4 percent
Hydric soil rating: No

Willows

Percent of map unit: 4 percent
Landform: Basin floors
Hydric soil rating: Yes

Marvin

Percent of map unit: 2 percent
Hydric soil rating: No

Rg—Rincon silty clay loam

Map Unit Setting

National map unit symbol: hdww
Elevation: 50 to 350 feet
Mean annual precipitation: 20 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 275 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Rincon and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rincon

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 15 inches: silty clay loam
H2 - 15 to 56 inches: silty clay loam
H3 - 56 to 72 inches: silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Brentwood

Percent of map unit: 5 percent
Hydric soil rating: No

Marvin

Percent of map unit: 3 percent
Hydric soil rating: No

Tehama

Percent of map unit: 3 percent
Hydric soil rating: No

Zamora

Percent of map unit: 2 percent
Hydric soil rating: No

Yolo

Percent of map unit: 2 percent
Hydric soil rating: No

Rk—Riz loam

Map Unit Setting

National map unit symbol: hdwy
Elevation: 10 to 30 feet
Mean annual precipitation: 20 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Riz and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riz

Setting

Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous silty alluvium

Typical profile

H1 - 0 to 10 inches: loam
H2 - 10 to 44 inches: clay
H3 - 44 to 69 inches: loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 24 to 48 inches
Frequency of flooding: RareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water capacity: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Capay

Percent of map unit: 4 percent
Hydric soil rating: No

Clear lake

Percent of map unit: 4 percent
Landform: Basin floors
Hydric soil rating: Yes

Willows

Percent of map unit: 4 percent
Landform: Basin floors
Hydric soil rating: Yes

Pescadero

Percent of map unit: 3 percent
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Wb—Willows clay, 0 percent slopes, MLRA 17

Map Unit Setting

National map unit symbol: 2xc9v
Elevation: 0 to 120 feet
Mean annual precipitation: 19 to 22 inches
Mean annual air temperature: 61 to 62 degrees F
Frost-free period: 321 to 328 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Willows and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Willows

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Clayey alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Apg - 0 to 4 inches: clay
Bssg - 4 to 13 inches: clay
Bknssg - 13 to 28 inches: clay
Bnssg1 - 28 to 38 inches: clay
Bnssg2 - 38 to 48 inches: clay
Bnssg3 - 48 to 61 inches: silty clay
Bnssg4 - 61 to 72 inches: silty clay

Properties and qualities

Slope: 0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)
Depth to water table: About 0 to 60 inches
Frequency of flooding: NoneRare
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 2 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (1.0 to 3.0 mmhos/cm)
Sodium adsorption ratio, maximum: 35.0
Available water capacity: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Riz

Percent of map unit: 3 percent
Hydric soil rating: No

Pescadero

Percent of map unit: 3 percent
Hydric soil rating: No

Marvin

Percent of map unit: 3 percent
Hydric soil rating: No

Capay

Percent of map unit: 3 percent
Hydric soil rating: No

Sacramento

Percent of map unit: 3 percent
Landform: Alluvial fans
Hydric soil rating: Yes

Wd—Willows clay, 0 percent slopes, drained, sodic, MLRA 17

Map Unit Setting

National map unit symbol: 2y0fh
Elevation: 30 feet
Mean annual precipitation: 20 to 20 inches
Mean annual air temperature: 61 to 62 degrees F
Frost-free period: 321 to 326 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Willows and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Willows

Setting

Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Apg - 0 to 4 inches: clay
Bssg - 4 to 13 inches: clay
Bknssg - 13 to 28 inches: clay
Bnssg1 - 28 to 38 inches: clay
Bnssg2 - 38 to 48 inches: clay
Bnssg3 - 48 to 61 inches: silty clay
Bnssg4 - 61 to 72 inches: silty clay

Properties and qualities

Slope: 0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)
Depth to water table: About 38 to 60 inches
Frequency of flooding: NoneRare
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 2 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (1.0 to 3.0 mmhos/cm)
Sodium adsorption ratio, maximum: 35.0

Available water capacity: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Clear lake

Percent of map unit: 5 percent
Landform: Basin floors
Hydric soil rating: Yes

Unnamed, undrained

Percent of map unit: 5 percent
Landform: Basin floors
Hydric soil rating: Yes

Capay

Percent of map unit: 5 percent
Hydric soil rating: No

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APPENDIX E

BIOLOGICAL RESOURCES – REPRESENTATIVE PHOTOGRAPHS

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Appendix B
Representative Photographs

Photograph 1: View looking east towards the Willow Slough Bypass floodplain with the Road 105 bridge visible in distance.

Photograph 2: View looking west and upstream of the Willow Slough Bypass.

Photograph 3: Storm Water Treatment, looking south from County Road 28H.

Photograph 4: View looking north at the proposed western Biomass Gasification area.

Photograph 5: View looking northwest at the central detention basin in a proposed Future Work Area.

Photograph 6: View looking east towards the proposed Future Surface Impoundment.

Photograph 7: Looking south is a view of the eastern detention basin proposed for the Wastewater Storage Reservior and Floating Solar area. Note the wastewater currenlty draining into the dentetion basin.

Photograph 8: Approximatley 100 feet south of Photograph 7's vantage point, is a view of the eastern detention basin's marshy margin including hydrophytic rabbit's footgrass, salt marsh bulrush, and broadleaved cattail. This area contains low quality potential habitat for special status plant species.

Photograph 9. Looking west, is a view of the eastern dention basin's northern margin containing cocklebur and smartweed. Note the salt scalds. These areas contain suitable habitat for special-status plant species.

Photograph 10: View looking northeast towards the proposed Vehicle Fueling Area.

Photograph 11: View looking south at the non-native annual grassland in the area proposed for Storm Water Treament.

Photograph 12: View looking southeast towards the artifical seaonal wetland that marginally enters the project area.

APPENDIX F

BIOLOGICAL RESOURCES – PLANT SPECIES OBSERVED

Appendix C. Plant Species Observed in the Yolo County Central Landfill

Amaranthus sp.	Pigweed
Arundo donax	Giant reed
Avena barbata	Slender wild oats
Avena fatua	Wild oats
Bolboschoenus maritimus ssp. *Paludosus*	Alkali bulrush
Brassica nigra	Black mustard
Bromus diandrus	Ripgut brome
Bromus hordeaceus	Soft chess
Bromus madritensis	Red brome
Centaurea solstitialis	Yellow star-thistle
Centromadia parryi ssp. *rudis*	Parry's rough tarplant
Cirsium vulgare	Bull thistle
Convolvulus arvensis	Field bindweed
Crypsis schoenoides	Swamp grass
Cuscuta sp.	Dodder
Cynodon dactylon	Berumuda grass
Cynosurus echinatus	Dogtail grass
Datura wrightii	Jimsonweed
Daucus pusillus	Queen Anne’s lace
Distichlis spicata	Saltgrass
Epilobium sp.	Fireweed
Euphorbia prostrata	Prostrate sandmat
Festuca perennis	Italian rye grass
Helminthotheca echioides	Bristly ox-tongue
Hirschfeldia incana	Field mustard
Holcus lanatus	Velvet grass
Hordeum murinum	Wild barley
Lactuca serriola	Prickly lettuce
Lepidium latifolium	Perennial pepperweed
Ludwigia peploides	Water primrose
Lythrum hyssopifolium	Hyssop loosestrife
Malvella leprosa	Alkali mallow
Medicago polymorpha	California burclover
Melilotus indicus	Sourclover
Persicaria sp.	Smartweed
Phalaris aquatica	Harding grass
Plantago lanceolata	English plantain
Polygonum aviculare	Prostrate knotweed
Polypogon monspeliensis	Rabbits-foot grass
Raphanus sativus	Wild radish

Rumex crispus	Curly dock
Rumex dentatus	Toothed dock
Salix lasiolepis	Arroyo willow
Salsola tragus	Tumbleweed
Schoenoplectus acutus var. *occidentalis*	Tule
Silybum marianum	Milk thistle
Sonchus oleraceus	Sow thistle
Sorghum halepense	Johnson grass
Trifolium sp.	Clover
Typha latifolia	Broadleaf cattail
Xanthium strumarium	Cocklebur

APPENDIX G

AIR QUALITY SUPPORTING INFORMATION

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Supporting Air Quality Assumptions and Calculations

Air Emission Calculation Methodology

Project construction and operation were analyzed. Construction emissions were estimated for off-road equipment, on-road trucks for material delivery and equipment hauling, and worker commute trips. Operational emissions were estimated for off-road equipment, on-road heavy trucks and on-road employee vehicles.

Regulatory models used to estimate air quality impacts included:

- California Emissions Estimator Model[1] (CalEEMod) Version 2016.3.2 land use emissions model estimates construction emissions due to demolition and construction activities and operational emissions related to typical land use projects.
- California Air Resources Board (CARB) EMFAC[2] emissions inventory model. EMFAC is the latest emission inventory model that calculates emission inventories and emission rates for motor vehicles operating on roads in California. This model reflects CARB's current understanding of how vehicles travel and how much they emit. EMFAC can be used to show how California motor vehicle emissions have changed over time and are projected to change in the future.
- CARB OFFROAD[3] emissions inventory model. OFFROAD is the latest emission inventory model that calculates emission inventories and emission rates for off-road equipment such as loaders, excavators, and off-road haul trucks operating in California. This model reflects CARB's current understanding of how equipment operates and how much they emit. OFFROAD can be used to show how California off-road equipment emissions have changed over time and are projected to change in the future.

The air quality analysis includes a review of criteria pollutant emissions such as carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), volatile organic compounds (VOC) as reactive organic gases (ROG), particulate matter less than 10 micrometers (coarse or PM_{10}), particulate matter less than 2.5 micrometers (fine or $PM_{2.5}$).

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[1] California Air Pollution Control Officers Association (CAPCOA). 2017. *California Emissions Estimator Model User's Guide Version 2016.3.2*. November 2017. http://www.caleemod.com/

[2] California Air Resources Board. 2018. *EMFAC2017 User's Guide*, March 1, 2018, https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-i-users-guide.pdf and https://www.arb.ca.gov/emfac/2017/

[3] California Air Resources Board, *Mobile Source Emissions Inventory Documentation – Off Road Diesel Equipment*, https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-road and https://ww3.arb.ca.gov/msei/ordiesel/ordas_ef_fcf_2017.pdf

Construction Emissions Assumptions

Since the exact timing of the construction of individual Project elements is unknown, construction emissions were estimated under the assumption that construction of the proposed waste gasification facility, thermal pressure hydrolysis system, new class 2 surface impoundment and biogas to methanol pilot facility would occur simultaneously in 2023 and 2024. Construction of other Project elements that would require construction activities would likely occur in a subsequent year exclusive of construction activities for other Project elements and would be less intense than the simultaneous construction of these four Project elements. It is unlikely these four Project elements would be constructed simultaneously, thus this is considered a worst-case analysis for comparison to YSAQMD's thresholds of significance.

Construction footprints for the four Project elements were assumed to be four acres for the waste gasification facility, four acres for the new class 2 surface impoundment, 3,000 square feet for the thermal pressure hydrolysis system and 16,000 square feet for the biogas to methanol pilot facility. Construction of the four project elements was assumed to require approximately two years with 10 days of site preparation, 130 days of grading (mainly related to the new class 2 surface impoundment), 230 days of building construction, 60 days of trenching/utilities, 20 days of paving and 20 days of architectural coating. Construction activities were assumed to occur nine hours per day, five days per week. **Table 1** provides the estimated construction schedule

TABLE 1
ESTIMATED CONSTRUCTION SCHEDULE

Phase	Description	Start	End	Working Days
1	Site Preparation	01/02/2023	01/13/2023	10
2	Grading	01/14/2023	07/14/2023	130
3	Utilities	07/16/2023	10/06/2024	230
4	Building Construction	10/07/2023	08/23/2024	20
5	Paving	08/24/2024	09/20/2024	20
6	Architectural Coating	09/21/2024	10/18/2024	60

SOURCE: CalEEMod Version 2016.3.2.

Project construction would require approximately five to 50 worker round trips per day depending on the phase. Project construction would not require on-road haul trucks for soil export since any excess soil would be reused onsite. Project construction was assumed to require approximately 19 vendor haul truck round trips for transporting building materials to the site. Construction equipment assumed by phase is provided in **Table 2**.

TABLE 2
ESTIMATED CONSTRUCTION EQUIPMENT USAGE

Phase	Equipment	Amount	Daily Hours	HP	Load Factor
Site Preparation	Rubber Tired Dozers	3	8	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37
Grading	Excavators	1	8	158	0.38
Grading	Graders	1	8	187	0.41
Grading	Rubber Tired Dozers	1	8	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8	97	0.37
Utilities	Trenchers	1	8	78	0.50
Utilities	Tractors/Loaders/Backhoes	1	8	97	0.37
Utilities	Rough Terrain Forklifts	1	8	100	0.40
Utilities	Excavators	1	8	158	0.38
Building Construction	Cranes	1	7	231	0.29
Building Construction	Forklifts	3	8	89	0.20
Building Construction	Generator Sets	1	8	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37
Building Construction	Welders	1	8	46	0.45
Paving	Paving Equipment	2	8	132	0.36
Paving	Pavers	2	8	130	0.42
Paving	Rollers	2	8	80	0.38
Architectural Coating	Air Compressors	1	6	78	0.48

SOURCE: CalEEMod Version 2016.3.2.

Operational Off-Road Equipment Assumptions

For operations, off-road equipment emissions were computed using the CARB's OFFROAD emission factors. Operation of the Project would require the use of additional heavy-duty equipment at the site to support new Project elements. Project operation would require the following new equipment (equipment is assumed to be diesel fueled unless otherwise noted):

- Wood Pellet Facility: Front-end loader and excavator.
- Waste Gasification Facility: 2 front-end loaders, 3 forklifts (electric), 3 boom lifts, a flatbed truck and 3 pick-up trucks (gasoline).
- Organic Waste Fertilizer Facility: Front-end loader and excavator.
- Thermal Pressure Hydrolysis System: Bulldozer and crane.

Emissions from off-road equipment activities were estimated based on the projected activity schedule, the number of vehicles/pieces of equipment, the types of equipment/type of fuel used, and the calendar year. Emission factors from the OFFROAD emissions model for year 2025 and 2030 were used. Since the horsepower (hp) and load factors of individual equipment are unknown at this time, composite emission rates were used which have hp rating and load factors built into the emission factors. It was assumed equipment would operate 9.5 hours per day and 330 days per year.

This information was applied to criteria pollutant emissions factors, in pounds per hour, derived using the OFFROAD emissions model. **Equation 1** outlines how off-road construction equipment emissions were computed, and the emissions factors used in this assessment are summarized, by equipment type within **Table 3** (year 2025) and **Table 4** (year 2030).

Equation 1

*Emission Rate (tons/year) = Emission Factor (pounds/hour) * hours of operation per year * number of pieces of equipment * (1/2000 ton/pounds)*

*Emission Rate (pounds/day) = Emission Factor (pounds/hour) * hours of operation per day * number of pieces of equipment*

TABLE 3
EMISSIONS FACTORS (pounds/hour) FOR OFFROAD EQUIPMENT FOR YEAR 2025

Vehicle Type	ROG	CO	NOx	SOx	PM10	PM2.5
Front End Loader (DSL)	0.016	0.403	0.153	0.000	0.006	0.006
Excavator (DSL)	0.020	0.440	0.156	0.001	0.006	0.005
Forklift (ELC)	0	0	0	0	0	0
Boom Lift (DSL)	0.010	0.048	0.076	0.000	0.003	0.003
Flat Bed Truck (DSL)	0.064	1.741	0.576	0.002	0.016	0.015
Pick Up Truck (GSL)	<0.001	0.006	<0.001	<0.001	<0.001	<0.001
Bulldozer (DSL)	0.016	0.403	0.153	0.000	0.006	0.006
Crane (DSL)	0.039	0.407	0.383	0.001	0.018	0.016

Note: DSL = Diesel, ELC = Electric, GSL =Gasoline.
Source: CARB OFFROAD Emissions Model.

TABLE 4
EMISSIONS FACTORS (pounds/hour) FOR OFFROAD EQUIPMENT FOR YEAR 2030

Vehicle Type	ROG	CO	NOx	SOx	PM10	PM2.5
Front End Loader (DSL)	0.014	0.414	0.125	0.000	0.004	0.003
Excavator (DSL)	0.018	0.449	0.118	0.001	0.004	0.003
Forklift (ELC)	0	0	0	0	0	0
Boom Lift (DSL)	0.010	0.048	0.076	0.000	0.003	0.003
Flat Bed Truck (DSL)	0.059	1.718	0.465	0.002	0.012	0.011
Pick Up Truck (GSL)	<0.001	0.006	<0.001	<0.001	<0.001	<0.001
Bulldozer (DSL)	0.014	0.414	0.125	0.000	0.004	0.003
Crane (DSL)	0.032	0.389	0.274	0.001	0.012	0.011

Note: DSL = Diesel, ELC = Electric, GSL =Gasoline.
Source: CARB OFFROAD Emissions Model.

Operational On-Road Vehicles Assumptions

Vehicular emissions were computed using the CARB's EMFAC emission factors for years 2025 and 2030. Operation of the Project would require an additional 258 heavy truck round trips per day from the following Project elements:

- Increased Daily Permitted Tonnage: 104 vehicles or heavy truck round trips per day
- Wood Pellet Facility: 8 vehicles or heavy truck round trips per day
- Waste Gasification Facility: 15 vehicles or heavy truck round trips per day
- Organic Waste Fertilizer Facility: 4 vehicles or heavy truck round trips per day
- Transfer Station: 25 vehicles or heavy truck round trips per day
- Non-Specific Future Borrow Site: 100 vehicles or heavy truck round trips per day
- Biogas to Methanol Pilot Facility: 2 vehicles or heavy truck round trips per day

The 104 round truck trips per day associated with the Increase Daily Permitted Tonnage (assumed to operate 359 days per year) were modeled as Heavy-Heavy Duty Solid Waste Collection Trucks assumed to be 80% diesel-fueled and 20% natural gas-fueled for year 2025 and 78% diesel-fueled and 22% natural gas-fueled for year 2030, based on EMFAC's vehicle population estimates for the Sacramento Valley Air Basin. The 100 round truck trips per day associated with the Non-Specific Future Borrow Site (assumed to operate 130 days per year) were modeled as Medium-Heavy Duty Diesel Instate Construction Trucks with a Gross Vehicle Weight Rating greater than 26,0000 pounds assumed to be 100% diesel-fueled. All other trucks were assumed to operate 330 days per year (with the exception of the Biogas to Methanol Pilot Facility which trucks would operate 110 days per year) were modeled as Heavy-Heavy Duty Diesel Tractor Trucks assumed to be 100% diesel-fueled. The Project would also add approximately 35 employees, thus 35 employee vehicle round trips were also modeled as a composite of the light duty automobile categories and fuel types.

The 104 round truck trips per day associated with the Increase Daily Permitted Tonnage assumed a 30-mile round trip distance within the YSAQMD. The 100 round truck trips per day associated with the Non-Specific Future Borrow Site assumed a 10-mile round trip distance within the YSAQMD. The Wood Pellet Facility, Organic Waste Fertilizer Facility and Biogas to Methanol Pilot Facility assumed a 30-mile round trip distance within the YSAQMD. The Waste Gasification facility assumed an 85-mile round trip distance (43 miles within the YSAQMD and 42 miles in other air districts). The Transfer Station assumed a 91-mile round trip distance (42 miles with the YSAQMD and 49 miles in other air districts). Employee trips assumed a 14-mile round trip distance, based on average vehicle trip length in EMFAC for the Sacramento Valley Air Basin.

Criteria pollutant emissions associated with on-road vehicles were calculated by combining the activity information with emissions factors, in grams per mile, derived using the EMFAC emissions model. Emissions calculations were based on **Equation 2**. The EMFAC emissions factors were developed for employee vehicles and heavy trucks. **Table 5** (year 2025) and **Table 6** (year 2030) displays the emission factors for trucks and employee vehicles.

Equation 2

*Emission Rate (tons/year) = Emission Factor (gram/mile) * trips per day * miles per trip * days/year * (453.59/2000 tons/gram)*

*Emission Rate (pounds/day) = Emission Factor (gram/mile) * trips per day * miles per trip * (1/453.59 pounds/gram)*

TABLE 5
EMISSIONS FACTORS (grams/mile) FOR ON-ROAD VEHICLES 2025

Vehicle Type	ROG	CO	NOx	SOx	PM10	PM2.5
Heavy-Heavy Duty Solid Waste Collection Trucks (80% DSL / 20% NG)	0.08	2.11	4.69	0.28	0.11	0.05
Medium-Heavy Duty Diesel Instate Construction Trucks (GVWR >26,000 lbs) (DSL)	0.02	0.20	2.43	0.01	0.15	0.07
Heavy-Heavy Duty Diesel Tractor Trucks (DSL)	0.02	0.17	2.24	0.01	0.13	0.06
Light Duty Automobiles Composite	0.03	0.76	0.11	0.00	0.05	0.02

Note: DSL = Diesel, NG = Natural Gas.

Source: CARB EMFAC Emissions Model.

TABLE 6
EMISSIONS FACTORS (grams/mile) FOR ON-ROAD VEHICLES 2030

Vehicle Type	ROG	CO	NOx	SOx	PM10	PM2.5
Heavy-Heavy Duty Solid Waste Collection Trucks (78% DSL / 22% NG)	0.06	2.41	2.83	0.02	0.11	0.05
Medium-Heavy Duty Diesel Instate Construction Trucks (GVWR >26,000 lbs) (DSL)	0.02	0.21	2.50	0.01	0.15	0.07
Heavy-Heavy Duty Diesel Tractor Trucks (DSL)	0.02	0.17	2.03	0.01	0.13	0.06
Light Duty Automobiles Composite	0.03	0.76	0.11	0.00	0.05	0.02

Note: DSL = Diesel, NG = Natural Gas.

Source: CARB EMFAC Emissions Model.

Criteria air pollutant emissions associated with heavy truck idling was calculated using emissions factors, in grams per vehicle per day, derived using the EMFAC emissions model. Emissions calculations were based on **Equation 3**. **Table 7** (year 2025) and **Table 8** (year 2030) displays the idling emission factors for heavy trucks.

Equation 3

*Emission Rate (tons/year) = Emission Factor (gram/trip/day) * trips per day * days/year * (453.59/2000 tons/gram)*

*Emission Rate (pounds/day) = Emission Factor (gram/trip/day) * trips per day * (1/453.59 pounds/gram)*

TABLE 7
EMISSIONS FACTORS (grams/vehicle/day) FOR HEAVY TRUCKS 2025

Vehicle Type	ROG	CO	NOx	SOx	PM10	PM2.5
Heavy-Heavy Duty Solid Waste Collection Trucks (80% DSL / 20% NG)	1.11	17.24	31.13	0.29	0.04	0.04
Medium-Heavy Duty Diesel Instate Construction Trucks (GVWR >26,000 lbs) (DSL)	0.05	2.07	2.97	0.01	<0.01	<0.01
Heavy-Heavy Duty Diesel Tractor Trucks (DSL)	1.85	27.18	22.46	0.04	0.01	0.01

Note: DSL = Diesel, NG = Natural Gas.

Source: CARB EMFAC Emissions Model.

TABLE 8
EMISSIONS FACTORS (grams/vehicle/day) FOR HEAVY TRUCKS 2030

Vehicle Type	ROG	CO	NOx	SOx	PM10	PM2.5
Heavy-Heavy Duty Solid Waste Collection Trucks (80% DSL / 20% NG)	1.12	19.37	25.34	0.03	0.04	0.04
Medium-Heavy Duty Diesel Instate Construction Trucks (GVWR >26,000 lbs) (DSL)	0.05	2.08	2.98	0.01	<0.01	<0.01
Heavy-Heavy Duty Diesel Tractor Trucks (DSL)	1.87	27.54	22.32	0.04	0.01	0.01

Note: DSL = Diesel, NG = Natural Gas.

Source: CARB EMFAC Emissions Model.

Criteria air pollutant emissions (PM10 and PM2.5) associated with entrained road dust was calculated based on **Equation 4** using the methodology found in Section 13.2.1, of the U.S. EPA's AP-42.[4]

Equation 4

Emission Factor (pounds/VMT) = k $(sL)^{0.91}$ x $(W)^{1.02}$ x (1-P/4N)

The following information were used to calculate the emission factors for PM_{10} and $PM_{2.5}$ entrained road dust which were multiplied by daily and annual VMT to calculate daily and annual emissions of PM_{10} and $PM_{2.5}$ from entrained road dust:

- k: 0.0022 for PM_{10} and 0.00054 for $PM_{2.5}$ (from U.S. EPA AP-42)
- sL: 0.0235 (assumed 50% freeway/highway travel and 50% local roadway travel)
- W (average weight of vehicles traveling the road): 20 tons
- P (number of wet days of at least 0.01 inch of precipitation): 59 days (based on precipitation data for Davis, CA)[5]
- N: 365 (because P was annual data)

Emission factors for entrained dust were calculated to be 0.0015 pounds/VMT for PM_{10} and 0.00036 pounds/VMT for $PM_{2.5}$.

[4] USEPA. January 2011. Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources, Section 13.2.1 Paved Roads. https://www.epa.gov/sites/production/files/2020-10/documents/13.2.1_paved_roads.pdf

[5] Western Regional Climate Center at https://wrcc.dri.edu/

Attachments

CalEEMod Emissions Outputs

Annual (34 pages)
Summer Daily (29 pages)
Winter Daily (29 pages)

Operational Emissions Summary in YSAQMD and in Other Air Districts 2025 (1 page)

Off-Road On-Site Mobile Equipment 2025 (1 page)

On-Road Mobile Source Truck Trips in YSAQMD 2025 (1 page)

On-Road Mobile Source Truck Trips in Other Air Districts 2025 (1 page)

On-Road Mobile Source Truck Idling in YSAQMD 2025 (1 page)

Operational Emissions Summary in YSAQMD and in Other Air Districts 2030 (1 page)

Off-Road On-Site Mobile Equipment 2030 (1 page)

On-Road Mobile Source Truck Trips in YSAQMD 2030 (1 page)

On-Road Mobile Source Truck Trips in Other Air Districts 2030 (1 page)

On-Road Mobile Source Truck Idling in YSAQMD 2030 (1 page)

Entrained Road Dust in YSAQMD (1 page)

Entrained Road Dust in Other Air Districts (1 page)

On-Road Mobile Employee Vehicle Trips (1 page)

Health Risk Assessment Technical Report (21 pages)

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	4.00	Acre	4.00	174,240.00	0
General Heavy Industry	41.50	1000sqft	4.00	41,500.00	0
General Heavy Industry	3.00	1000sqft	0.07	3,000.00	0
General Heavy Industry	16.00	1000sqft	0.37	16,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	6.8	**Precipitation Freq (Days)**	54
Climate Zone	2			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 4-acre non-asphalt surface = new surface impoundment
41,500 SF facility on 4 acers = waste gasification
3,000 SF facility = thermal pressure hydrolysis system
16,000 SF facility = Biogas to Methanol Pilot Facility

Construction Phase - Estimated at approximately 2 years

Off-road Equipment -

Grading - approximately an 8.5 acre footprint for the four project elements

Trips and VMT -

Vehicle Trips - construction only

Consumer Products - construction only

Area Coating - construction only

Landscape Equipment - construction only

Energy Use - construction only

Water And Wastewater - construction only

Solid Waste - construction only

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	30250	0
tblAreaCoating	Area_Nonresidential_Interior	90750	0
tblAreaCoating	Area_Parking	10454	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	130.00
tblConstructionPhase	PhaseEndDate	3/22/2024	10/18/2024
tblConstructionPhase	PhaseEndDate	1/26/2024	8/23/2024
tblConstructionPhase	PhaseEndDate	3/10/2023	7/14/2023
tblConstructionPhase	PhaseEndDate	2/23/2024	9/20/2024

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tblConstructionPhase	PhaseEndDate	2/10/2023	1/13/2023
tblConstructionPhase	PhaseStartDate	2/24/2024	9/21/2024
tblConstructionPhase	PhaseStartDate	3/11/2023	10/7/2023
tblConstructionPhase	PhaseStartDate	2/11/2023	1/14/2023
tblConstructionPhase	PhaseStartDate	1/27/2024	8/24/2024
tblConstructionPhase	PhaseStartDate	1/28/2023	1/2/2023
tblEnergyUse	LightingElect	2.60	0.00
tblEnergyUse	NT24E	4.20	0.00
tblEnergyUse	NT24NG	0.06	0.00
tblEnergyUse	T24E	1.65	0.00
tblEnergyUse	T24NG	18.58	0.00
tblGrading	AcresOfGrading	65.00	8.50
tblGrading	AcresOfGrading	0.00	8.50
tblLandUse	LotAcreage	0.95	4.00
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblSolidWaste	SolidWasteGenerationRate	75.02	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblVehicleTrips	ST_TR	1.50	0.00
tblVehicleTrips	SU_TR	1.50	0.00
tblVehicleTrips	WD_TR	1.50	0.00

tblWater	IndoorWaterUseRate	13,990,625.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2101	2.0700	1.9462	3.9600e-003	4.3959	0.0907	4.4866	0.6619	0.0838	0.7457						
2024	0.6232	1.5292	1.7326	3.9300e-003	8.3763	0.0581	8.4344	0.8498	0.0546	0.9044						
Maximum	**0.6232**	**2.0700**	**1.9462**	**3.9600e-003**	**8.3763**	**0.0907**	**8.4344**	**0.8498**	**0.0838**	**0.9044**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2101	2.0700	1.9462	3.9600e-003	2.6262	0.0907	2.7168	0.3657	0.0838	0.4495						
2024	0.6232	1.5292	1.7326	3.9300e-003	5.1597	0.0581	5.2177	0.5281	0.0546	0.5827						
Maximum	**0.6232**	**2.0700**	**1.9462**	**3.9600e-003**	**5.1597**	**0.0907**	**5.2177**	**0.5281**	**0.0838**	**0.5827**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**39.04**	**0.00**	**38.59**	**40.87**	**0.00**	**37.44**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-2-2023**	**4-1-2023**	0.6791	0.6791
2	**4-2-2023**	**7-1-2023**	0.6409	0.6409
3	**7-2-2023**	**10-1-2023**	0.3344	0.3344
4	**10-2-2023**	**1-1-2024**	0.6261	0.6261
5	**1-2-2024**	**4-1-2024**	0.6031	0.6031
6	**4-2-2024**	**7-1-2024**	0.6018	0.6018
7	**7-2-2024**	**9-30-2024**	0.6248	0.6248
		Highest	0.6791	0.6791

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2476	1.0000e-005	5.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Waste						0.0000	0.0000		0.0000	0.0000						
Water						0.0000	0.0000		0.0000	0.0000						
Total	**0.2476**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2476	1.0000e-005	5.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Waste						0.0000	0.0000		0.0000	0.0000						
Water						0.0000	0.0000		0.0000	0.0000						
Total	**0.2476**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	1/13/2023	5	10	
2	Grading	Grading	1/14/2023	7/14/2023	5	130	
3	Building Construction	Building Construction	10/7/2023	8/23/2024	5	230	
4	Paving	Paving	8/24/2024	9/20/2024	5	20	
5	Architectural Coating	Architectural Coating	9/21/2024	10/18/2024	5	20	
6	Utilities	Trenching	7/15/2023	10/6/2023	5	60	

Acres of Grading (Site Preparation Phase): 8.5

Acres of Grading (Grading Phase): 8.5

Acres of Paving: 4

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 90,750; Non-Residential Outdoor: 30,250; Striped Parking Area: 10,454 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Utilities	Trenchers	1	8.00	78	0.50
Utilities	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Utilities	Rough Terrain Forklifts	1	8.00	100	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45
Utilities	Excavators	1	8.00	158	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Utilities	4	10.00	0.00	8.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	99.00	38.00	0.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	20.00	0.00	0.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0948	0.0000	0.0948	0.0501	0.0000	0.0501						
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003						
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0948**	**6.3300e-003**	**0.1012**	**0.0501**	**5.8200e-003**	**0.0560**						

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	2.6000e-004	1.5000e-004	1.6800e-003	1.0000e-005	0.0683	0.0000	0.0684	6.9200e-003	0.0000	6.9300e-003						
Total	**2.6000e-004**	**1.5000e-004**	**1.6800e-003**	**1.0000e-005**	**0.0683**	**0.0000**	**0.0684**	**6.9200e-003**	**0.0000**	**6.9300e-003**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0427	0.0000	0.0427	0.0226	0.0000	0.0226						
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003						
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0427**	**6.3300e-003**	**0.0490**	**0.0226**	**5.8200e-003**	**0.0284**						

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	2.6000e-004	1.5000e-004	1.6800e-003	1.0000e-005	0.0421	0.0000	0.0421	4.3000e-003	0.0000	4.3000e-003						
Total	**2.6000e-004**	**1.5000e-004**	**1.6800e-003**	**1.0000e-005**	**0.0421**	**0.0000**	**0.0421**	**4.3000e-003**	**0.0000**	**4.3000e-003**						

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3959	0.0000	0.3959	0.2157	0.0000	0.2157						
Off-Road	0.1112	1.1658	0.9588	1.9300e-003		0.0504	0.0504		0.0463	0.0463						
Total	**0.1112**	**1.1658**	**0.9588**	**1.9300e-003**	**0.3959**	**0.0504**	**0.4463**	**0.2157**	**0.0463**	**0.2620**						

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	2.8000e-003	1.6600e-003	0.0182	6.0000e-005	0.7404	4.0000e-005	0.7404	0.0750	4.0000e-005	0.0751						
Total	**2.8000e-003**	**1.6600e-003**	**0.0182**	**6.0000e-005**	**0.7404**	**4.0000e-005**	**0.7404**	**0.0750**	**4.0000e-005**	**0.0751**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1782	0.0000	0.1782	0.0970	0.0000	0.0970						
Off-Road	0.1112	1.1658	0.9588	1.9300e-003		0.0504	0.0504		0.0463	0.0463						
Total	**0.1112**	**1.1658**	**0.9588**	**1.9300e-003**	**0.1782**	**0.0504**	**0.2285**	**0.0970**	**0.0463**	**0.1434**						

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	2.8000e-003	1.6600e-003	0.0182	6.0000e-005	0.4559	4.0000e-005	0.4560	0.0466	4.0000e-005	0.0466						
Total	**2.8000e-003**	**1.6600e-003**	**0.0182**	**6.0000e-005**	**0.4559**	**4.0000e-005**	**0.4560**	**0.0466**	**4.0000e-005**	**0.0466**						

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0472	0.4316	0.4873	8.1000e-004		0.0210	0.0210		0.0198	0.0198						
Total	**0.0472**	**0.4316**	**0.4873**	**8.1000e-004**		**0.0210**	**0.0210**		**0.0198**	**0.0198**						

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	2.0900e-003	0.0947	0.0157	3.0000e-004	0.6073	9.0000e-005	0.6074	0.0619	9.0000e-005	0.0620						
Worker	8.5300e-003	5.0700e-003	0.0555	1.9000e-004	2.2553	1.3000e-004	2.2554	0.2285	1.2000e-004	0.2286						
Total	**0.0106**	**0.0997**	**0.0712**	**4.9000e-004**	**2.8625**	**2.2000e-004**	**2.8628**	**0.2904**	**2.1000e-004**	**0.2906**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0472	0.4316	0.4873	8.1000e-004		0.0210	0.0210		0.0198	0.0198						
Total	**0.0472**	**0.4316**	**0.4873**	**8.1000e-004**		**0.0210**	**0.0210**		**0.0198**	**0.0198**						

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	2.0900e-003	0.0947	0.0157	3.0000e-004	0.3745	9.0000e-005	0.3746	0.0386	9.0000e-005	0.0387						
Worker	8.5300e-003	5.0700e-003	0.0555	1.9000e-004	1.3888	1.3000e-004	1.3890	0.1419	1.2000e-004	0.1420						
Total	**0.0106**	**0.0997**	**0.0712**	**4.9000e-004**	**1.7633**	**2.2000e-004**	**1.7635**	**0.1805**	**2.1000e-004**	**0.1807**						

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1251	1.1427	1.3742	2.2900e-003		0.0521	0.0521		0.0490	0.0490						
Total	**0.1251**	**1.1427**	**1.3742**	**2.2900e-003**		**0.0521**	**0.0521**		**0.0490**	**0.0490**						

3.4 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	5.7400e-003	0.2656	0.0424	8.4000e-004	1.7206	2.6000e-004	1.7209	0.1754	2.4000e-004	0.1757						
Worker	0.0227	0.0130	0.1455	5.2000e-004	6.3899	3.7000e-004	6.3903	0.6475	3.4000e-004	0.6478						
Total	**0.0285**	**0.2785**	**0.1880**	**1.3600e-003**	**8.1105**	**6.3000e-004**	**8.1112**	**0.8229**	**5.8000e-004**	**0.8235**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1251	1.1427	1.3742	2.2900e-003		0.0521	0.0521		0.0490	0.0490						
Total	**0.1251**	**1.1427**	**1.3742**	**2.2900e-003**		**0.0521**	**0.0521**		**0.0490**	**0.0490**						

3.4 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	5.7400e-003	0.2656	0.0424	8.4000e-004	1.0610	2.6000e-004	1.0613	0.1095	2.4000e-004	0.1097						
Worker	0.0227	0.0130	0.1455	5.2000e-004	3.9350	3.7000e-004	3.9354	0.4020	3.4000e-004	0.4023						
Total	**0.0285**	**0.2785**	**0.1880**	**1.3600e-003**	**4.9960**	**6.3000e-004**	**4.9966**	**0.5114**	**5.8000e-004**	**0.5120**						

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003						
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						
Total	**9.8800e-003**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**						

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	4.1000e-004	2.3000e-004	2.5900e-003	1.0000e-005	0.1139	1.0000e-005	0.1139	0.0115	1.0000e-005	0.0116						
Total	**4.1000e-004**	**2.3000e-004**	**2.5900e-003**	**1.0000e-005**	**0.1139**	**1.0000e-005**	**0.1139**	**0.0115**	**1.0000e-005**	**0.0116**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003						
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						
Total	**9.8800e-003**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**						

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	4.1000e-004	2.3000e-004	2.5900e-003	1.0000e-005	0.0701	1.0000e-005	0.0702	7.1700e-003	1.0000e-005	7.1700e-003						
Total	**4.1000e-004**	**2.3000e-004**	**2.5900e-003**	**1.0000e-005**	**0.0701**	**1.0000e-005**	**0.0702**	**7.1700e-003**	**1.0000e-005**	**7.1700e-003**						

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4570					0.0000	0.0000		0.0000	0.0000						
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004						
Total	**0.4588**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**						

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	5.4000e-004	3.1000e-004	3.4600e-003	1.0000e-005	0.1519	1.0000e-005	0.1519	0.0154	1.0000e-005	0.0154						
Total	**5.4000e-004**	**3.1000e-004**	**3.4600e-003**	**1.0000e-005**	**0.1519**	**1.0000e-005**	**0.1519**	**0.0154**	**1.0000e-005**	**0.0154**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4570					0.0000	0.0000		0.0000	0.0000						
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004						
Total	**0.4588**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**						

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	5.4000e-004	3.1000e-004	3.4600e-003	1.0000e-005	0.0935	1.0000e-005	0.0935	9.5500e-003	1.0000e-005	9.5600e-003						
Total	**5.4000e-004**	**3.1000e-004**	**3.4600e-003**	**1.0000e-005**	**0.0935**	**1.0000e-005**	**0.0935**	**9.5500e-003**	**1.0000e-005**	**9.5600e-003**						

3.7 Utilities - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0239	0.2323	0.3120	4.5000e-004		0.0127	0.0127		0.0117	0.0117						
Total	**0.0239**	**0.2323**	**0.3120**	**4.5000e-004**		**0.0127**	**0.0127**		**0.0117**	**0.0117**						

3.7 Utilities - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	6.5000e-004	1.4000e-004	0.0000	6.0800e-003	0.0000	6.0800e-003	6.2000e-004	0.0000	6.2000e-004						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	8.6000e-004	5.1000e-004	5.6100e-003	2.0000e-005	0.2278	1.0000e-005	0.2278	0.0231	1.0000e-005	0.0231						
Total	**8.8000e-004**	**1.1600e-003**	**5.7500e-003**	**2.0000e-005**	**0.2339**	**1.0000e-005**	**0.2339**	**0.0237**	**1.0000e-005**	**0.0237**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0239	0.2323	0.3120	4.5000e-004		0.0127	0.0127		0.0117	0.0117						
Total	**0.0239**	**0.2323**	**0.3120**	**4.5000e-004**		**0.0127**	**0.0127**		**0.0117**	**0.0117**						

3.7 Utilities - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-005	6.5000e-004	1.4000e-004	0.0000	3.7500e-003	0.0000	3.7500e-003	3.8000e-004	0.0000	3.9000e-004						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	8.6000e-004	5.1000e-004	5.6100e-003	2.0000e-005	0.1403	1.0000e-005	0.1403	0.0143	1.0000e-005	0.0143						
Total	**8.8000e-004**	**1.1600e-003**	**5.7500e-003**	**2.0000e-005**	**0.1440**	**1.0000e-005**	**0.1441**	**0.0147**	**1.0000e-005**	**0.0147**						

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	0.00	0.00	0.00		
General Heavy Industry	0.00	0.00	0.00		
General Heavy Industry	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	10.00	5.00	7.00	59.00	28.00	13.00	92	5	3
General Heavy Industry	10.00	5.00	7.00	59.00	28.00	13.00	92	5	3
General Heavy Industry	10.00	5.00	7.00	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	10.00	5.00	7.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.500140	0.037139	0.211039	0.110788	0.018036	0.004853	0.065762	0.042724	0.001016	0.001558	0.005534	0.000732	0.000681
Other Non-Asphalt Surfaces	0.500140	0.037139	0.211039	0.110788	0.018036	0.004853	0.065762	0.042724	0.001016	0.001558	0.005534	0.000732	0.000681

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	0				
Other Non-Asphalt Surfaces	0				
Total					

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	0				
Other Non-Asphalt Surfaces	0				
Total					

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2476	1.0000e-005	5.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Unmitigated	0.2476	1.0000e-005	5.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.2476					0.0000	0.0000		0.0000	0.0000						
Landscaping	5.0000e-005	1.0000e-005	5.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Total	**0.2476**	**1.0000e-005**	**5.9000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.2476					0.0000	0.0000		0.0000	0.0000						
Landscaping	5.0000e-005	1.0000e-005	5.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Total	**0.2476**	**1.0000e-005**	**5.9000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				
Unmitigated				

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0 / 0				
Other Non-Asphalt Surfaces	0 / 0				
Total					

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0 / 0				
Other Non-Asphalt Surfaces	0 / 0				
Total					

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				
Unmitigated				

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	0				
Other Non-Asphalt Surfaces	0				
Total					

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	0				
Other Non-Asphalt Surfaces	0				
Total					

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

YCCL Permit Revisions Construction

Yolo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	4.00	Acre	4.00	174,240.00	0
General Heavy Industry	41.50	1000sqft	4.00	41,500.00	0
General Heavy Industry	3.00	1000sqft	0.07	3,000.00	0
General Heavy Industry	16.00	1000sqft	0.37	16,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	6.8	**Precipitation Freq (Days)**	54
Climate Zone	2			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

YCCL Permit Revisions Construction - Yolo County, Summer

Project Characteristics -

Land Use - 4-acre non-asphalt surface = new surface impoundment
41,500 SF facility on 4 acers = waste gasification
3,000 SF facility = thermal pressure hydrolysis system
16,000 SF facility = Biogas to Methanol Pilot Facility

Construction Phase - Estimated at approximately 2 years

Off-road Equipment -

Grading - approximately an 8.5 acre footprint for the four project elements

Trips and VMT -

Vehicle Trips - construction only

Consumer Products - construction only

Area Coating - construction only

Landscape Equipment - construction only

Energy Use - construction only

Water And Wastewater - construction only

Solid Waste - construction only

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	30250	0
tblAreaCoating	Area_Nonresidential_Interior	90750	0
tblAreaCoating	Area_Parking	10454	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	130.00
tblConstructionPhase	PhaseEndDate	3/22/2024	10/18/2024
tblConstructionPhase	PhaseEndDate	1/26/2024	8/23/2024
tblConstructionPhase	PhaseEndDate	3/10/2023	7/14/2023
tblConstructionPhase	PhaseEndDate	2/23/2024	9/20/2024

YCCL Permit Revisions Construction - Yolo County, Summer

tblConstructionPhase	PhaseEndDate	2/10/2023	1/13/2023
tblConstructionPhase	PhaseStartDate	2/24/2024	9/21/2024
tblConstructionPhase	PhaseStartDate	3/11/2023	10/7/2023
tblConstructionPhase	PhaseStartDate	2/11/2023	1/14/2023
tblConstructionPhase	PhaseStartDate	1/27/2024	8/24/2024
tblConstructionPhase	PhaseStartDate	1/28/2023	1/2/2023
tblEnergyUse	LightingElect	2.60	0.00
tblEnergyUse	NT24E	4.20	0.00
tblEnergyUse	NT24NG	0.06	0.00
tblEnergyUse	T24E	1.65	0.00
tblEnergyUse	T24NG	18.58	0.00
tblGrading	AcresOfGrading	65.00	8.50
tblGrading	AcresOfGrading	0.00	8.50
tblLandUse	LotAcreage	0.95	4.00
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblSolidWaste	SolidWasteGenerationRate	75.02	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblVehicleTrips	ST_TR	1.50	0.00
tblVehicleTrips	SU_TR	1.50	0.00
tblVehicleTrips	WD_TR	1.50	0.00

tblWater	IndoorWaterUseRate	13,990,625.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.7188	27.5520	18.8931	0.0440	111.8550	1.2668	112.5622	11.6486	1.1655	12.8141						
2024	45.9394	16.6737	18.6356	0.0437	111.8549	0.6206	112.4755	11.3253	0.5837	11.9090						
Maximum	**45.9394**	**27.5520**	**18.8931**	**0.0440**	**111.8550**	**1.2668**	**112.5622**	**11.6486**	**1.1655**	**12.8141**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.7188	27.5520	18.8931	0.0440	68.8511	1.2668	69.5583	7.0249	1.1655	7.6903						
2024	45.9394	16.6737	18.6356	0.0437	68.8511	0.6206	69.4717	7.0249	0.5837	7.6086						
Maximum	**45.9394**	**27.5520**	**18.8931**	**0.0440**	**68.8511**	**1.2668**	**69.5583**	**7.0249**	**1.1655**	**7.6903**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	38.45	0.00	38.22	38.84	0.00	38.12	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.3570	6.0000e-005	6.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**1.3570**	**6.0000e-005**	**6.5700e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.3570	6.0000e-005	6.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**1.3570**	**6.0000e-005**	**6.5700e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**						

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	1/13/2023	5	10	
2	Grading	Grading	1/14/2023	7/14/2023	5	130	
3	Building Construction	Building Construction	10/7/2023	8/23/2024	5	230	
4	Paving	Paving	8/24/2024	9/20/2024	5	20	
5	Architectural Coating	Architectural Coating	9/21/2024	10/18/2024	5	20	
6	Utilities	Trenching	7/15/2023	10/6/2023	5	60	

Acres of Grading (Site Preparation Phase): 8.5

Acres of Grading (Grading Phase): 8.5

Acres of Paving: 4

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 90,750; Non-Residential Outdoor: 30,250; Striped Parking Area: 10,454 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Utilities	Trenchers	1	8.00	78	0.50
Utilities	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Utilities	Rough Terrain Forklifts	1	8.00	100	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45
Utilities	Excavators	1	8.00	158	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Utilities	4	10.00	0.00	8.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	99.00	38.00	0.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	20.00	0.00	0.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.9677	0.0000	18.9677	10.0280	0.0000	10.0280						
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647						
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**18.9677**	**1.2660**	**20.2337**	**10.0280**	**1.1647**	**11.1928**						

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0594	0.0278	0.3930	1.2700e-003	16.0239	8.1000e-004	16.0247	1.6206	7.4000e-004	1.6214						
Total	**0.0594**	**0.0278**	**0.3930**	**1.2700e-003**	**16.0239**	**8.1000e-004**	**16.0247**	**1.6206**	**7.4000e-004**	**1.6214**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.5355	0.0000	8.5355	4.5126	0.0000	4.5126						
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647						
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**8.5355**	**1.2660**	**9.8015**	**4.5126**	**1.1647**	**5.6774**						

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0594	0.0278	0.3930	1.2700e-003	9.8609	8.1000e-004	9.8618	1.0043	7.4000e-004	1.0051						
Total	**0.0594**	**0.0278**	**0.3930**	**1.2700e-003**	**9.8609**	**8.1000e-004**	**9.8618**	**1.0043**	**7.4000e-004**	**1.0051**						

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0914	0.0000	6.0914	3.3177	0.0000	3.3177						
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129						
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**6.0914**	**0.7749**	**6.8664**	**3.3177**	**0.7129**	**4.0306**						

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0495	0.0232	0.3275	1.0600e-003	13.3533	6.7000e-004	13.3539	1.3505	6.2000e-004	1.3511						
Total	**0.0495**	**0.0232**	**0.3275**	**1.0600e-003**	**13.3533**	**6.7000e-004**	**13.3539**	**1.3505**	**6.2000e-004**	**1.3511**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7411	0.0000	2.7411	1.4930	0.0000	1.4930						
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129						
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**2.7411**	**0.7749**	**3.5161**	**1.4930**	**0.7129**	**2.2059**						

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0495	0.0232	0.3275	1.0600e-003	8.2175	6.7000e-004	8.2181	0.8369	6.2000e-004	0.8375						
Total	**0.0495**	**0.0232**	**0.3275**	**1.0600e-003**	**8.2175**	**6.7000e-004**	**8.2181**	**0.8369**	**6.2000e-004**	**0.8375**						

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584						
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**						

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0682	3.1221	0.4874	0.0101	23.7234	3.0200e-003	23.7265	2.4120	2.8900e-003	2.4149						
Worker	0.3265	0.1529	2.1616	6.9800e-003	88.1315	4.4500e-003	88.1360	8.9133	4.1000e-003	8.9174						
Total	**0.3948**	**3.2750**	**2.6491**	**0.0171**	**111.8550**	**7.4700e-003**	**111.8624**	**11.3253**	**6.9900e-003**	**11.3323**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584						
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**						

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0682	3.1221	0.4874	0.0101	14.6159	3.0200e-003	14.6190	1.5012	2.8900e-003	1.5041						
Worker	0.3265	0.1529	2.1616	6.9800e-003	54.2352	4.4500e-003	54.2396	5.5237	4.1000e-003	5.5278						
Total	**0.3948**	**3.2750**	**2.6491**	**0.0171**	**68.8511**	**7.4700e-003**	**68.8586**	**7.0249**	**6.9900e-003**	**7.0319**						

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769						
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**						

3.4 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0662	3.0919	0.4653	0.0100	23.7234	2.9500e-003	23.7264	2.4120	2.8200e-003	2.4148						
Worker	0.3067	0.1380	2.0034	6.7000e-003	88.1315	4.3500e-003	88.1359	8.9133	4.0000e-003	8.9173						
Total	**0.3729**	**3.2299**	**2.4688**	**0.0167**	**111.8549**	**7.3000e-003**	**111.8622**	**11.3253**	**6.8200e-003**	**11.3321**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769						
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**						

3.4 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0662	3.0919	0.4653	0.0100	14.6159	2.9500e-003	14.6189	1.5012	2.8200e-003	1.5040						
Worker	0.3067	0.1380	2.0034	6.7000e-003	54.2352	4.3500e-003	54.2395	5.5237	4.0000e-003	5.5277						
Total	**0.3729**	**3.2299**	**2.4688**	**0.0167**	**68.8511**	**7.3000e-003**	**68.8584**	**7.0249**	**6.8200e-003**	**7.0317**						

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310						
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**						

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0465	0.0209	0.3036	1.0200e-003	13.3533	6.6000e-004	13.3539	1.3505	6.1000e-004	1.3511						
Total	**0.0465**	**0.0209**	**0.3036**	**1.0200e-003**	**13.3533**	**6.6000e-004**	**13.3539**	**1.3505**	**6.1000e-004**	**1.3511**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310						
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**						

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0465	0.0209	0.3036	1.0200e-003	8.2175	6.6000e-004	8.2181	0.8369	6.1000e-004	0.8375						
Total	**0.0465**	**0.0209**	**0.3036**	**1.0200e-003**	**8.2175**	**6.6000e-004**	**8.2181**	**0.8369**	**6.1000e-004**	**0.8375**						

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	45.6967					0.0000	0.0000		0.0000	0.0000						
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609						
Total	**45.8775**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**						

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0620	0.0279	0.4047	1.3500e-003	17.8044	8.8000e-004	17.8052	1.8007	8.1000e-004	1.8015						
Total	**0.0620**	**0.0279**	**0.4047**	**1.3500e-003**	**17.8044**	**8.8000e-004**	**17.8052**	**1.8007**	**8.1000e-004**	**1.8015**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	45.6967					0.0000	0.0000		0.0000	0.0000						
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609						
Total	**45.8775**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**						

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0620	0.0279	0.4047	1.3500e-003	10.9566	8.8000e-004	10.9575	1.1159	8.1000e-004	1.1167						
Total	**0.0620**	**0.0279**	**0.4047**	**1.3500e-003**	**10.9566**	**8.8000e-004**	**10.9575**	**1.1159**	**8.1000e-004**	**1.1167**						

3.7 Utilities - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7951	7.7415	10.4001	0.0152		0.4223	0.4223		0.3885	0.3885						
Total	**0.7951**	**7.7415**	**10.4001**	**0.0152**		**0.4223**	**0.4223**		**0.3885**	**0.3885**						

3.7 Utilities - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.3000e-004	0.0213	4.4500e-003	1.1000e-004	0.2377	4.0000e-005	0.2377	0.0241	4.0000e-005	0.0241						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0330	0.0155	0.2184	7.0000e-004	8.9022	4.5000e-004	8.9026	0.9003	4.1000e-004	0.9008						
Total	**0.0336**	**0.0368**	**0.2228**	**8.1000e-004**	**9.1399**	**4.9000e-004**	**9.1403**	**0.9244**	**4.5000e-004**	**0.9249**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7951	7.7415	10.4001	0.0152		0.4223	0.4223		0.3885	0.3885						
Total	**0.7951**	**7.7415**	**10.4001**	**0.0152**		**0.4223**	**0.4223**		**0.3885**	**0.3885**						

3.7 Utilities - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.3000e-004	0.0213	4.4500e-003	1.1000e-004	0.1464	4.0000e-005	0.1464	0.0150	4.0000e-005	0.0150						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0330	0.0155	0.2184	7.0000e-004	5.4783	4.5000e-004	5.4788	0.5580	4.1000e-004	0.5584						
Total	**0.0336**	**0.0368**	**0.2228**	**8.1000e-004**	**5.6247**	**4.9000e-004**	**5.6252**	**0.5729**	**4.5000e-004**	**0.5734**						

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	0.00	0.00	0.00		
General Heavy Industry	0.00	0.00	0.00		
General Heavy Industry	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	10.00	5.00	7.00	59.00	28.00	13.00	92	5	3
General Heavy Industry	10.00	5.00	7.00	59.00	28.00	13.00	92	5	3
General Heavy Industry	10.00	5.00	7.00	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	10.00	5.00	7.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.500140	0.037139	0.211039	0.110788	0.018036	0.004853	0.065762	0.042724	0.001016	0.001558	0.005534	0.000732	0.000681
Other Non-Asphalt Surfaces	0.500140	0.037139	0.211039	0.110788	0.018036	0.004853	0.065762	0.042724	0.001016	0.001558	0.005534	0.000732	0.000681

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.3570	6.0000e-005	6.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Unmitigated	1.3570	6.0000e-005	6.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						
Consumer Products	1.3564					0.0000	0.0000		0.0000	0.0000						
Landscaping	6.0000e-004	6.0000e-005	6.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Total	**1.3570**	**6.0000e-005**	**6.5700e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**						

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						
Consumer Products	1.3564					0.0000	0.0000		0.0000	0.0000						
Landscaping	6.0000e-004	6.0000e-005	6.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Total	**1.3570**	**6.0000e-005**	**6.5700e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**						

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

YCCL Permit Revisions Construction

Yolo County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	4.00	Acre	4.00	174,240.00	0
General Heavy Industry	41.50	1000sqft	4.00	41,500.00	0
General Heavy Industry	3.00	1000sqft	0.07	3,000.00	0
General Heavy Industry	16.00	1000sqft	0.37	16,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	6.8	**Precipitation Freq (Days)**	54
Climate Zone	2			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

YCCL Permit Revisions Construction - Yolo County, Winter

Project Characteristics -

Land Use - 4-acre non-asphalt surface = new surface impoundment
41,500 SF facility on 4 acers = waste gasification
3,000 SF facility = thermal pressure hydrolysis system
16,000 SF facility = Biogas to Methanol Pilot Facility

Construction Phase - Estimated at approximately 2 years

Off-road Equipment -

Grading - approximately an 8.5 acre footprint for the four project elements

Trips and VMT -

Vehicle Trips - construction only

Consumer Products - construction only

Area Coating - construction only

Landscape Equipment - construction only

Energy Use - construction only

Water And Wastewater - construction only

Solid Waste - construction only

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	30250	0
tblAreaCoating	Area_Nonresidential_Interior	90750	0
tblAreaCoating	Area_Parking	10454	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	130.00
tblConstructionPhase	PhaseEndDate	3/22/2024	10/18/2024
tblConstructionPhase	PhaseEndDate	1/26/2024	8/23/2024
tblConstructionPhase	PhaseEndDate	3/10/2023	7/14/2023
tblConstructionPhase	PhaseEndDate	2/23/2024	9/20/2024

YCCL Permit Revisions Construction - Yolo County, Winter

tblConstructionPhase	PhaseEndDate	2/10/2023	1/13/2023
tblConstructionPhase	PhaseStartDate	2/24/2024	9/21/2024
tblConstructionPhase	PhaseStartDate	3/11/2023	10/7/2023
tblConstructionPhase	PhaseStartDate	2/11/2023	1/14/2023
tblConstructionPhase	PhaseStartDate	1/27/2024	8/24/2024
tblConstructionPhase	PhaseStartDate	1/28/2023	1/2/2023
tblEnergyUse	LightingElect	2.60	0.00
tblEnergyUse	NT24E	4.20	0.00
tblEnergyUse	NT24NG	0.06	0.00
tblEnergyUse	T24E	1.65	0.00
tblEnergyUse	T24NG	18.58	0.00
tblGrading	AcresOfGrading	65.00	8.50
tblGrading	AcresOfGrading	0.00	8.50
tblLandUse	LotAcreage	0.95	4.00
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Rough Terrain Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblSolidWaste	SolidWasteGenerationRate	75.02	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	8.00
tblVehicleTrips	ST_TR	1.50	0.00
tblVehicleTrips	SU_TR	1.50	0.00
tblVehicleTrips	WD_TR	1.50	0.00

tblWater	IndoorWaterUseRate	13,990,625.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.7147	27.5587	18.6956	0.0429	111.8550	1.2668	112.5623	11.6486	1.1655	12.8141						
2024	45.9353	16.7293	18.4479	0.0426	111.8549	0.6207	112.4757	11.3253	0.5838	11.9091						
Maximum	**45.9353**	**27.5587**	**18.6956**	**0.0429**	**111.8550**	**1.2668**	**112.5623**	**11.6486**	**1.1655**	**12.8141**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.7147	27.5587	18.6956	0.0429	68.8511	1.2668	69.5585	7.0249	1.1655	7.6904						
2024	45.9353	16.7293	18.4479	0.0426	68.8511	0.6207	69.4718	7.0249	0.5838	7.6087						
Maximum	**45.9353**	**27.5587**	**18.6956**	**0.0429**	**68.8511**	**1.2668**	**69.5585**	**7.0249**	**1.1655**	**7.6904**						

YCCL Permit Revisions Construction - Yolo County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	38.45	0.00	38.22	38.84	0.00	38.12	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.3570	6.0000e-005	6.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**1.3570**	**6.0000e-005**	**6.5700e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.3570	6.0000e-005	6.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**1.3570**	**6.0000e-005**	**6.5700e-003**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**2.0000e-005**						

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/2/2023	1/13/2023	5	10	
2	Grading	Grading	1/14/2023	7/14/2023	5	130	
3	Building Construction	Building Construction	10/7/2023	8/23/2024	5	230	
4	Paving	Paving	8/24/2024	9/20/2024	5	20	
5	Architectural Coating	Architectural Coating	9/21/2024	10/18/2024	5	20	
6	Utilities	Trenching	7/15/2023	10/6/2023	5	60	

Acres of Grading (Site Preparation Phase): 8.5

Acres of Grading (Grading Phase): 8.5

Acres of Paving: 4

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 90,750; Non-Residential Outdoor: 30,250; Striped Parking Area: 10,454 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Utilities	Trenchers	1	8.00	78	0.50
Utilities	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Utilities	Rough Terrain Forklifts	1	8.00	100	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Welders	1	8.00	46	0.45
Utilities	Excavators	1	8.00	158	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Utilities	4	10.00	0.00	8.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	99.00	38.00	0.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	20.00	0.00	0.00	10.00	7.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.9677	0.0000	18.9677	10.0280	0.0000	10.0280						
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647						
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**18.9677**	**1.2660**	**20.2337**	**10.0280**	**1.1647**	**11.1928**						

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0552	0.0346	0.3414	1.1200e-003	16.0239	8.1000e-004	16.0247	1.6206	7.4000e-004	1.6214						
Total	**0.0552**	**0.0346**	**0.3414**	**1.1200e-003**	**16.0239**	**8.1000e-004**	**16.0247**	**1.6206**	**7.4000e-004**	**1.6214**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.5355	0.0000	8.5355	4.5126	0.0000	4.5126						
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647						
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**8.5355**	**1.2660**	**9.8015**	**4.5126**	**1.1647**	**5.6774**						

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0552	0.0346	0.3414	1.1200e-003	9.8609	8.1000e-004	9.8618	1.0043	7.4000e-004	1.0051						
Total	**0.0552**	**0.0346**	**0.3414**	**1.1200e-003**	**9.8609**	**8.1000e-004**	**9.8618**	**1.0043**	**7.4000e-004**	**1.0051**						

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0914	0.0000	6.0914	3.3177	0.0000	3.3177						
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129						
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**6.0914**	**0.7749**	**6.8664**	**3.3177**	**0.7129**	**4.0306**						

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0460	0.0288	0.2845	9.3000e-004	13.3533	6.7000e-004	13.3539	1.3505	6.2000e-004	1.3511						
Total	**0.0460**	**0.0288**	**0.2845**	**9.3000e-004**	**13.3533**	**6.7000e-004**	**13.3539**	**1.3505**	**6.2000e-004**	**1.3511**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.7411	0.0000	2.7411	1.4930	0.0000	1.4930						
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129						
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**2.7411**	**0.7749**	**3.5161**	**1.4930**	**0.7129**	**2.2059**						

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day								lb/day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0460	0.0288	0.2845	9.3000e-004	8.2175	6.7000e-004	8.2181	0.8369	6.2000e-004	0.8375						
Total	**0.0460**	**0.0288**	**0.2845**	**9.3000e-004**	**8.2175**	**6.7000e-004**	**8.2181**	**0.8369**	**6.2000e-004**	**0.8375**						

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day								lb/day		
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584						
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**						

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0721	3.1447	0.5742	9.8000e-003	23.7234	3.1600e-003	23.7266	2.4120	3.0300e-003	2.4150						
Worker	0.3038	0.1901	1.8774	6.1600e-003	88.1315	4.4500e-003	88.1360	8.9133	4.1000e-003	8.9174						
Total	**0.3759**	**3.3348**	**2.4516**	**0.0160**	**111.8550**	**7.6100e-003**	**111.8626**	**11.3253**	**7.1300e-003**	**11.3324**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584						
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**						

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0721	3.1447	0.5742	9.8000e-003	14.6159	3.1600e-003	14.6191	1.5012	3.0300e-003	1.5043						
Worker	0.3038	0.1901	1.8774	6.1600e-003	54.2352	4.4500e-003	54.2396	5.5237	4.1000e-003	5.5278						
Total	**0.3759**	**3.3348**	**2.4516**	**0.0160**	**68.8511**	**7.6100e-003**	**68.8587**	**7.0249**	**7.1300e-003**	**7.0320**						

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769						
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**						

3.4 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0699	3.1140	0.5472	9.7400e-003	23.7234	3.0700e-003	23.7265	2.4120	2.9400e-003	2.4149						
Worker	0.2861	0.1715	1.7339	5.9200e-003	88.1315	4.3500e-003	88.1359	8.9133	4.0000e-003	8.9173						
Total	**0.3560**	**3.2855**	**2.2810**	**0.0157**	**111.8549**	**7.4200e-003**	**111.8624**	**11.3253**	**6.9400e-003**	**11.3322**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769						
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**						

3.4 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0699	3.1140	0.5472	9.7400e-003	14.6159	3.0700e-003	14.6190	1.5012	2.9400e-003	1.5042						
Worker	0.2861	0.1715	1.7339	5.9200e-003	54.2352	4.3500e-003	54.2395	5.5237	4.0000e-003	5.5277						
Total	**0.3560**	**3.2855**	**2.2810**	**0.0157**	**68.8511**	**7.4200e-003**	**68.8585**	**7.0249**	**6.9400e-003**	**7.0318**						

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310						
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**						

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0433	0.0260	0.2627	9.0000e-004	13.3533	6.6000e-004	13.3539	1.3505	6.1000e-004	1.3511						
Total	**0.0433**	**0.0260**	**0.2627**	**9.0000e-004**	**13.3533**	**6.6000e-004**	**13.3539**	**1.3505**	**6.1000e-004**	**1.3511**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310						
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**						

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0433	0.0260	0.2627	9.0000e-004	8.2175	6.6000e-004	8.2181	0.8369	6.1000e-004	0.8375						
Total	**0.0433**	**0.0260**	**0.2627**	**9.0000e-004**	**8.2175**	**6.6000e-004**	**8.2181**	**0.8369**	**6.1000e-004**	**0.8375**						

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	45.6967					0.0000	0.0000		0.0000	0.0000						
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609						
Total	**45.8775**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**						

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0578	0.0347	0.3503	1.2000e-003	17.8044	8.8000e-004	17.8052	1.8007	8.1000e-004	1.8015						
Total	**0.0578**	**0.0347**	**0.3503**	**1.2000e-003**	**17.8044**	**8.8000e-004**	**17.8052**	**1.8007**	**8.1000e-004**	**1.8015**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	45.6967					0.0000	0.0000		0.0000	0.0000						
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609						
Total	**45.8775**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**						

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0578	0.0347	0.3503	1.2000e-003	10.9566	8.8000e-004	10.9575	1.1159	8.1000e-004	1.1167						
Total	**0.0578**	**0.0347**	**0.3503**	**1.2000e-003**	**10.9566**	**8.8000e-004**	**10.9575**	**1.1159**	**8.1000e-004**	**1.1167**						

3.7 Utilities - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7951	7.7415	10.4001	0.0152		0.4223	0.4223		0.3885	0.3885						
Total	**0.7951**	**7.7415**	**10.4001**	**0.0152**		**0.4223**	**0.4223**		**0.3885**	**0.3885**						

3.7 Utilities - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.5000e-004	0.0218	4.8500e-003	1.0000e-004	0.2377	4.0000e-005	0.2377	0.0241	4.0000e-005	0.0241						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0307	0.0192	0.1896	6.2000e-004	8.9022	4.5000e-004	8.9026	0.9003	4.1000e-004	0.9008						
Total	**0.0313**	**0.0410**	**0.1945**	**7.2000e-004**	**9.1399**	**4.9000e-004**	**9.1403**	**0.9244**	**4.5000e-004**	**0.9249**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7951	7.7415	10.4001	0.0152		0.4223	0.4223		0.3885	0.3885						
Total	**0.7951**	**7.7415**	**10.4001**	**0.0152**		**0.4223**	**0.4223**		**0.3885**	**0.3885**						

3.7 Utilities - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.5000e-004	0.0218	4.8500e-003	1.0000e-004	0.1464	4.0000e-005	0.1464	0.0150	4.0000e-005	0.0150						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0307	0.0192	0.1896	6.2000e-004	5.4783	4.5000e-004	5.4788	0.5580	4.1000e-004	0.5584						
Total	**0.0313**	**0.0410**	**0.1945**	**7.2000e-004**	**5.6247**	**4.9000e-004**	**5.6252**	**0.5729**	**4.5000e-004**	**0.5734**						

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	0.00	0.00	0.00		
General Heavy Industry	0.00	0.00	0.00		
General Heavy Industry	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	10.00	5.00	7.00	59.00	28.00	13.00	92	5	3
General Heavy Industry	10.00	5.00	7.00	59.00	28.00	13.00	92	5	3
General Heavy Industry	10.00	5.00	7.00	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	10.00	5.00	7.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.500140	0.037139	0.211039	0.110788	0.018036	0.004853	0.065762	0.042724	0.001016	0.001558	0.005534	0.000732	0.000681
Other Non-Asphalt Surfaces	0.500140	0.037139	0.211039	0.110788	0.018036	0.004853	0.065762	0.042724	0.001016	0.001558	0.005534	0.000732	0.000681

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.3570	6.0000e-005	6.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Unmitigated	1.3570	6.0000e-005	6.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						
Consumer Products	1.3564					0.0000	0.0000		0.0000	0.0000						
Landscaping	6.0000e-004	6.0000e-005	6.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Total	**1.3570**	**6.0000e-005**	**6.5700e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**						

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000						
Consumer Products	1.3564					0.0000	0.0000		0.0000	0.0000						
Landscaping	6.0000e-004	6.0000e-005	6.5700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Total	**1.3570**	**6.0000e-005**	**6.5700e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**						

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Operational Emissions Summary In YSAQMD 2025

	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Sources	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5
Offroad Mobile Equipment	2.42	49.47	21.52	0.06	0.80	0.74	0.40	8.16	3.55	0.01	0.13	0.12
Onroad Heavy Trucks	0.69	15.75	48.03	1.98	1.71	0.79	0.12	2.77	7.90	0.35	0.26	0.12
Onroad Heavy Truck Idling	0.49	7.64	10.46	0.07	0.01	0.01	0.08	1.28	1.77	0.01	0.00	0.00
Onroad Entrained Road Dust					9.21	2.26					1.45	0.36
Onroad Employee Vehicles	0.03	0.82	0.12	0.00	0.05	0.02	0.01	0.14	0.02	0.00	0.01	0.00
Total	**3.63**	**73.67**	**80.12**	**2.12**	**11.78**	**3.82**	**0.60**	**12.35**	**13.24**	**0.38**	**1.86**	**0.60**
Significance Threshold					82		10		10			

Operational Emissions Summary in Other Air Districts 2025

	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Sources	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5
Offroad Mobile Equipment												
Onroad Heavy Trucks	0.09	0.70	9.17	0.05	0.52	0.26	0.02	0.12	1.60	0.01	0.09	0.05
Onroad Entrained Road Dust					2.74	0.67					0.48	0.12
Onroad Employee Vehicles												
Total	**0.09**	**0.70**	**9.17**	**0.05**	**3.26**	**0.93**	**0.02**	**0.12**	**1.60**	**0.01**	**0.57**	**0.16**
Significance Threshold	54/65		54/65		82/80	54/82	10		10			

Off-Road On-Site Mobile Equipment 2025

Wood Pellet Facility				(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Equipment Type	Quantity	Fuel Type	Hours Per Day	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5
Front End Loader	1	DSL	9.5	0.016	0.403	0.153	0.000	0.006	0.006	0.154	3.833	1.452	0.004	0.058	0.053	0.025	0.632	0.240	0.001	0.010	0.009
Excavator	1	DSL	9.5	0.020	0.440	0.156	0.001	0.006	0.005	0.192	4.179	1.480	0.006	0.055	0.050	0.032	0.690	0.244	0.001	0.009	0.008
																		0.484			
Waste Gasification				(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Equipment Type	Quantity	Fuel Type	Hours Per Day	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5
Front End Loader	2	DSL	9.5	0.016	0.403	0.153	0.000	0.006	0.006	0.308	7.666	2.904	0.007	0.115	0.106	0.051	1.265	0.479	0.001	0.019	0.018
Forklift	3	ELC	9.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Boom Lift	3	DSL	9.5	0.010	0.048	0.076	0.000	0.003	0.003	0.284	1.372	2.169	0.004	0.084	0.077	0.047	0.226	0.358	0.001	0.014	0.013
Flat Bed Truck	1	DSL	9.5	0.064	1.741	0.576	0.002	0.016	0.015	0.606	16.539	5.474	0.016	0.154	0.141	0.100	2.729	0.903	0.003	0.025	0.023
Pick Up Truck	3	GSL	9.5	0.000	0.006	0.000	0.000	0.000	0.000	0.005	0.169	0.011	0.001	0.001	0.001	0.001	0.028	0.002	0.000	0.000	0.000
Organic Waste Fertilizer Facility				(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Equipment Type	Quantity	Fuel Type	Hours Per Day	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5
Front End Loader	1	DSL	9.5	0.016	0.403	0.153	0.000	0.006	0.006	0.154	3.833	1.452	0.004	0.058	0.053	0.025	0.632	0.240	0.001	0.010	0.009
Excavator	1	DSL	9.5	0.020	0.440	0.156	0.001	0.006	0.005	0.192	4.179	1.480	0.006	0.055	0.050	0.032	0.690	0.244	0.001	0.009	0.008
																		0.484			
Thermal Pressure Hydrolysis System				(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Equipment Type	Quantity	Fuel Type	Hours Per Day	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5
Bulldozer	1	DSL	9.5	0.016	0.403	0.153	0.000	0.006	0.006	0.154	3.833	1.452	0.004	0.058	0.053	0.025	0.632	0.240	0.001	0.010	0.009
Crane	1	DSL	9.5	0.039	0.407	0.383	0.001	0.018	0.016	0.373	3.863	3.643	0.007	0.167	0.154	0.062	0.637	0.601	0.001	0.028	0.025
Total	18									2.42	49.47	21.52	0.06	0.80	0.74	0.40	8.16	3.55	0.01	0.13	0.12

On Road Mobile Source Truck Trips In YSAQMD 2025

#	YCCL PERMIT REVISIONS NEW PROJECT TRIPS	Round Trips Per Day	Truck Type	Fuel Type	Round Trip Truck Distance (miles)	Estimated Daily VMT	Days Per Year	ROG (g/mi)	CO (g/mi)	NOX (g/mi)	SOX (g/mi)	PM 10 (g/mi)	PM 2.5 (g/mi)	ROG (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM 10 (lb/day)	PM 2.5 (lb/day)	ROG (tons/year)	CO (tons/year)	NOX (tons/year)	SOX (tons/year)	PM 10 (tons/year)	PM 2.5 (tons/year)
1	Increased Daily Permitted Tonnage	104	12 tons per vehicle Average	80% DSL / 20% NG	30	3120	359	0.08	2.11	4.69	0.28	0.11	0.05	0.53	14.51	32.23	1.91	0.77	0.34	0.10	2.60	5.78	0.34	0.14	0.06
2	Wood Pellet Facility	8	20 Ton Tractor Trailer	DSL	30	240	330	0.02	0.17	2.24	0.01	0.13	0.06	0.01	0.09	1.19	0.01	0.07	0.03	0.00	0.01	0.20	0.00	0.01	0.01
3	Large Scale Floating Solar Photovoltaic System	0				0																			
4	Waste Gasification Facility	15	20 Ton Tractor Trailer	DSL	43	645	330	0.02	0.17	2.24	0.01	0.13	0.06	0.03	0.24	3.19	0.02	0.18	0.09	0.01	0.04	0.53	0.00	0.03	0.02
5	Expanded Biogas Utilization Options	0				0																			
6	Peaking Power Plant	0				0																			
7	New Class 2 Surface Impoundment	0				0																			
8	Organic Waste Fertilizer Facility	4	20 Ton Tractor Trailer	DSL	30	120	330	0.02	0.17	2.24	0.01	0.13	0.06	0.01	0.05	0.59	0.00	0.03	0.02	0.00	0.01	0.10	0.00	0.01	0.00
9	Stormwater Treatment System and Discharge	0				0																			
10	Additional Groundwater Pumping (Possible Treatment and Discharge)	0				0																			
11	Transfer Station	25	20 Ton Transfer Truck	DSL	42	1050	359	0.02	0.17	2.24	0.01	0.13	0.06	0.05	0.40	5.19	0.03	0.30	0.15	0.01	0.07	0.93	0.00	0.05	0.03
12	Non-Specific Future Borrow Site	100	12 Yard Soil Haul Trucks	DSL	10	1000	130	0.02	0.20	2.43	0.01	0.15	0.07	0.05	0.45	5.34	0.02	0.34	0.16	0.00	0.03	0.35	0.00	0.02	0.01
13	Thermal Pressure Hydrolysis System	0				0																			
14	Biogas to Methanol Pilot Facility	2	20 Ton Tractor Trailer	DSL	30	60	110	0.02	0.17	2.24	0.01	0.13	0.06	0.00	0.02	0.30	0.00	0.02	0.01	0.00	0.00	0.02	0.00	0.00	0.00
	Total	258												0.69	15.75	48.03	1.98	1.71	0.79	0.12	2.77	7.90	0.35	0.26	0.12

Transfer Station	(mi)	(mi)	(mi)
Landfill	**Round Trip (RT) Distance**	**RT Distance in YSAQN**	**RT Distance in Other AQMDs**
Kiefer	66	30	36
Hay Road	52	52	0
Forward	136	30	106
Portrero	84	56	28
Keller Canyon	130	56	74
WRSL	80	30	50
Average	91	42	49

Waste Gasification	(mi)	(mi)	(mi)
Location	**Round Trip (RT) Distance**	**RT Distance in YSAQN**	**RT Distance in Other AQMDs**
Sacramento	30	30	0
Bay Area	140	56	84
	85	43	42

On Road Mobile Source Truck Trips in Other Air Districts 2025

	YCCL PERMIT REVISIONS NEW PROJECT TRIPS	Round Trips Per Day	Truck Type	Fuel Type	Round Trip Truck Distance	Estimated Daily VMT	Days Per Year	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5
1	Increased Daily Permitted Tonnage	104	12 tons per vehicle Average	80% DSL / 20% NG		0	359	0.08	2.11	4.69	0.28	0.11	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Wood Pellet Facility	8	20 Ton Tractor Trailer	DSL		0	330	0.02	0.17	2.24	0.01	0.13	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Large Scale Floating Solar Photovoltaic System	0				0																			
4	Waste Gasification Facility	15	20 Ton Tractor Trailer	DSL	42	630	330	0.02	0.17	2.24	0.01	0.13	0.06	0.03	0.24	3.11	0.02	0.18	0.09	0.00	0.04	0.51	0.00	0.03	0.01
5	Expanded Biogas Utilization Options	0				0																			
6	Peaking Power Plant	0				0																			
7	New Class 2 Surface Impoundment	0				0																			
8	Organic Waste Fertilizer Facility	4	20 Ton Tractor Trailer	DSL		0	330	0.02	0.17	2.24	0.01	0.13	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Stormwater Treatment System and Discharge	0				0																			
10	Additional Groundwater Pumping (Possible Treatment and Discharge)	0				0																			
11	Transfer Station	25	20 Ton Transfer Truck	DSL	49	1225	359	0.02	0.17	2.24	0.01	0.13	0.06	0.06	0.46	6.06	0.03	0.34	0.17	0.01	0.08	1.09	0.01	0.06	0.03
12	Non-Specific Future Borrow Site	100	12 Yard Soil Haul Trucks	DSL		0	130	0.02	0.20	2.43	0.01	0.15	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Thermal Pressure Hydrolysis System	0				0																			
14	Biogas to Methanol Pilot Facility	2	20 Ton Tractor Trailer	DSL		0	110	0.02	0.17	2.24	0.01	0.13	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	258												0.09	0.70	9.17	0.05	0.52	0.26	0.02	0.12	1.60	0.01	0.09	0.05

Transfer Station	(mi)	(mi)	(mi)
Landfill	**Round Trip (RT) Distance**	**RT Distance in YSAQMD**	**RT Distance in Other AQMDs**
Kiefer	66	30	36
Hay Road	52	52	0
Forward	136	30	106
Portrero	84	56	28
Keller Canyon	130	56	74
WRSL	80	30	50
Average	91	42	49

Waste Gasification	(mi)	(mi)	(mi)
Location	**Round Trip (RT) Distance**	**RT Distance in YSAQMD**	**RT Distance in Other AQMDs**
Sacramento	30	30	0
Bay Area	140	56	84
	85	43	42

On Road Mobile Source Truck Idling in YSAQMD 2025

	YCCL PERMIT REVISIONS NEW PROJECT TRIPS	Round Trips Per Day	Truck Type	Fuel Type	Days Per Year	ROG (g/veh/day)	CO (g/veh/day)	NOX (g/veh/day)	SOX (g/veh/day)	PM 10 (g/veh/day)	PM 2.5 (g/veh/day)	ROG (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM 10 (lb/day)	PM 2.5 (lb/day)	ROG (tons/year)	CO (tons/year)	NOX (tons/year)	SOX (tons/year)	PM 10 (tons/year)	PM 2.5 (tons/year)
1	Increased Daily Permitted Tonnage	104	12 tons per vehicle Average	80% DSL / 20% NG	359	1.11	17.24	31.13	0.29	0.04	0.04	0.25	3.95	7.13	0.07	0.01	0.01	0.05	0.71	1.28	0.01	0.00	0.00
2	Wood Pellet Facility	8	20 Ton Tractor Trailer	DSL	330	1.85	27.18	22.46	0.04	0.01	0.01	0.03	0.48	0.40	0.00	0.00	0.00	0.01	0.08	0.07	0.00	0.00	0.00
3	Large Scale Floating Solar Photovoltaic System	0																					
4	Waste Gasification Facility	15	20 Ton Tractor Trailer	DSL	330	1.85	27.18	22.46	0.04	0.01	0.01	0.06	0.90	0.74	0.00	0.00	0.00	0.01	0.15	0.12	0.00	0.00	0.00
5	Expanded Biogas Utilization Options	0																					
6	Peaking Power Plant	0																					
7	New Class 2 Surface Impoundment	0																					
8	Organic Waste Fertilizer Facility	4	20 Ton Tractor Trailer	DSL	330	1.85	27.18	22.46	0.04	0.01	0.01	0.02	0.24	0.20	0.00	0.00	0.00	0.00	0.04	0.03	0.00	0.00	0.00
9	Stormwater Treatment System and Discharge	0																					
10	Additional Groundwater Pumping (Possible Treatment and Discharge)	0																					
11	Transfer Station	25	20 Ton Transfer Truck	DSL	359	1.85	27.18	22.46	0.04	0.01	0.01	0.10	1.50	1.24	0.00	0.00	0.00	0.02	0.27	0.22	0.00	0.00	0.00
12	Non-Specific Future Borrow Site	100	12 Yard Soil Haul Trucks	DSL	130	0.05	2.07	2.97	0.01	0.00	0.00	0.01	0.46	0.65	0.00	0.00	0.00	0.00	0.03	0.04	0.00	0.00	0.00
13	Thermal Pressure Hydrolysis System	0																					
14	Biogas to Methanol Pilot Facility	2	20 Ton Tractor Trailer	DSL	110	1.85	27.18	22.46	0.04	0.01	0.01	0.01	0.12	0.10	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
	Total	258										0.49	7.64	10.46	0.07	0.01	0.01	0.08	1.28	1.77	0.01	0.00	0.00

Operational Emissions Summary In YSAQMD 2030

Sources	ROG (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM 10 (lb/day)	PM 2.5 (lb/day)	ROG (tons/year)	CO (tons/year)	NOX (tons/year)	SOX (tons/year)	PM 10 (tons/year)	PM 2.5 (tons/year)
Offroad Mobile Equipment	2.15	49.75	17.39	0.06	0.56	0.51	0.36	8.21	2.87	0.01	0.09	0.08
Onroad Heavy Trucks	0.54	17.79	34.38	0.24	1.70	0.79	0.09	3.13	5.44	0.04	0.26	0.12
Onroad Heavy Truck Idling	0.49	8.17	9.11	0.01	0.01	0.01	0.08	1.38	1.53	0.00	0.00	0.00
Onroad Entrained Road Dust					9.21	2.26					1.45	0.36
Onroad Employee Vehicles	0.03	0.82	0.12	0.00	0.05	0.02	0.01	0.14	0.02	0.00	0.01	0.00
Total	**3.21**	**76.53**	**61.00**	**0.31**	**11.53**	**3.60**	**0.54**	**12.85**	**9.86**	**0.05**	**1.81**	**0.57**
Significance Threshold					82		10		10			

Operational Emissions Summary in Other Air Districts 2030

Sources	ROG (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM 10 (lb/day)	PM 2.5 (lb/day)	ROG (tons/year)	CO (tons/year)	NOX (tons/year)	SOX (tons/year)	PM 10 (tons/year)	PM 2.5 (tons/year)
Offroad Mobile Equipment												
Onroad Heavy Trucks	0.08	0.68	8.28	0.04	0.52	0.26	0.01	0.12	1.45	0.01	0.09	0.05
Onroad Entrained Road Dust					2.74	0.67					0.48	0.12
Onroad Employee Vehicles												
Total	**0.08**	**0.68**	**8.28**	**0.04**	**3.26**	**0.93**	**0.01**	**0.12**	**1.45**	**0.01**	**0.57**	**0.16**
Significance Threshold	54/65		54/65		82/80	54/82	10		10			

Off-Road On-Site Mobile Equipment 2030

Wood Pellet Facility				(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Equipment Type	Quantity	Fuel Type	Hours Per Day	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5
Front End Loader	1	DSL	9.5	0.014	0.414	0.125	0.000	0.004	0.003	0.133	3.935	1.191	0.004	0.035	0.032	0.022	0.649	0.197	0.001	0.006	0.005
Excavator	1	DSL	9.5	0.018	0.449	0.118	0.001	0.004	0.003	0.168	4.263	1.126	0.006	0.036	0.033	0.028	0.703	0.186	0.001	0.006	0.005
																		0.382			
Waste Gasification				(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Equipment Type	Quantity	Fuel Type	Hours Per Day	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5
Front End Loader	2	DSL	9.5	0.014	0.414	0.125	0.000	0.004	0.003	0.267	7.870	2.383	0.007	0.070	0.064	0.044	1.299	0.393	0.001	0.012	0.011
Forklift	3	ELC	9.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Boom Lift	3	DSL	9.5	0.010	0.048	0.076	0.000	0.003	0.003	0.283	1.368	2.157	0.004	0.082	0.075	0.047	0.226	0.356	0.001	0.014	0.012
Flat Bed Truck	1	DSL	9.5	0.059	1.718	0.465	0.002	0.012	0.011	0.562	16.320	4.415	0.016	0.112	0.103	0.093	2.693	0.729	0.003	0.018	0.017
Pick Up Truck	3	GSL	9.5	0.000	0.006	0.000	0.000	0.000	0.000	0.005	0.169	0.011	0.001	0.001	0.001	0.001	0.028	0.002	0.000	0.000	0.000
Organic Waste Fertilizer Facility				(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Equipment Type	Quantity	Fuel Type	Hours Per Day	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5
Front End Loader	1	DSL	9.5	0.014	0.414	0.125	0.000	0.004	0.003	0.133	3.935	1.191	0.004	0.035	0.032	0.022	0.649	0.197	0.001	0.006	0.005
Excavator	1	DSL	9.5	0.018	0.449	0.118	0.001	0.004	0.003	0.168	4.263	1.126	0.006	0.036	0.033	0.028	0.703	0.186	0.001	0.006	0.005
																		0.382			
Thermal Pressure Hydrolysis System				(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
Equipment Type	Quantity	Fuel Type	Hours Per Day	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5
Bulldozer	1	DSL	9.5	0.014	0.414	0.125	0.000	0.004	0.003	0.133	3.935	1.191	0.004	0.035	0.032	0.022	0.649	0.197	0.001	0.006	0.005
Crane	1	DSL	9.5	0.032	0.389	0.274	0.001	0.012	0.011	0.302	3.692	2.602	0.007	0.117	0.108	0.050	0.609	0.429	0.001	0.019	0.018
Total	18									2.15	49.75	17.39	0.06	0.56	0.51	0.36	8.21	2.87	0.01	0.09	0.08

On Road Mobile Source Truck Trips In YSAQMD 2030

#	YCCL PERMIT REVISIONS NEW PROJECT TRIPS	Round Trips Per Day	Truck Type	Fuel Type	Round Trip Truck Distance (miles)	Estimated Daily VMT	Days Per Year	ROG (g/mi)	CO (g/mi)	NOX (g/mi)	SOX (g/mi)	PM 10 (g/mi)	PM 2.5 (g/mi)
1	Increased Daily Permitted Tonnage	104	12 tons per vehicle Average	78% DSL / 22% NG	30	3120	359	0.06	2.41	2.83	0.02	0.11	0.05
2	Wood Pellet Facility	8	20 Ton Tractor Trailer	DSL	30	240	330	0.02	0.17	2.03	0.01	0.13	0.06
3	Large Scale Floating Solar Photovoltaic System	0				0							
4	Waste Gasification Facility	15	20 Ton Tractor Trailer	DSL	43	645	330	0.02	0.17	2.03	0.01	0.13	0.06
5	Expanded Biogas Utilization Options	0				0							
6	Peaking Power Plant	0				0							
7	New Class 2 Surface Impoundment	0				0							
8	Organic Waste Fertilizer Facility	4	20 Ton Tractor Trailer	DSL	30	120	330	0.02	0.17	2.03	0.01	0.13	0.06
9	Stormwater Treatment System and Discharge	0				0							
10	Additional Groundwater Pumping (Possible Treatment and Discharge)	0				0							
11	Transfer Station	25	20 Ton Transfer Truck	DSL	42	1050	359	0.02	0.17	2.03	0.01	0.13	0.06
12	Non-Specific Future Borrow Site	100	12 Yard Soil Haul Trucks	DSL	10	1000	130	0.02	0.21	2.50	0.01	0.15	0.07
13	Thermal Pressure Hydrolysis System	0				0							
14	Biogas to Methanol Pilot Facility	2	20 Ton Tractor Trailer	DSL	30	60	110	0.02	0.17	2.03	0.01	0.13	0.06
	Total	258											

#	YCCL PERMIT REVISIONS NEW PROJECT TRIPS	ROG (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM 10 (lb/day)	PM 2.5 (lb/day)	ROG (tons/year)	CO (tons/year)	NOX (tons/year)	SOX (tons/year)	PM 10 (tons/year)	PM 2.5 (tons/year)
1	Increased Daily Permitted Tonnage	0.40	16.56	19.42	0.17	0.77	0.34	0.07	2.97	3.49	0.03	0.14	0.06
2	Wood Pellet Facility	0.01	0.09	1.07	0.01	0.07	0.03	0.00	0.01	0.18	0.00	0.01	0.01
3	Large Scale Floating Solar Photovoltaic System												
4	Waste Gasification Facility	0.03	0.23	2.88	0.01	0.18	0.09	0.00	0.04	0.48	0.00	0.03	0.02
5	Expanded Biogas Utilization Options												
6	Peaking Power Plant												
7	New Class 2 Surface Impoundment												
8	Organic Waste Fertilizer Facility	0.01	0.04	0.54	0.00	0.03	0.02	0.00	0.01	0.09	0.00	0.01	0.00
9	Stormwater Treatment System and Discharge												
10	Additional Groundwater Pumping (Possible Treatment and Discharge)												
11	Transfer Station	0.05	0.38	4.69	0.02	0.30	0.15	0.01	0.07	0.84	0.00	0.05	0.03
12	Non-Specific Future Borrow Site	0.04	0.46	5.52	0.02	0.34	0.16	0.00	0.03	0.36	0.00	0.02	0.01
13	Thermal Pressure Hydrolysis System												
14	Biogas to Methanol Pilot Facility	0.00	0.02	0.27	0.00	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.00
	Total	0.54	17.79	34.38	0.24	1.70	0.79	0.09	3.13	5.44	0.04	0.26	0.12

Transfer Station **Landfill**	(mi) **Round Trip (RT) Distance**	(mi) **RT Distance in YSAQM**	(mi) **RT Distance in Other AQMDs**
Kiefer	66	30	36
Hay Road	52	52	0
Forward	136	30	106
Portrero	84	56	28
Keller Canyon	130	56	74
WRSL	80	30	50
Average	91	42	49

Waste Gasification **Location**	(mi) **Round Trip (RT) Distance**	(mi) **RT Distance in YSAQM**	(mi) **RT Distance in Other AQMDs**
Sacramento	30	30	0
Bay Area	140	56	84
	85	43	42

On Road Mobile Source Truck Trips in Other Air Districts 2030

	YCCL PERMIT REVISIONS NEW PROJECT TRIPS	Round Trips Per Day	Truck Type	Fuel Type	Round Trip Truck Distance	Estimated Daily VMT	Days Per Year	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5	ROG	CO	NOX	SOX	PM 10	PM 2.5
1	Increased Daily Permitted Tonnage	104	12 tons per vehicle Average	80% DSL / 20% NG		0	359	0.06	2.20	2.86	0.25	0.11	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Wood Pellet Facility	8	20 Ton Tractor Trailer	DSL		0	330	0.02	0.17	2.03	0.01	0.13	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Large Scale Floating Solar Photovoltaic System	0				0																			
4	Waste Gasification Facility	15	20 Ton Tractor Trailer	DSL	42	630	330	0.02	0.17	2.03	0.01	0.13	0.06	0.03	0.23	2.81	0.01	0.18	0.09	0.00	0.04	0.46	0.00	0.03	0.01
5	Expanded Biogas Utilization Options	0				0																			
6	Peaking Power Plant	0				0																			
7	New Class 2 Surface Impoundment	0				0																			
8	Organic Waste Fertilizer Facility	4	20 Ton Tractor Trailer	DSL		0	330	0.02	0.17	2.03	0.01	0.13	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Stormwater Treatment System and Discharge	0				0																			
10	Additional Groundwater Pumping (Possible Treatment and Discharge)	0				0																			
11	Transfer Station	25	20 Ton Transfer Truck	DSL	49	1225	359	0.02	0.17	2.03	0.01	0.13	0.06	0.05	0.45	5.47	0.03	0.34	0.17	0.01	0.08	0.98	0.01	0.06	0.03
12	Non-Specific Future Borrow Site	100	12 Yard Soil Haul Trucks	DSL		0	130	0.02	0.21	2.50	0.01	0.15	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Thermal Pressure Hydrolysis System	0				0																			
14	Biogas to Methanol Pilot Facility	2	20 Ton Tractor Trailer	DSL		0	110	0.02	0.17	2.03	0.01	0.13	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	258												0.08	0.68	8.28	0.04	0.52	0.26	0.01	0.12	1.45	0.01	0.09	0.05

Transfer Station **Landfill**	(mi) **Round Trip (RT) Distance**	(mi) **RT Distance in YSAQMD**	(mi) **RT Distance in Other AQMDs**
Kiefer	66	30	36
Hay Road	52	52	0
Forward	136	30	106
Portrero	84	56	28
Keller Canyon	130	56	74
WRSL	80	30	50
Average	91	42	49

Waste Gasification **Location**	(mi) **Round Trip (RT) Distance**	(mi) **RT Distance in YSAQMD**	(mi) **RT Distance in Other AQMDs**
Sacramento	30	30	0
Bay Area	140	56	84
	85	43	42

On Road Mobile Source Truck Idling in YSAQMD 2030

	YCCL PERMIT REVISIONS NEW PROJECT TRIPS	Round Trips Per Day	Truck Type	Fuel Type	Days Per Year	ROG (g/veh/day)	CO (g/veh/day)	NOX (g/veh/day)	SOX (g/veh/day)	PM 10 (g/veh/day)	PM 2.5 (g/veh/day)	ROG (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM 10 (lb/day)	PM 2.5 (lb/day)	ROG (tons/year)	CO (tons/year)	NOX (tons/year)	SOX (tons/year)	PM 10 (tons/year)	PM 2.5 (tons/year)
1	Increased Daily Permitted Tonnage	104	12 tons per vehicle Average	80% DSL / 20% NG	359	1.12	19.37	25.34	0.03	0.04	0.04	0.26	4.44	5.80	0.01	0.01	0.01	0.05	0.80	1.04	0.00	0.00	0.00
2	Wood Pellet Facility	8	20 Ton Tractor Trailer	DSL	330	1.87	27.54	22.32	0.04	0.01	0.01	0.03	0.49	0.39	0.00	0.00	0.00	0.01	0.08	0.06	0.00	0.00	0.00
3	Large Scale Floating Solar Photovoltaic System	0																					
4	Waste Gasification Facility	15	20 Ton Tractor Trailer	DSL	330	1.87	27.54	22.32	0.04	0.01	0.01	0.06	0.91	0.74	0.00	0.00	0.00	0.01	0.15	0.12	0.00	0.00	0.00
5	Expanded Biogas Utilization Options	0																					
6	Peaking Power Plant	0																					
7	New Class 2 Surface Impoundment	0																					
8	Organic Waste Fertilizer Facility	4	20 Ton Tractor Trailer	DSL	330	1.87	27.54	22.32	0.04	0.01	0.01	0.02	0.24	0.20	0.00	0.00	0.00	0.00	0.04	0.03	0.00	0.00	0.00
9	Stormwater Treatment System and Discharge	0																					
10	Additional Groundwater Pumping (Possible Treatment and Discharge)	0																					
11	Transfer Station	25	20 Ton Transfer Truck	DSL	359	1.87	27.54	22.32	0.04	0.01	0.01	0.10	1.52	1.23	0.00	0.00	0.00	0.02	0.27	0.22	0.00	0.00	0.00
12	Non-Specific Future Borrow Site	100	12 Yard Soil Haul Trucks	DSL	130	0.05	2.08	2.98	0.01	0.00	0.00	0.01	0.46	0.66	0.00	0.00	0.00	0.00	0.03	0.04	0.00	0.00	0.00
13	Thermal Pressure Hydrolysis System	0																					
14	Biogas to Methanol Pilot Facility	2	20 Ton Tractor Trailer	DSL	110	1.87	27.54	22.32	0.04	0.01	0.01	0.01	0.12	0.10	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
	Total	258										0.49	8.17	9.11	0.01	0.01	0.01	0.08	1.38	1.53	0.00	0.00	0.00

Entrained Road Dust in YSAQMD

Daily

OnRoad Vehicle Round Trips	Quantity	**Daily VMT**	Fleet Weight Average Estimate	
	258	**6235**	20	tons

Annual

OnRoad Vehicle Round Trips	Quantity	**Annual VMT**	Fleet Weight Average Estimate	
	258	**1965280**	20	tons

Emission Factors

EFext = $[k(sL)^{0.91}(W)^{1.02}](1 - P/4N)$ https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2018.pdf

EFext = Emission factor, pounds per vehicle miles traveled (lbs/VMT)

k = particle size multiplier (lbs/VMT) = 0.0022, for PM10

k = particle size multiplier (lbs/VMT) = 0.00054, for PM2.5

sL = road surface silt loading (g/m3) = 0.0235 (assumed to be 50% freeway and 50% local roadways)

W = average weight of vehicles (tons) = 20 tons

P= number of days with at least 0.01 in. of precipitation in the averaging period 59

N = number of days in the averaging period = 365 for annual

https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?cadavi+nca

Efpaved (PM10) $=[0.0022(0.0235)^{0.91}(20)^{1.02}]$ (1-59/4(365))

0.001476

Efpaved (PM2.5) $=[0.00054(0.0235)^{0.91}(20)^{1.02}]$ (1-59/4(365))

0.000362

Daily Emissions

Source	Daily VMT	PM10 EF (lb/VMT)	PM2.5 EF (lb/VMT)	PM10 Emissions (lb/day)	PM2.5 Emissions (lb/day)
OnRoad Vehicle Round Trips	6235	0.001476488	0.000362411	**9.205902924**	**2.259630718**

Annual Emissions

Source	Annual VMT	PM10 EF (lb/VMT)	PM2.5 EF (lb/VMT)	PM10 Emissions (tons/year)	PM2.5 Emissions (tons/year)
OnRoad Vehicle Round Trips	1965280	0.001476488	0.000362411	**1.450856207**	**0.356119251**

Entrained Road Dust in other Air Districts

Daily

OnRoad Vehicle Round Trips	Quantity	**Daily VMT**	Fleet Weight Average Estimate	
	40	**1855**	20	tons

Annual

OnRoad Vehicle Round Trips	Quantity	**Annual VMT**	Fleet Weight Average Estimate	
	40	**647675**	20	tons

Emission Factors

EFext = $[k(sL)^{0.91}(W)^{1.02}](1 - P/4N)$ https://ww3.arb.ca.gov/ei/areasrc/fullpdf/full7-9_2018.pdf

EFext = Emission factor, pounds per vehicle miles traveled (lbs/VMT)

k = particle size multiplier (lbs/VMT) = 0.0022, for PM10

k = particle size multiplier (lbs/VMT) = 0.00054, for PM2.5

sL = road surface silt loading (g/m3) = 0.0235 (assumed to be 50% freeway and 50% local roadways)

W = average weight of vehicles (tons) = 20 tons

P= number of days with at least 0.01 in. of precipitation in the averaging period 59

N = number of days in the averaging period = 365 for annual

https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?cadavi+nca

Efpaved (PM10) $=[0.0022(0.0235)^{0.91}(20)^{1.02}]$ (1-59/4(365))

0.001476

Efpaved (PM2.5) $=[0.00054(0.0235)^{0.91}(20)^{1.02}]$ (1-59/4(365))

0.000362

Daily Emissions

Source	Daily VMT	PM10 EF (lb/VMT)	PM2.5 EF (lb/VMT)	PM10 Emissions (lb/day)	PM2.5 Emissions (lb/day)
OnRoad Vehicle Round Trips	1855	0.001476488	0.000362411	**2.738885312**	**0.672271849**

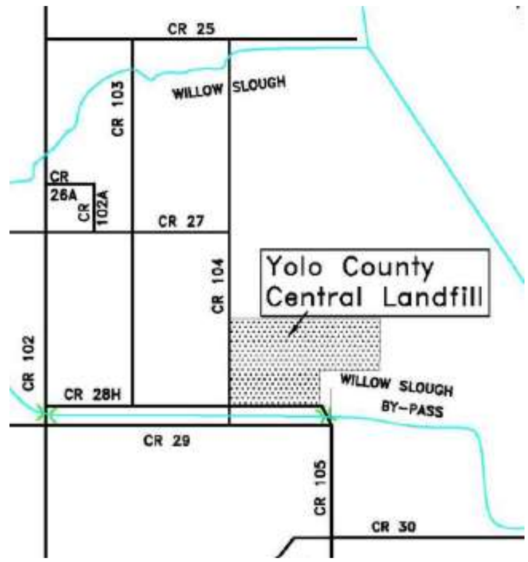
Annual Emissions

Source	Annual VMT	PM10 EF (lb/VMT)	PM2.5 EF (lb/VMT)	PM10 Emissions (tons/year)	PM2.5 Emissions (tons/year)
OnRoad Vehicle Round Trips	647675	0.001476488	0.000362411	**0.478142195**	**0.117362175**

	YCCL PERMIT REVISIONS NEW PROJECT TRIPS	Round Trips Per Day	Round Trip Distance (miles)	Estimated Daily VMT	Days Per year	ROG (g/mi)	CO (g/mi)	NOX (g/mi)	SOX (g/mi)	PM 10 (g/mi)	PM 2.5 (g/mi)	ROG (lb/day)	CO (lb/day)	NOX (lb/day)	SOX (lb/day)	PM 10 (lb/day)	PM 2.5 (lb/day)	ROG (tons/year)	CO (tons/year)	NOX (tons/year)	SOX (tons/year)	PM 10 (tons/year)	PM 2.5 (tons/year)
1	Increased Daily Permitted Tonnage	5	14	70	359	0.03	0.76	0.11	0.00	0.05	0.02	0.00	0.12	0.02	0.00	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00
2	Wood Pellet Facility	5	14	70	330	0.03	0.76	0.11	0.00	0.05	0.02	0.00	0.12	0.02	0.00	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00
3	Large Scale Floating Solar Photovoltaic System	0																					
4	Waste Gasification Facility	15	14	210	330	0.03	0.76	0.11	0.00	0.05	0.02	0.01	0.35	0.05	0.00	0.02	0.01	0.00	0.06	0.01	0.00	0.00	0.00
5	Expanded Biogas Utilization Options	0																					
6	Peaking Power Plant	0																					
7	New Class 2 Surface Impoundment	0																					
8	Organic Waste Fertilizer Facility	5	14	70	330	0.03	0.76	0.11	0.00	0.05	0.02	0.00	0.12	0.02	0.00	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00
9	Stormwater Treatment System and Discharge	0																					
10	Additional Groundwater Pumping (Possible Treatment and Discharge)	0																					
11	Transfer Station	0																					
12	Non-Specific Future Borrow Site	0																					
13	Thermal Pressure Hydrolysis System	3	14	42	359	0.03	0.76	0.11	0.00	0.05	0.02	0.00	0.07	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
14	Biogas to Methanol Pilot Facility	2	14	28	330	0.03	0.76	0.11	0.00	0.05	0.02	0.00	0.05	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
	Total	35										0.03	0.82	0.12	0.00	0.05	0.02	0.01	0.14	0.02	0.00	0.01	0.00

On-Road Mobile Employee Vehicle Trips

Yolo County Central Landfill Permit Revisions Health Risk Assessment Technical Report



Prepared by:

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planning & environmental consulting

April 7, 2021

This document presents the results of a health risk assessment (HRA) for the Yolo County Central Landfill Permit Revisions Environmental Impact Report. This document contains supporting information, methodology, assumptions, and results for the HRA.

The HRA focuses on health impacts on existing residences from emissions of toxic air contaminants (TAC)[1] such as diesel particulate matter (DPM)[2] emissions from heavy trucks associated with the proposed project. The HRA was conducted to determine the health impacts, in terms of excess cancer risk and non-cancer hazards. The HRA was prepared based on the California Office of Environmental Health Hazard Assessment (OEHHA)'s *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*[3] and Yolo-Solano Air Quality Management District's (YSAQMD's) *Handbook for Assessing and Mitigating Air Quality Impacts*[4].

The proposed project is implementing processes and operations that would reduce waste from the landfill, reduce environmental impacts of landfill operations, decrease greenhouse gas emissions, increase the recovery of materials and energy from waste, operate more efficiently and economically, and extend the facility's lifespan. One result of the proposed project would be an increase in heavy truck trips of 258 round trips per day. Heavy trucks would travel south along County Road 105 or west along County Road 28H and then north along County Road 102. A small portion of the heavy truck trips occur 24 hours per day but a majority occur between 6 am and 4 pm, Monday through Saturday. **Table 1** presents a summary of the data associated with the heavy truck activities. Notably, the HRA was conducted assuming that the DPM emission rate (from Year 2025) would not decrease during the 30 year exposure duration despite regulatory requirement. Therefore, the health impacts would likely be less than estimated in this document.

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[1] Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality. TAC are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (for example, gasoline service stations and dry cleaners). TAC are typically found in low concentrations, even near their source (for example, diesel particulate matter near a freeway). Because chronic exposure can result in adverse health effects, TAC are regulated at the regional, state, and Federal level.

[2] In 1998, the CARB classified DPM as a toxic air contaminant, citing its potential to cause cancer and other health problems. USEPA concluded that long-term exposure to diesel engine exhaust is likely to pose a lung cancer hazard to humans and can also contribute to other acute and chronic health effects.

[3] Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, February 2015, Accessed March 23, 2021, http://oehha.ca.gov/air/hot_spots/hotspots2015.html

[4] Yolo-Solano Air Quality Management District, *Handbook for Assessing and Mitigating Air Quality Impacts*. July 11, 2007, Accessed March 23, 2021, http://www.ysaqmd.org/wp-content/uploads/Planning/CEQAHandbook2007.pdf

Table 1: Heavy Truck Information

Proposed Project Trips	Daily Round Trips	Truck Size	Fuel Type	PM2.5 Exhaust (g/mile)	Daily Hours	Annual Operating Days
Increased Daily Permitted Tonnage	104	12 ton	80% Diesel/ 20% NG	0.01	9.5	359
Wood Pellet Facility	8	20 ton	Diesel	0.03	9.5	330
Waste Gasification Facility	15	20 ton	Diesel	0.03	24	330
Organic Waste Fertilizer Facility	4	20 ton	Diesel	0.03	9.5	330
Transfer Station	25	20 ton	Diesel	0.03	24	359
Non-Specific Future Borrow Site	100	12 cubic yard	Diesel	0.01	9.5	130
Biogas to Methanol Pilot Facility	2	20 ton	Diesel	0.03	9.5	110

For the evaluation of TAC emissions, YSAQMD considers proposed projects that have the potential to expose the public to TAC in excess of the following thresholds to have a significant impact. These thresholds are based on YSAQMD's Risk Management Policy:

- Probability of contracting cancer for the Maximally Exposed Individual (MEI) equals to 10 in one million or more; and/or
- Ground-level concentrations of non-carcinogenic TAC would result in a hazard index equal to or greater than 1 for the MEI.

Because YSAQMD has not developed thresholds of significance for evaluating the exposure of sensitive receptors to mobile-source TAC, the proposed project is applying these same incremental increase thresholds to evaluate the impact of DPM generated by heavy truck trips associated with the proposed project and the exposure of DPM to residential land uses located along the roadways on which these trips would travel.

A HRA is accomplished in four steps: 1) hazards identification, 2) exposure assessment, 3) toxicity assessment, and 4) risk characterization. These steps cover the estimation of air emissions, the estimation of the air concentrations resulting from a dispersion analysis, the incorporation of the toxicity of the pollutants emitted, and the characterization of the risk based on exposure parameters such as breathing rate, age adjustment factors, and exposure duration; each depending on receptor type (i.e., residence, school, daycare centers, hospitals, senior care facilities, recreational areas, adult, infant, child).

According to CalEPA, a HRA should not be interpreted as the expected rates of cancer or other potential human health effects, but rather as estimates of potential risk or likelihood of adverse effects based on current knowledge, under a number of highly conservative assumptions and the best assessment tools currently available.

TERMS AND DEFINITIONS

As the practice of conducting a HRA is particularly complex and involves concepts that are not altogether familiar to most people, several terms and definitions are provided that are considered essential to the understanding of the approach, methodology and results:

> *Acute effect* – a health effect (non-cancer) produced within a short period of time (few minutes to several days) following an exposure to toxic air contaminants (TAC).
>
> *Cancer risk* – the probability of an individual contracting cancer from a lifetime (i.e., 70 year) exposure to TAC such as DPM in the ambient air.
>
> *Chronic effect* – a health effect (non-cancer) produced from a continuous exposure occurring over an extended period of time (weeks, months, years).
>
> *Hazard Index (HI)* – the unitless ratio of an exposure level over the acceptable reference dose. The HI can be applied to multiple compounds in an additive manner.
>
> *Hazard Quotient (HQ)* – the unitless ratio of an exposure level over the acceptable reference dose. The HQ is applied to individual compounds.
>
> *Toxic Air Contaminants (TAC)* – any air pollutant that is capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). The current California list of TAC lists approximately 200 compounds, including particulate emissions from diesel-fueled engines.
>
> *Human Health Effects* - comprise disorders such as eye watering, respiratory or heart ailments, and other (i.e., non-cancer) related diseases.
>
> *Health Risk Assessment (HRA)* – an analysis designed to predict the generation and dispersion of TAC in the outdoor environment, evaluate the potential for exposure of human populations, and to assess and quantify both the individual and population-wide health risks associated with those levels of exposure.
>
> *Incremental* – under CEQA, the net difference (or change) in conditions or impacts when comparing the baseline to future year project conditions.
>
> *Maximum exposed individual (MEI)* – an individual assumed to be located at the point where the highest concentrations of TAC, and therefore, health risks are predicted to occur.
>
> *Non-cancer risks* – health risks such as eye watering, respiratory or heart ailments, and other non-cancer related diseases.

Receptors – the locations where potential health impacts or risks are predicted (i.e., schools, residences, and recreational sites).

LIMITATIONS AND UNCERTAINTIES

There are a number of important limitations and uncertainties commonly associated with a HRA due to the wide variability of human exposures to TAC, the extended timeframes over which the exposures are evaluated, and the inability to verify the results. Limitations and uncertainties associated with the HRA and identified by the CalEPA include: (a.) lack of reliable monitoring data; (b.) extrapolation of toxicity data in animals to humans; (c.) estimation errors in calculating TAC emissions; (d.) concentration prediction errors with dispersion models; and (e.) the variability in lifestyles, fitness and other confounding factors of the human population. This HRA was performed using the best available data and methodologies, notwithstanding the following uncertainties:

- There are uncertainties associated with the estimation of emissions from project activities. Where project-specific data, such as emission factors, are not available, default assumptions in emission models were used.
- The limitations of the air dispersion model provide a source of uncertainty in the estimation of exposure concentrations. According to USEPA, errors due to the limitation of the algorithms implemented in the air dispersion model in the highest estimated concentrations of +/- 10 percent to 40 percent are typical.[5]
- The source parameters used to model emission sources add uncertainty. For all emission sources, the source parameters used source-specific, recommended as defaults, or expected to produce more conservative results. Discrepancies might exist in actual emissions characteristics of an emission source and its representation in the dispersion model.
- The exposure duration estimates do not take into account that people do not usually reside at the same location for 30 years and that other exposures (i.e., school children) are also of much shorter durations than was assumed in this HRA. This exposure duration is a highly conservative assumption, since most people do not remain at home all day and on average residents change residences every 11 to 12 years. In addition, this assumption adopts that residents are experiencing outdoor concentrations for the entire exposure period.

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[5] US Environmental Protection Agency, Title 40 CFR Part 51, *Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions; Final Rule,* Accessed March 23, 2021, https://www.federalregister.gov/documents/2005/11/09/05-21627/revision-to-the-guideline-on-air-quality-models-adoption-of-a-preferred-general-purpose-flat-and

- For the risk and hazards calculations as well as the cumulative health impact, numerous assumptions must be made in order to estimate human exposure to pollutants. These assumptions include parameters such as breathing rates, exposure time and frequency, exposure duration, and human activity patterns. While a mean value derived from scientifically defensible studies is the best estimate of central tendency, most of the exposure variables used in this HRA are high-end estimates. The combination of several high-end estimates used as exposure parameters may substantially overestimate pollutant intake. The excess lifetime cancer risks calculated in this HRA are therefore likely to be higher than may be required to be protective of public health.
- The Cal/EPA cancer potency factor for DPM was used to estimate cancer risks associated with exposure to DPM emissions. However, the cancer potency factor derived by Cal/EPA for DPM is highly uncertain in both the estimation of response and dose. In the past, due to inadequate animal test data and epidemiology data on diesel exhaust, the International Agency for Research on Cancer (IARC), a branch of the World Health Organization, had classified DPM as Probably Carcinogenic to Humans (Group 2); the USEPA had also concluded that the existing data did not provide an adequate basis for quantitative risk assessment.[6] However, based on two recent scientific studies,[7] IARC recently re-classified DPM as Carcinogenic to Humans to Group 1,[8] which means that the agency has determined that there is "sufficient evidence of carcinogenicity" of a substance in humans and represents the strongest weight-of-evidence rating in IARC's carcinogen classification scheme. This determination by the IARC may provide additional impetus for the USEPA to identify a quantitative dose-response relationship between exposure to DPM and cancer.

In summary, the estimated health impacts are based primarily on a series of conservative assumptions related to predicted environmental concentrations, exposure, and chemical toxicity. The use of conservative assumptions tends to produce upper-bound estimates of risk. The conservative assumptions used in the HRA are intended to assure that the estimated risks

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[6] US Environmental Protection Agency, *Health Assessment Document for Diesel Engine Exhaust*, May 2002, Accessed March 23, 2021, https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=29060

[7] Attfield MD, Schleiff PL, Lubin JH, Blair A, Stewart PA, Vermeulen R, Coble JB, Silverman DT, *The Diesel Exhaust in Miners Study: A Nested Case-Control Study of Lung Cancer and Diesel Exhaust*, June 2012, Accessed March 23, 2021, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3369553/

[8] International Agency for Research on Cancer, *Diesel Engine Exhaust Carcinogenic*, June 2012, Accessed March 23, 2021, https://www.iarc.fr/en/media-centre/pr/2012/pdfs/pr213_E.pdf

do not underestimate the actual risks posed by a site and that the estimated risks do not necessarily represent actual risks experienced by populations at or near a site.[9]

HAZARDS IDENTIFICATION

California Air Resources Board (CARB) has developed a list of TAC, where a TAC is "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health (California Health and Safety Code Section 39655). All USEPA hazardous air pollutants are TAC. CARB administers the Air Toxics "Hot Spots" program under Assembly Bill 2588 "Hot Spots" Information and Assessment Act, which requires periodic local review of facilities which emit TAC. Local air agencies periodically must prioritize stationary sources of TAC and prepare health risk assessments for high-priority sources.

Diesel exhaust is a complex mixture of numerous individual gaseous and particulate compounds emitted from diesel-fueled combustion engines. Diesel particulate matter is formed primarily through the incomplete combustion of diesel fuel. DPM is removed from the atmosphere through physical processes including atmospheric fall-out and washout by rain. Humans can be exposed to airborne DPM by deposition on water, soil, and vegetation; although the main pathway of exposure is inhalation. Cal/EPA has concluded that potential cancer risk from inhalation exposure to whole diesel exhaust outweigh the multi-pathway cancer risk from the speciated components.

In August 1998, the CARB identified DPM as an air toxic. CARB developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel- Fueled Engines and Vehicles* and *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines* and approved these documents on September 28, 2000.[10] [11] The documents represent proposals to reduce DPM emissions, with the goal of reducing emissions and the associated health risk by 75 percent in 2010 and by 85 percent in 2020. The program aimed to require the use of state-of-the-art catalyzed DPM filters and ultra-low-sulfur diesel fuel.

In 2001, CARB assessed the state-wide health risks from exposure to diesel exhaust and to other toxic air contaminants. It is difficult to distinguish the health risks of diesel emissions from those of other air toxics, since diesel exhaust contains approximately 40 different TAC. The CARB study detected diesel exhaust by using ambient air carbon soot measurements as a

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[9] US Environmental Protection Agency, *Risk Assessment Guidance for Superfund Human Health Risk Assessment*, December 1989, Accessed March 23, 2021, https://www.epa.gov/sites/production/files/2015-09/documents/rags_a.pdf

[10] California Air Resources Board, *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, October 2000, Accessed March 23, 2021, http://www.arb.ca.gov/diesel/documents/rrpfinal.pdf

[11] California Air Resources Board, *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines*, October 2000, Accessed March 23, 2021, https://www.arb.ca.gov/diesel/documents/rmgFinal.pdf

surrogate for diesel emissions. The study reported that the state-wide cancer risk from exposure to diesel exhaust was about 540 per million persons as compared to a total risk for exposure to all ambient air toxics of 760 per million persons. This estimate, which accounts for about 70 percent of the total risk from TAC, included both urban and rural areas in the state. The estimate can also be considered an average worst-case for the state, since it assumes constant exposure to outdoor concentrations of diesel exhaust and does not account for expected lower concentrations indoors, where most of time is spent. DPM is estimated to increase statewide cancer risk by 520 per million persons exposed over a lifetime.[12]

Exposure to DPM results in a greater incidence of chronic non-cancer health effects, such as cough, labored breathing, chest tightness, wheezing, and bronchitis. Individuals particularly vulnerable to DPM are children, whose lung tissue is still developing, the elderly and people with illnesses who may have other serious health problems that can be aggravated by exposure to DPM. In general, children are more vulnerable than adults to air pollutants because they have higher inhalation rates, narrower airways, and less mature immune systems. In addition, children with allergies may have an enhanced allergic response when exposed to diesel exhaust).

EXPOSURE ASSESSMENT

Dispersion is the process by which atmospheric pollutants disseminate due to wind and vertical stability. The results of a dispersion analysis are used to assess pollutant concentrations at or near an emission source. The results of an analysis allow predicted concentrations of pollutants to be compared directly to air quality standards and other criteria such as health risks based on modeled concentrations.

A rising pollutant plume reacts with the environment in several ways before it levels off. First, the plume's own turbulence interacts with atmospheric turbulence to entrain ambient air. This mixing process reduces and eventually eliminates the density and momentum differences that cause the plume to rise. Second, the wind transports the plume during its rise and entrainment process. Higher winds mix the plume more rapidly, resulting in a lower final rise. Third, the plume interacts with the vertical temperature stratification of the atmosphere, rising as a result of buoyancy in the unstable-to-neutrally stratified mixed layer. However, after the plume encounters the mixing lid and the stably stratified air above, its vertical motion is dampened.

Molecules of gas or small particles injected into the atmosphere will separate from each other as they are acted on by turbulent eddies. The Gaussian mathematical model such as AERMOD simulates the dispersion of the gas or particles within the atmosphere. The formulation of the Gaussian model is based on the following assumptions:

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[12] California Air Resources Board, *Summary: Diesel Particulate Matter Health Impacts*, April 12, 2016, Accessed March 23, 2021, https://www.arb.ca.gov/research/diesel/diesel-health_summ.htm

- The predictions are not time-dependent (all conditions remain unchanged with time)
- The wind speed and direction are uniform, both horizontally and vertically, throughout the region of concern
- The rate of diffusion is not a function of position
- Diffusion in the direction of the transporting wind is negligible when compared to the transport flow

Dispersion Modeling Approach

Air dispersion modeling was performed to estimate the downwind dispersion of DPM exhaust emissions resulting from heavy trucks. The following sections present the fundamental components of an air dispersion modeling analysis including air dispersion model selection and options, receptor locations, meteorological data, and source exhaust release parameters.

Model Selection and Options

AERMOD (Version 19191)[13] was used for the dispersion analysis. AERMOD is the USEPA preferred atmospheric dispersion modeling system for general industrial sources. The model can simulate point, area, volume, and line sources. AERMOD is the appropriate model for this analysis based on the coverage of simple, intermediate, and complex terrain. It also predicts both short-term and long-term (annual) average concentrations. The model was executed using the regulatory default options (stack-tip downwash, buoyancy-induced dispersion, and final plume rise), default wind speed profile categories, default potential temperature gradients, and assuming no pollutant decay.

The selection of the appropriate dispersion coefficients depends on the land use within three kilometers (km) of the project site. The types of land use were based on the classification method defined by Auer (1978); using pertinent United States Geological Survey (USGS) 1:24,000 scale (7.5 minute) topographic maps of the area. If the Auer land use types of heavy industrial, light-to-moderate industrial, commercial, and compact residential account for 50 percent or more of the total area, the USEPA *Guideline on Air Quality Models*[14] recommends using urban dispersion coefficients; otherwise, the appropriate rural coefficients can be used. Based on observation of the area surrounding the project site, rural dispersion coefficients were applied within AERMOD.

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[13] US Environmental Protection Agency, AERMOD Modeling System, Accessed March 23, 2021, https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models

[14] US Environmental Protection Agency, Title 40 CFR Part 51, *Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions; Final Rule,* Accessed March 23, 2021, https://www.federalregister.gov/documents/2005/11/09/05-21627/revision-to-the-guideline-on-air-quality-models-adoption-of-a-preferred-general-purpose-flat-and

Receptor Locations

Some receptors are considered more sensitive to air pollutants than others, because of preexisting health problems, proximity to the emissions source, or duration of exposure to air pollutants. Land uses such as primary and secondary schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because the very young, the old, and the infirm are more susceptible to respiratory infections and other air quality-related health problems than the general public. Residential areas are also considered sensitive to poor air quality because people in residential areas are often at home for extended periods. Recreational land uses are moderately sensitive to air pollution because vigorous exercise associated with recreation places a high demand on respiratory system function.

Sensitive receptors were placed at receptors to estimate health impacts due to proposed project heavy truck trips on existing residences. The project site is surrounded by open space with eight residences along the heavy truck route in the immediate vicinity of the proposed project. No schools and daycare facilities are within approximately 1,000 feet of the project site. **Figure 1** displays the location of the sensitive receptors included in this HRA. Receptors were placed at a height of 1.8 meters (typical breathing height). Terrain elevations for receptor locations were used based on available USGS information for the area.

Meteorological Data

Hourly meteorological data from University Airport in Davis, California (surface data), located approximately seven miles to the southwest of the proposed project, and Oakland International Airport (upper air) were used in the dispersion modeling analysis. Meteorological data from 2009 through 2013 were used.[15] **Figure 2** displays the annual wind rose. Wind directions are predominately from the south and north and a high frequency of calm wind speed conditions, as shown in **Figure 3**. The average annual wind speed is 5.1 miles per hour.

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[15] California Air Resources Board, Hotspots Analysis and Reporting Program Meteorological Files, October 5, 2015, Accessed March 23, 2021, https://www.arb.ca.gov/toxics/harp/metfiles2.htm

Figure 1
Health Risk Assessment Sensitive Receptors

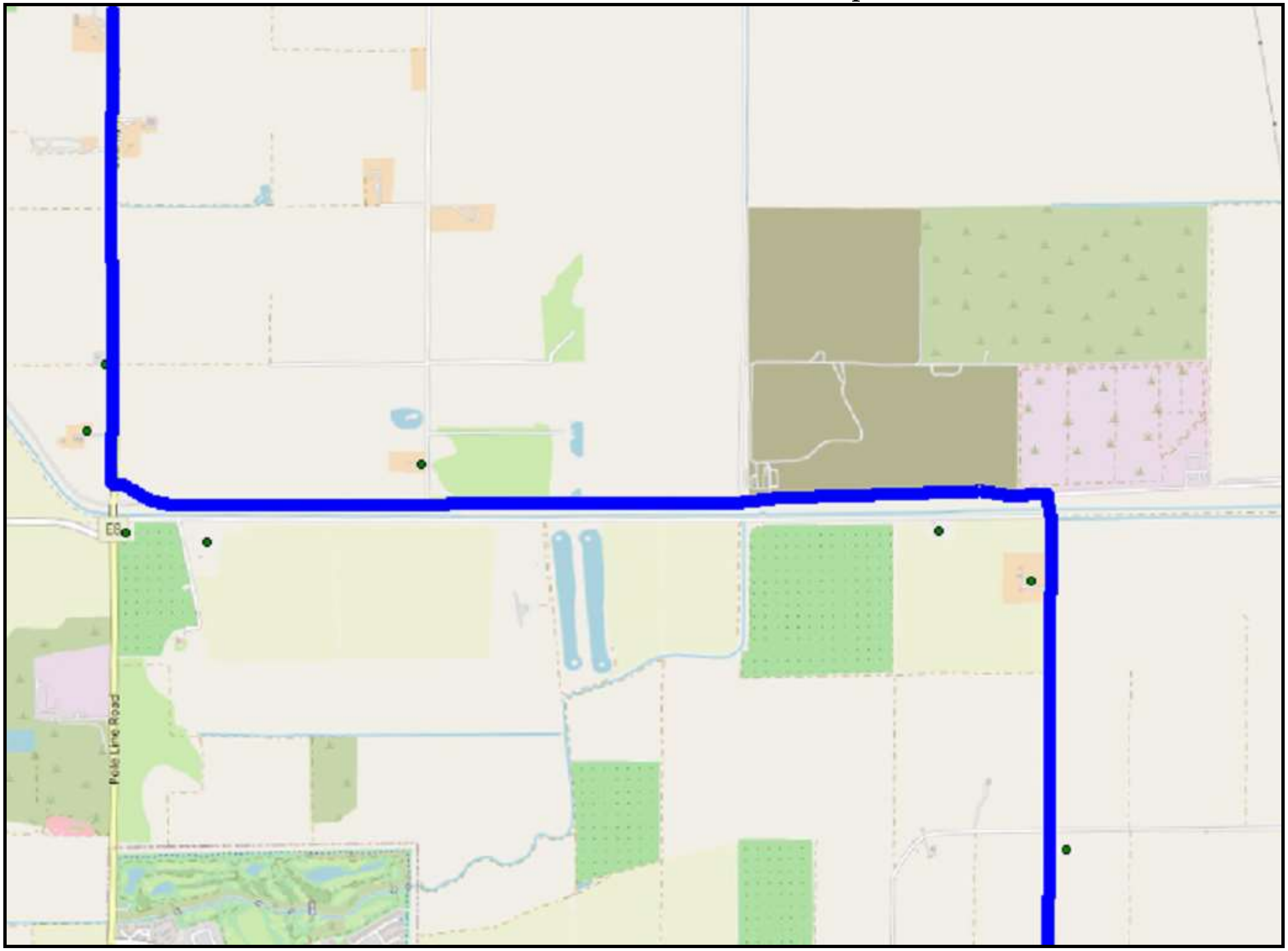


Figure 2
Windrose for University Airport in Davis, California

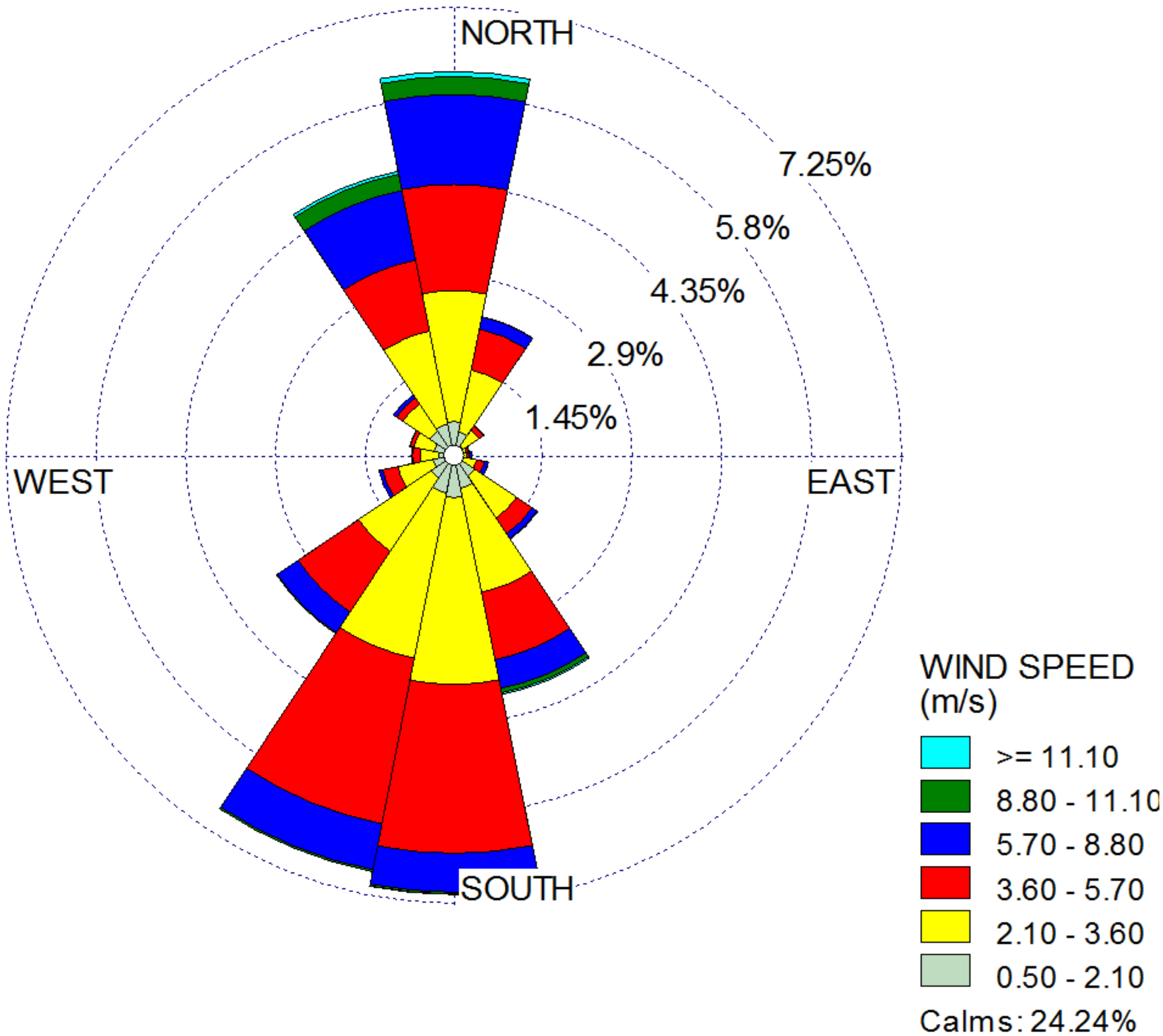
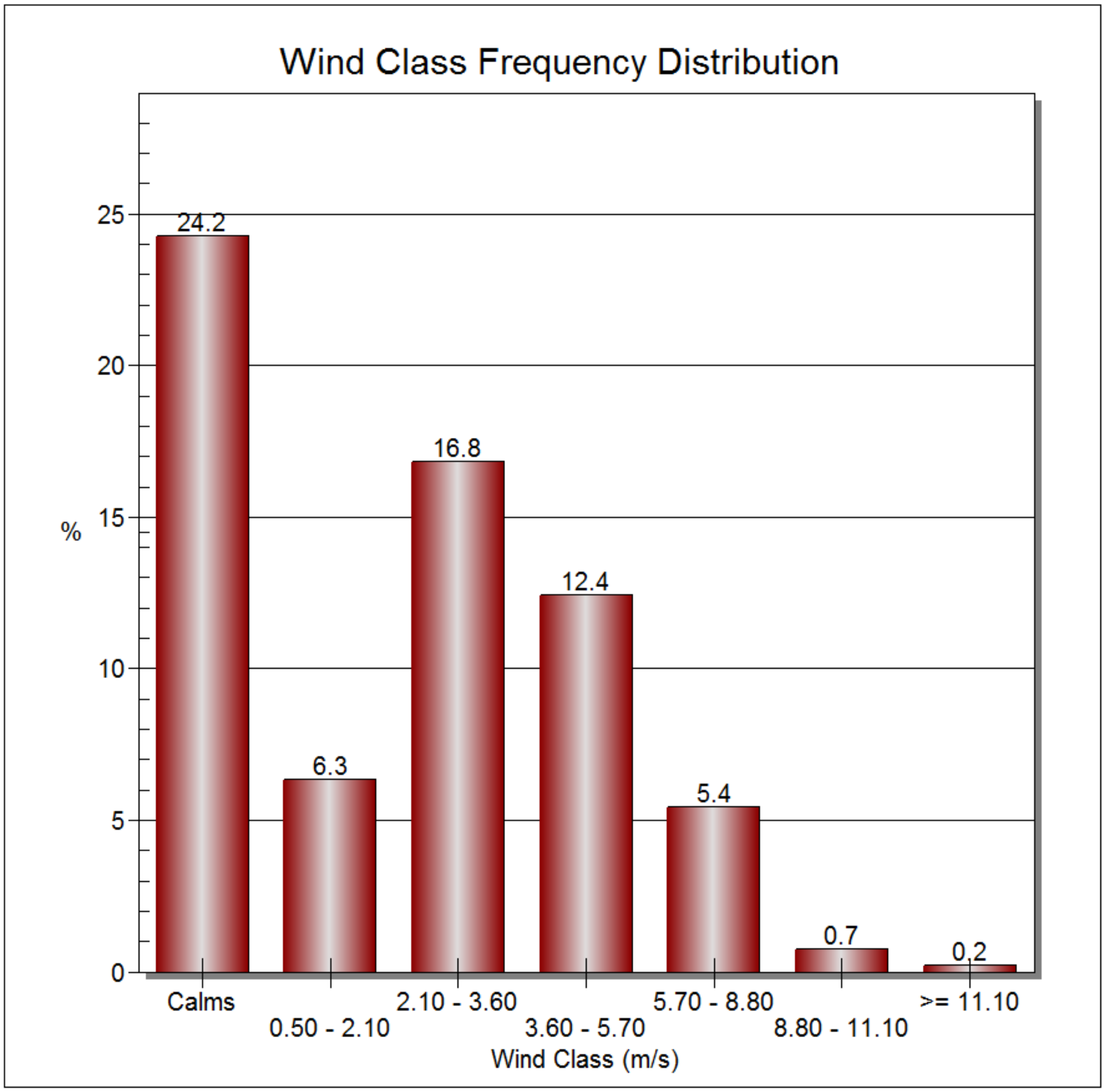


Figure 3
Wind Speed Distribution for University Airport in Davis, California



Source Release Characteristics

Heavy trucks were treated as a line source (i.e., volume sources placed at regular intervals) located along the nearby roadways. The heavy trucks were assigned a release height of 3.05 meters and an initial vertical dimension of 4.15 meters, which accounts for dispersion from the movement of vehicles. Terrain elevations for emission source locations were used based on available USGS information for the area. AERMAP (Version 14134)[16] was used to develop the terrain elevations.

Operational profiles (or temporal factors) were used to describe the fluctuation in hourly and daily traffic activity. The profiles were also used to evaluate the level of emissions that is expected to occur during a specific period within an entire year. Operational profiles describe the relationship of one period of time to another period of time (i.e., the relationship of the activity during 1-hour to the activity of every other hour in a 24-hour period).

Table 2 display the hourly operational profiles (unitless values representing fraction of the peak value) for the heavy truck trips during each day of the week. As shown, these data are reflective of a majority of the trips occurring between 6 am and 4 pm.

EXPOSURE PARAMETERS

This HRA was conducted following methodologies in OEHHA's *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*.[17] This was accomplished by applying the estimated concentrations at the receptors analyzed to the established cancer risk estimates and acceptable reference concentrations for non-cancer health effects.

OEHHA's revisions to its *Guidance Manual* were primarily designed to ensure that the greater sensitivity of children to cancer and other health risks is reflected in HRAs. For example, OEHHA now recommends that risks be analyzed separately for multiple age groups, focusing especially on young children and teenagers, rather than the past practice of analyzing risks to the general population, without distinction by age. OEHHA also now recommends that statistical "age sensitivity factors" be incorporated into a HRA, and that children's relatively high breathing rates be accounted for. On the other hand, the *Guidance Manual* revisions also include some changes that would reduce calculated health risks. For example, under the former guidance, OEHHA recommended that residential cancer risks be assessed by assuming 70 years of exposure at a residential receptor; under the *Guidance Manual*, this assumption is lessened to 30 years.

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[16] US Environmental Protection Agency, AERMAP, https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models

[17] Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, March 6, 2015, Accessed March 23, 2021, http://oehha.ca.gov/air/hot_spots/hotspots2015.html

Table 2: Heavy Truck Hourly Operational Profiles

Hour of Day	Operational Profile	Heavy Truck Trips
1	0.0677	2
2	0.0677	2
3	0.0677	2
4	0.0677	2
5	0.0677	2
6	0.0677	2
7	0.7500	19
8	1.0000	25
9	1.0000	25
10	1.0000	25
11	1.0000	25
12	1.0000	25
13	1.0000	25
14	1.0000	25
15	1.0000	25
16	0.7500	19
17	0.0677	2
18	0.0677	2
19	0.0677	2
20	0.0677	2
21	0.0677	2
22	0.0677	2
23	0.0677	2
24	0.0677	2

OEHHA has developed exposure factors (e.g., daily breathing rates) for six age groups including the last trimester to birth, birth to 2 years, 2 to 9 years, 2 to 16 years, 16 to 30 years, and 16 to 70 years. These age bins allow for more refined exposure information to be used when estimating exposure and the potential for developing cancer over a lifetime. This means that exposure variates are needed for the third trimester, ages zero to less than two, ages two to less than nine, ages two to less than 16, ages 16 to less than 30, and ages 16 to 70. Residential receptors utilize the 95th percentile breathing rate values. The breathing rates are age-specific and are 1,090 liters per kilogram-day for ages less than 2 years, 745 liters per kilogram-day for ages 2 to 16 years, 335 liters per kilogram-day for ages 16 to 30 years, and 290 liters per kilogram-day for ages 30 to 70 years. A school child breathing rate is 520 liters per kilogram-day and an off-site worker breathing rate is 230 liters per kilogram-day.

OEHHA developed age sensitivity factors (ASF) to take into account the increased sensitivity to carcinogens during early-in-life exposures. OEHHA recommends that cancer risks be weighted by a factor of 10 for exposures that occur from the third trimester of pregnancy to 2 years of age, and by a factor of 3 for exposures from 2 years through 15 years of age.

Based on OEHHA recommendations, the cancer risk to residential receptors assumes exposure occurs 24 hours per day for 350 days per year while accounting for a percentage of time at home. OEHHA evaluated information from activity pattern databases to estimate the fraction of time at home (FAH) during the day. This information was used to adjust exposure duration and cancer risk based on the assumption that a person is not present at home continuously for 24 hours and therefore exposure to emissions is not occurring when a person is away from their home. In general, the FAH factors are age-specific and are 0.85 for ages less than 2 years, 0.72 for ages 2 to 16 years, and 0.73 for ages 30 to 70 years.

OEHHA has decreased the exposure duration currently being used for estimating cancer risk at the maximum exposed individual resident from 70 years to 30 years. This is based on studies showing that 30 years is a reasonable estimate of the 90^{th} to 95^{th} percentile of residency duration in the population. Additionally, OEHHA recommends using the 9 and 70-year exposure duration to represent the potential impacts over the range of residency periods.

Given the exposure durations of less than 24 hours, sensitive recreational receptors were evaluated for acute impacts only. Based on OEHHA recommendations, for children at school sites, exposure is assumed to occur 10 hours per day for 180 days (or 36 weeks) per year. Cancer risk estimates for children at school sites are calculated based on 9 year exposure duration. School sites also include teachers and other adult staff which are treated as off-site workers.

RISK CHARACTERIZATION

Cancer risk is defined as the lifetime probability of developing cancer from exposure to carcinogenic substances. Cancer risks are expressed as the chance in one million persons of getting cancer (i.e., number of cancer cases among one million persons exposed). The cancer risks are assumed to occur exclusively through the inhalation pathway. The cancer risk can be estimated by using the cancer potency factor (milligrams per kilogram of body weight per day [mg/kg-day]), the 30-year annual average concentration (microgram per cubic meter [$\mu g/m^3$]), and the lifetime exposure adjustment.

Following guidelines established by OEHHA, the incremental cancer risks attributable to the proposed project were calculated by applying exposure parameters to modeled DPM concentrations in order to determine the inhalation dose (mg/kg-day) or the amount of pollutants inhaled per body weight mass per day. The cancer risks occur exclusively through the inhalation pathway; therefore, the cancer risks can be estimated from the following equation:

$$\text{Dose-inh} = \underline{C_{air} * \{DBR\} * A * ASF * FAH * EF * ED * 10^{-6}}$$

AT

where:

Dose-inh	= Dose of the toxic substance through inhalation in mg/kg-day
10^{-6}	= Micrograms to milligrams conversion, Liters to cubic meters conversion
C_{air}	= Concentration in air in microgram (μg)/cubic meter (m^3)
{DBR}	= Daily breathing rate in liter (L)/kg body weight – day
A	= Inhalation absorption factor, 1.0
ASF	= Age Sensitivity Factor
EF	= Exposure frequency (days/year)
ED	= Exposure duration (years)
FAH	= Fraction of Time at Home
AT	= Averaging time period over which exposure is averaged in days (25,550 days for a 70 year cancer risk)

To determine incremental cancer risk, the estimated inhalation dose attributed to the proposed project was multiplied by the cancer potency slope factor (cancer risk per mg/kg-day). The cancer potency slope factor is the upper bound on the increased cancer risk from a lifetime exposure to a pollutant. These slope factors are based on epidemiological studies and are different values for different pollutants. This allows the estimated inhalation dose to be equated to a cancer risk.

Non-cancer adverse health impacts, acute (short-term) and chronic (long-term), are measured against a hazard index (HI), which is defined as the ratio of the predicted incremental exposure concentration from the proposed project to a published reference exposure level (REL) that could cause adverse health effects as established by OEHHA. The ratio (referred to as the Hazard Quotient [HQ]) of each non-carcinogenic substance that affects a certain organ system is added to produce an overall HI for that organ system. The overall HI is calculated as the total for each organ system. If the overall HI for the highest-impacted organ system is greater than one, then the impact is considered to be significant.

The HI is an expression used for the potential for non-cancer health effects. The relationship for the non-cancer health effects is given by the annual concentration (in μg/m^3) and the REL (in μg/m^3). The acute hazard index was determined using the "simple" concurrent maximum approach, which tends to be conservative (i.e., overpredicts).

The relationship for the non-cancer health effects is given by the following equation:

$$HI = C/REL$$

Where:

HI	= Hazard index; an expression of the potential for non-cancer health effects.
C	= Annual average concentration (µg/m^3) during the 70 year exposure period.
REL	= Concentration at which no adverse health effects are anticipated.

The chronic REL for DPM was established by the California OEHHA as 5 µg/m^3.[18] There is no acute REL for DPM.

HEALTH IMPACTS

The proposed project would constitute a new emission source of DPM due to its heavy truck trips. Studies have demonstrated that DPM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk.

Health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. Individual cancer risk is the likelihood that a person exposed to air toxic concentrations over a 30-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. The MEI represents the worst–case risk estimate, based on a theoretical person continuously exposed for a lifetime at the point of highest compound concentration in the air. This is a highly conservative assumption, since most people do not remain at home all day and on average residents change residences every 11 to 12 years. In addition, this assumption assumes that residents are experiencing outdoor concentrations for the entire exposure period.

A HRA analyzed the incremental cancer risks to sensitive receptors in the vicinity of the proposed project, using emission rates (in pounds per hour) derived from CARB's EMFAC2017 emission model.[19] DPM (reported as exhaust emissions of $PM_{2.5}$) emission rates were input into the USEPA's AERMOD atmospheric dispersion model to calculate ambient air concentrations at receptors in the proposed project vicinity. The HRA is intended to provide a worst–case estimate of the increased exposure by employing a standard emission estimation program, an accepted pollutant dispersion model, approved toxicity factors, and conservative exposure parameters.

In accordance with OEHHA *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments,* this HRA was accomplished by applying the highest estimated concentrations of TAC at the receptors analyzed to the established cancer potency factors and acceptable reference concentrations for non-cancer health effects. Increased cancer risks were calculated using the modeled DPM concentrations and OEHHA-recommended methodologies

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[18] Office of Environmental Health Hazards Assessment - Acute, 8-hour, and Chronic Reference Exposure Levels, June 2014, Accessed March 23, 2021, http://www.oehha.ca.gov/air/allrels.html

[19] California Air Resources Board, EMFAC2017 User's Guide, March 1, 2018, Accessed March 23, 2021, https://ww3.arb.ca.gov/msei/downloads/emfac2017-volume-i-users-guide.pdf and https://www.arb.ca.gov/emfac/2017/

for both a child exposure (3rd trimester through two years of age) and adult exposure. The cancer risk calculations were based on applying the OEHHA-recommended age sensitivity factors and breathing rates, as well as fraction of time at home and an exposure duration of 30 years, to the DPM concentration exposures. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing air pollutants.

Table 3 presents a summary of the health risk assessment exposure factors.

Table 3: Health Risk Assessment Exposure Factors

Receptor	Age	Age Specific Factor	Breathing Rate (L/kg-day)	Fraction of Time	Exposure Years	Daily Exposure	Annual Exposure
Residential	Third Trimester	10	361	1	0.25	24 hours	350 days
	0 to 2	10	1,090	1	2	24 hours	350 days
	2 to 16	3	572	1	14	24 hours	350 days
	16 to 30	1	261	0.73	14	24 hours	350 days

Source: Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, March 6, 2015, Accessed March 23, 2021, http://oehha.ca.gov/air/hot_spots/hotspots2015.html

These conservative methodologies tend to overestimate both non-carcinogenic and carcinogenic health risk, possibly by an order of magnitude or more. Therefore, for carcinogenic risks, the actual probabilities of cancer formation in the populations of concern due to exposure to carcinogenic pollutants are likely to be lower than the risks derived using the HRA methodology. The extrapolation of toxicity data in animals to humans, the estimation of concentration prediction methods within dispersion models; and the variability in lifestyles, fitness and other confounding factors of the human population also contribute to the overestimation of health impacts. Therefore, the results of this HRA are highly overstated.

The following describes the HRA results associated with existing receptors due to proposed project heavy trucks. The maximum cancer risk from heavy truck emissions for a residential-adult receptor would be 1.0 per million persons and for a residential-child receptor would be 2.6 per million persons.

As stated previously, the HRA was conducted assuming that the DPM emission rate (from Year 2025) would not decrease during the 30 year exposure duration despite regulatory requirement. Therefore, the health impacts would likely be less than estimated in this document.

The maximum cancer risk would occur at a residential receptor on an agricultural property (also known as the maximum exposed individual or MEI) along Road 102. Thus, the cancer risk due to heavy truck trips would be less than the significance threshold of 10 per million persons and would be a less than significant health impact on existing residences.

Both acute (short-term) and chronic (long-term) adverse health impacts unrelated to cancer are measured against a hazard index (HI), which is defined as the ratio of the predicted incremental DPM exposure concentration from the proposed project to a reference exposure level (REL) that could cause adverse health effects. The REL are published by OEHHA based on epidemiological research. The ratio (referred to as the Hazard Quotient [HQ]) of each non-carcinogenic substance that affects a certain organ system is added to produce an overall HI for that organ system. The overall HI is calculated for each organ system. The impact is considered to be significant if the overall HI for the highest-impacted organ system is greater than 1.0.

There is no acute REL for DPM. However, diesel exhaust does contain acrolein, formaldehyde and other compounds, which do have an acute REL. Based on DPM speciation data, acrolein emissions are approximately 1.3 percent of the total DPM emissions.[20] The acute REL for acrolein was established by the California OEHHA[21] as 2.5 μg/m^3. In total, acrolein emissions represent over 90 percent of the acute health impacts from diesel engines.

The acute HI would be less than 0.01, based on a project-related maximum 1-hour diesel concentration of 0.67 μg/m^3, respectively (per dispersion modeling analysis) and acrolein speciation of 1.3 percent for DPM or 0.67 μg/m^3/2.5 μg/m^3 times 1.3 percent, which is less than 0.01. The acute HI would be below the project-level threshold of 1 and the impact of the proposed project would therefore be less than significant.

The chronic reference exposure level for DPM was established by the California OEHHA[22] as 5 μg/m^3. Thus, the proposed project-related annual concentration of DPM cannot exceed 5.0 μg/m^3; resulting in a chronic acute HI of greater than 1.0 (i.e., DPM annual concentration/5.0 μg/m^3).

The chronic HI would be less than 0.01, based on a proposed project-related maximum annual diesel concentration of 0.0057 μg/m^3 (per dispersion modeling analysis) or 0.0057 μg/m^3/5.0 μg/m^3, which is 0.01. The chronic HI would be below the project-level threshold of 1 and the impact of the proposed project would therefore be less than significant.

[20] California Air Resources Board Speciation Profile 818 for Off-Road Diesel Emissions (Building Construction - Diesel)

[21] California Office of Environmental Health Hazards Assessment - Acute, 8-hour, and Chronic Reference Exposure Levels, November 4, 2019, Accessed March 23, 2021, http://www.oehha.ca.gov/air/allrels.html

[22] California Office of Environmental Health Hazards Assessment - Acute, 8-hour, and Chronic Reference Exposure Levels, November 4, 2019, Accessed March 23, 2021, http://www.oehha.ca.gov/air/allrels.html

Health Risk Assessment Assumptions

5	Chronic Reference Exposure Level (ug/m3) for DPM
2.5	Acute Reference Exposure Level (ug/m3) for Acrolien
1.1	Cancer Potency Slope Factor (cancer risk per mg/kg-day) for DPM
350	days per year
25,550	days per lifetime

1,090	95th Percentile Daily Breathing Rates (L/kg-day)	0<2 Years
861	95th Percentile Daily Breathing Rates (L/kg-day)	2<9 Years
745	95th Percentile Daily Breathing Rates (L/kg-day)	2<16 Years
335	95th Percentile Daily Breathing Rates (L/kg-day)	16<30 Years
290	95th Percentile Daily Breathing Rates (L/kg-day)	30<70 Years

0.85	fraction of time at home	0<2 Years
0.72	fraction of time at home	2<16 Years
0.73	fraction of time at home	16<70 Years

Project: Yolo County Central Landfill Permit Revisions
Date: April 7, 2021
Receptor: Existing Residence

Exposure Year	Calender Year	Maximum 1-Hour Acrolien Concentration (ug/m3)	Annual PM2.5 Concentration (ug/m3)	Daily Breathing Rates (L/kg-day)	Exposure Factor	fraction of time at home	Cancer Risk
1	2025	0.0086	0.0055	1,090	10.0	0.85	0.77
2	2026	0.0086	0.0055	1,090	10.0	0.85	0.77
3	2027	0.0086	0.0055	745	4.75	0.72	0.21
4	2028	0.0086	0.0055	745	3.00	0.72	0.13
5	2029	0.0086	0.0055	745	3.00	0.72	0.13
6	2030	0.0086	0.0055	745	3.00	0.72	0.13
7	2031	0.0086	0.0055	745	3.00	0.72	0.13
8	2032	0.0086	0.0055	745	3.00	0.72	0.13
9	2033	0.0086	0.0055	745	3.00	0.72	0.13
10	2034	0.0086	0.0055	745	3.00	0.72	0.13
11	2035	0.0086	0.0055	745	3.00	0.72	0.13
12	2036	0.0086	0.0055	745	3.00	0.72	0.13
13	2037	0.0086	0.0055	745	3.00	0.72	0.13
14	2038	0.0086	0.0055	745	3.00	0.72	0.13
15	2039	0.0086	0.0055	745	3.00	0.72	0.13
16	2040	0.0086	0.0055	745	3.00	0.72	0.13
17	2041	0.0086	0.0055	335	1.70	0.73	0.03
18	2042	0.0086	0.0055	335	1.00	0.73	0.02
19	2043	0.0086	0.0055	335	1.00	0.73	0.02
20	2044	0.0086	0.0055	335	1.00	0.73	0.02
21	2045	0.0086	0.0055	335	1.00	0.73	0.02
22	2046	0.0086	0.0055	335	1.00	0.73	0.02
23	2047	0.0086	0.0055	335	1.00	0.73	0.02
24	2048	0.0086	0.0055	335	1.00	0.73	0.02
25	2049	0.0086	0.0055	335	1.00	0.73	0.02
26	2050	0.0086	0.0055	335	1.00	0.73	0.02
27	2051	0.0086	0.0055	335	1.00	0.73	0.02
28	2052	0.0086	0.0055	335	1.00	0.73	0.02
29	2053	0.0086	0.0055	335	1.00	0.73	0.02
30	2054	0.0086	0.0055	335	1.00	0.73	0.02

0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
0.00	Chronic Hazard Impact
1	Significance Threshold
No	Significant?
2.57	Cancer Risk (Child)
10	Significance Threshold
No	Significant?
1.04	Cancer Risk (Adult)
10	Significance Threshold
No	Significant?

APPENDIX H

TRANSPORTATION

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TRANSPORTATION IMPACT ANALYSIS

FOR

YOLO COUNTY CENTRAL LANDFILL PERMIT REVISIONS

Yolo County, California

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May 14, 2021

Job No. 5807-13

Yolo County Landfill.rpt

TRANSPORTATION IMPACT ANALYSIS FOR
YOLO COUNTY CENTRAL LANDFILL PERMIT REVISIONS
Yolo County, CA

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KDA

TRANSPORTATION IMPACT ANALYSIS FOR
YOLO COUNTY CENTRAL LANDFILL PERMIT REVISIONS
Yolo County, CA

INTRODUCTION

This report documents KD Anderson & Associates' assessment of traffic issues associated with implementing changes to the operating permit for the **Yolo County Central Landfill (YCCL)**. This analysis is intended to quantify the traffic / transportation related impacts of this project and identify applicable mitigation within the context of both current and future background traffic conditions.

Project Description

Yolo County (County) is the Lead Agency for the preparation and review of the Environmental Impact Report (EIR) for the YCCL Permit. The landfill is located on County Road 28H (CR 28H) east of County Road 102 and north of Interstate 80, as noted in Figure 1. The landfill operates under two distinct transportation limitations included in the permit:

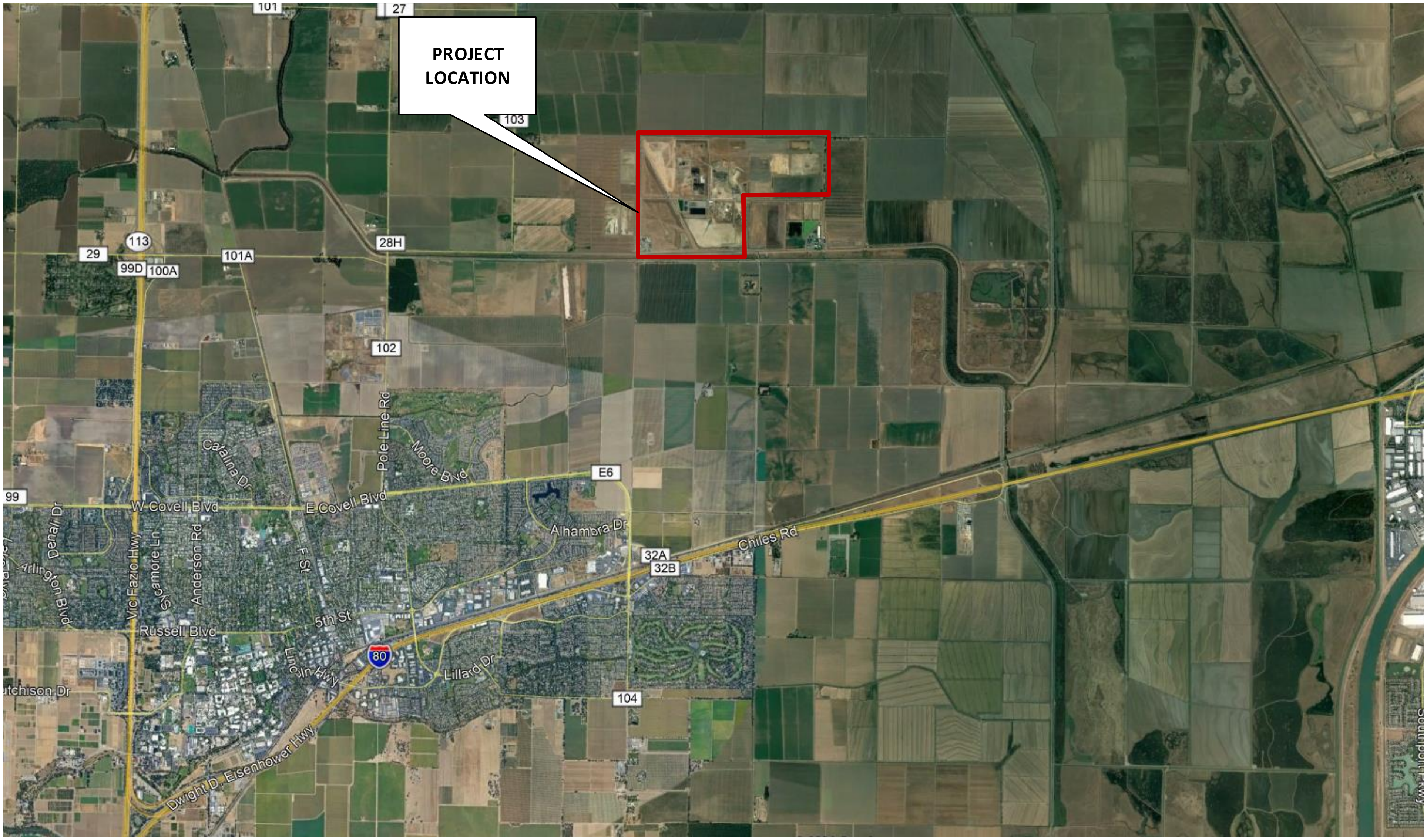
- No more than 1,047 incoming waste or soil trips per day
- No more than 1,800 tons of incoming waste per day

Under the proposed permit modification the following change would be made to the permit:

- No more than 3,000 tons per day

In addition, specific development / operation projects are contemplated at the YCCL over the life of the modified permit. Some aspects of the travel associated with these projects would be governed by the modified permit, as noted in Table 1.

TABLE 1 YCCL DEVELOPMENT / PROGRAMS			
Proposed Uses	**Daily Trucks**		**Employees**
	Loads under SWFP	**Total Loads**	
Increased Daily Permitted Tonnage	104	104	5
Wood Pellet Facility	8	8	5
Large Scale Floating Solar Photovoltaic System	0	0	0
Waste Gasification Facility	15	15	15
Expanded Biogas Utilization Options	0	0	0
Peaking Power Plant	0	0	0
New Class 2 Surface Impoundment	0	0	0
Organic Waste Fertilizer Facility	4	4	5
Stormwater Treatment System and Discharge	0	0	0
Additional Groundwater Pumping (Possible Treatment and Discharge)	0	0	0
Transfer Station	25	25	0
Non-Specific Future Borrow Site	0	100	0
Thermal Pressure Hydrolysis System	0	0	3
Biogas to Methanol Pilot Facility	2	2	2
Total	**158**	**258**	**35**



VICINITY MAP

KD Anderson & Associates, Inc.
Transportation Engineers
5807-13 RA 5/14/2021

figure 1

Study Approach

This report documents KD Anderson & Associates, Inc. assessment of transportation impacts and effects associated with operating the YCCL under the modified permit while concurrently implementing potential projects and programs on site. This analysis is intended to address those topics required under the California Environmental Quality Act (CEQA) during the transition from Level of Service (LOS) based metrics to ***Vehicle Mile Traveled (VMT)*** based investigation under the requirements of SB 743. The analysis discusses the project's potential impact to regional VMT using the best available technical resources and guidance from the Governor's Office of Planning and Research (OPR).

The ***Traffic Operations Analysis*** quantifies the traffic effects of the project in comparison to current background conditions occurring on state highways and Yolo County roads on a weekday basis and during a.m. and p.m. peak hours. Trip generation forecasts have been made for the additional travel associated with the permit modification and with identified projects. Project trips were assigned to the site area street system, and resulting traffic operations have been compared to the baseline condition to quantify project effects. The impact of the projects to alternative transportation modes (pedestrians, bicycles and transit) and to safety have also been discussed. The relative impact of truck traffic accompanying the permit modification and development projects has also been described in terms of change to long term Traffic Index.

EXISTING SETTING

Regionally, the YCCL is served by a variety of state highways, streets within incorporated cities, rural arterial roads, rural collector roads and local rural roads. The text which follows provides information regarding the circulation system in this area of the County, evaluates the operation of the circulation system based on adopted methods and significance criteria and considers alternative transportation modes to provide a basis against which to evaluate the impacts of the project.

Study Area Circulation System - Roads

Roadway Network. The roadway network within the unincorporated parts of Yolo County is a grid-based system of rural two-lane roads that connects individual communities and provides access to agricultural fields. Urban development is mainly concentrated in the eastern and southern portions of the County within the incorporated cities of Davis, West Sacramento, Winters, and Woodland. Interstate 80, I-5, and I-505 are the primary transportation corridors extending through the County and serve all of the County's major population centers. Other state highways, County arterials, and a network of local public and private roads constitute the remainder of the roadway system.

- **I-80** is a principal east/west route in Yolo County, providing connections to the San Francisco Bay Area and Sacramento County. I-80 is a major commute route between residential areas in the greater Sacramento area and the San Francisco Bay Area employment centers and is a major truck route between the San Francisco Bay Area, Sacramento, and the Tahoe Basin and points east. From the Solano County line to the Sacramento County line, I-80 is a six-lane freeway that connects the City of Davis and the City of West Sacramento.

- **SR 113** serves as an important link for agricultural and commercial traffic to I-5 and I-80. The segment between Davis and Woodland is a four-lane freeway that terminates at I-5. SR 113 continues from I-5 in Woodland as a two-lane conventional highway north to the town of Knights Landing and continues into Sutter County.

The County maintains an extensive roadway system that provides a high level of access compared to the relatively low levels of traffic on most roadways. Major County roads are also part of the regional roadway system and typically provide the connections to the highway and freeway system. **County Road 102** (CR 102) is a key County roadway that is used by motorists traveling between Davis and Woodland. **County Road 28H** (CR 28H) extends east from CR 102 to the landfill. **County Road 29** (CR 29) links SR 113 and CR 102. **County Road 105** (CR 105) links CR 28H and **County Road 32A** (CR 32A) in the area near I-80 ramps.

Traffic Operations - Methodology

Roadway Segments. The analysis of traffic operations was conducted for intersections and roadway segments. Traffic volumes on the selected roadway segments are used to determine the overall usage and congestion. Note that the roadway segment analysis is based on traffic counts taken at a single location or link, which was intended to be representative of average conditions over the entire segment.

Traffic operations on the study roadway segments were measured using a qualitative measure called Level of Service (LOS). LOS is a general measure of traffic operating conditions whereby a letter grade, from A (the best) to F (the worst), is assigned. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving, as well as speed, travel time, traffic interruptions, and freedom to maneuver. The LOS grades are generally defined as follows:

> **LOS A** represents free-flow travel with an excellent level of comfort and convenience and the freedom to maneuver.
>
> **LOS B** has stable operating conditions, but the presence of other road users causes a noticeable, though slight, reduction in comfort, convenience, and maneuvering freedom.
>
> **LOS C** has stable operating conditions, but the operation of individual users is substantially affected by the interaction with others in the traffic stream.
>
> **LOS D** represents high-density, but stable flow. Users experience severe restriction in speed and freedom to maneuver, with poor levels of comfort and convenience.
>
> **LOS E** represents operating conditions at or near capacity. Speeds are reduced to a low but relatively uniform value. Freedom to maneuver is difficult with users experiencing frustration and poor comfort and convenience. Unstable operation is frequent, and minor disturbances in traffic flow can cause breakdown conditions.
>
> **LOS F** is used to define forced or breakdown conditions. This condition exists wherever the volume of traffic exceeds the capacity of the roadway. Long queues can form behind these bottleneck points with queued traffic traveling in a stop-and-go fashion.

Roadway Segments Analysis. LOS was determined by comparing traffic volumes for selected roadway segments with peak-hour LOS capacity thresholds. These thresholds are shown in Table 2 and were calculated for the GPEIR based on the methodology contained in the Highway Capacity Manual (HCM) (Transportation Research Board 2000). The HCM methodology is the prevailing measurement standard used throughout the United States.

TABLE 2
OPERATIONAL CLASS AND PEAK HOUR LEVEL OF SERVICE THRESHOLDS

Operational Class	Peak Hour Level-of-Service Capacity Threshold				
	A	B	C	D	E
Minor Two-Lane Highway	90	200	680	1,410	1,740
Major Two-Lane Highway	120	290	790	1,600	2,050
Four-Lane, Multilane Highway [a]	1,070	1,760	2,530	3,280	3,650
Two-Lane Arterial	-	-	970	1,760	1,870
Four-Lane Arterial, Undivided	-	-	1,750	2,740	2,890
Four-Lane Arterial, Divided	-	-	1,920	3,540	3,740
Six-Lane Arterial, Divided	-	-	2,710	5,320	5,600
Eight-Lane Arterial, Divided	-	-	3,720	7,110	7,470
Two Freeway Lanes [a]	1,110	2,010	2,880	3,570	4,010
Two Freeway Lane + Auxiliary Lane [a]	1,410	2,550	3,640	4,490	5,035
Three Freeway Lanes [a]	1,700	3,080	4,400	5,410	6,060
Three Freeway Lanes + Auxiliary Lane [a]	2,010	3,640	5,180	6,350	7,100
Four Freeway Lanes [a]	2,320	4,200	5,950	7,280	8,140

[a] LOS capacity threshold is for one direction.
– LOS is not achievable because of type of facility.
Source Yolo County General Plan DEIR

It should be noted that this traditional methodology used to analyze the roadway system does not consider the potential impact on walking, bicycling, and transit. Pedestrians, bicyclists, and transit riders are all users of the roadway system but may not be fully recognized in the traffic operations analysis and the calculation of LOS. The LOS thresholds in Table 2 are based on driver's comfort and convenience. Identifying the need for roadway improvements based on the resulting roadway LOS can have unintended impacts to other modes such as increasing the walking time for pedestrians. In evaluating the roadway system, a lower vehicle LOS may be desired when balanced against other community values related to resource protection, social equity, economic development, and consideration of pedestrians, bicyclists, and transit users.

Peak Hour Intersection Analysis

At unsignalized intersections the number of gaps in through traffic, gap acceptance time and corresponding delays for motorists waiting to turn are used for Level of Service analysis. Procedures used for calculating unsignalized intersection Level of Service are as presented the *Highway Capacity Manual, 6th Edition.*

The Levels of Service at unsignalized intersections that are controlled by side street stop signs are indicative of the magnitude of the delay incurred by motorists that must yield the right of way at an intersection, as noted in Table 3. Because these calculations exclude the characteristics of through traffic flow (which is assumed to flow freely at a good Level of Service) peak hour traffic signal warrant analysis is usually performed to confirm the significance of calculated delays. While the unsignalized Level of Service may indicate long delays (i.e., LOS "E"), traffic conditions are generally not assumed to be unacceptable unless signal warrants are satisfied. Meeting peak hour signal warrants signifies that intersection improvements may be justified but does not indicate that installation of a signal is the only way to improve conditions. It is often possible to improve operations with additional lanes or improved geometrics to reduce delays. The signal warrant criteria employed for this study is as presented in the *Manual of Uniform Traffic Control Devices* (MUTCD).

TABLE 3
LEVEL OF SERVICE DEFINITIONS

Level of Service	Signalized Intersection	Unsignalized Intersection and Roundabout	Roadway (Daily)
"A"	Uncongested operations, all queues clear in a single-signal cycle. Delay $\leq$ 10 sec	Little or no delay. Delay $\leq$ 10 sec/veh	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. Delay > 10 sec and $\leq$ 20 sec	Short traffic delays. Delay > 10 sec/veh and $\leq$ 15 sec/veh	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. Delay > 20 sec and $\leq$ 35 sec	Average traffic delays. Delay > 15 sec/veh and $\leq$ 25 sec/veh	Ability to maneuver and select operating speed affected.
"D"	Significant congestions of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35 sec and $\leq$ 55 sec	Long traffic delays. Delay > 25 sec/veh and $\leq$ 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay > 55 sec and $\leq$ 80 sec	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and $\leq$ 50 sec/veh	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. Delay > 80.0 sec	Intersection often blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.

Sources: Highway Capacity Manual, 6th Edition Transportation Research Board (TRB) Special Report 209.

Current YCCL Operations. Activity records at the YCCL gate over the last four years were reviewed and summarized to provide perspective regarding the number of entering vehicles and permitted tonnage received. Table 4 summarizes data for each year in terms of the number of entering vehicles and the tonnage under permit that was received. Data is presented for the three highest days in terms of both entering vehicles and tonnage under permit received, while the annual average value for each parameter is also noted.

As shown, the number of instances when the YCCL received tonnage that exceed or approached the current permit limit of 1,800 tons was very rare. Alternatively, the YCCL did not approach the 1,047 entering vehicles per day limit, and recently Saturdays have had the greatest number of arriving vehicles because residential self-haul in concentrated on that day with the landfill closed on Sundays.

TABLE 4
YCCL OPERATIONS SUMMARY (2017-2020)

Year	Condition	Day	Inbound Vehicles			Tons Subject to Limit
			Total	Subject to Limit	Other	
2017	Maximum three vehicle days	Friday	654	449	205	1,154
		Tuesday	646	455	191	1,224
		Monday	637	432	205	1,276
	Average Day		468	320	148	961
	Maximum three tonnage days	Monday	510	362	148	1,927
		Wednesday	494	326	168	1,749
		Tuesday	530	367	163	1,716
2018	Maximum three vehicle days	Friday	738	470	268	1,285
		Tuesday	737	493	244	1,397
		Tuesday	721	440	281	1,320
	Average Day		481	323	158	829
	Maximum three tonnage days	Friday	479	338	141	1,516
		Thursday	501	334	167	1,505
		Tuesday	529	383	146	1,504
2019	Maximum three vehicle days	Saturday	769	438	331	433
		Saturday	748	459	289	493
		Saturday	742	280	352	660
	Average Day		526	344	182	923
	Maximum three tonnage days	Monday	606	397	209	1,679
		Tuesday	556	292	164	1,661
		Tuesday	526	351	175	1,653
2020	Maximum three vehicle days	Saturday	1,050	624	426	423
		Saturday	995	519	476	505
		Saturday	994	577	417	453
	Average Day		630	399	231	921
	Maximum three tonnage days	Tuesday	650	455	195	1,538
		Wednesday	710	423	287	1,531
		Tuesday	693	492	201	1,522

Existing Traffic Operating Conditions

Study Area. Figure 2 identifies the study area addressed by the traffic operational analysis. As shown CR 28H and its intersection on CR 102 are included, as is CR 102 itself. CR 105 is addressed as well as its intersection on CR 32A. The I-80 ramp intersections on CR 32A and CR 32b has been assessed.

Traffic Volumes. Due to the effects of COVID-19 on local and regional travel, available data presented in other recent traffic studies was combined with new traffic counts to presents current traffic volumes levels without the effects of COVID-19. The sources of the data employed herein are noted below:

Intersection Peak Hour Traffic Count Services:

Davis Innovation Sustainability Campus DEIR[1]

CR 32A / CR 105
CR 32A / WB I-80 ramps
CR 32B / EB I-80 ramps

New Data 2/17/2021

CR 102 / CR 28H

Segment 24-hr Traffic Volume Counts

Yolo Cannabis Ordinance DEIR

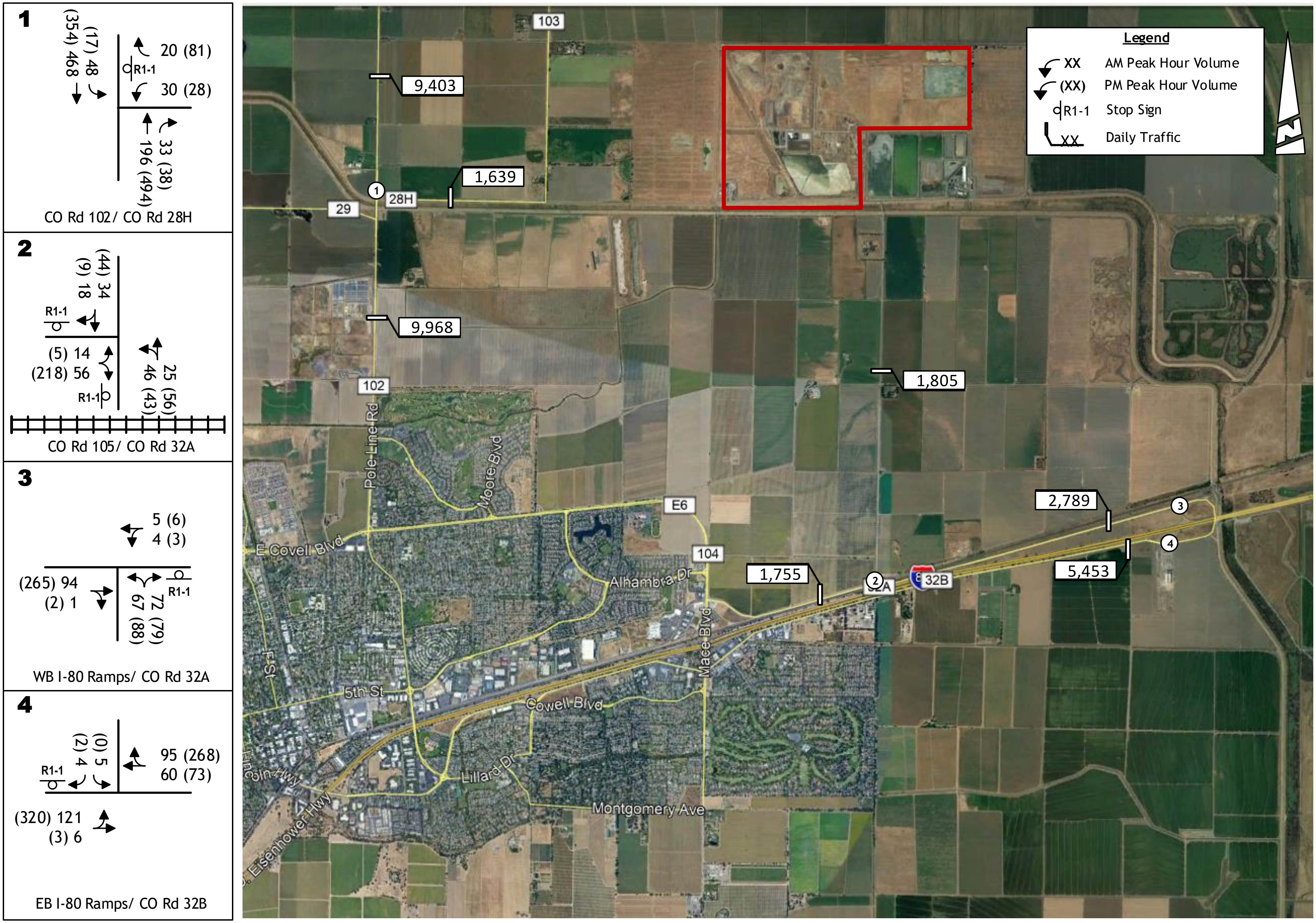
CR 28H between CR 102 and CR 105 (5/24/2018)
CR 32A between Mace Blvd and CR 105 (4/10/2019)
CR 32A between SR 105 and Webster Rd (4/10/2019)
CR 32B between Mace Blvd and Webster Rd (5/22/2018)
CR 102 between Covell Blvd and CR 29 (5/24/2018)
CR 102 between CR 29 and CR 27 (5/15/2018)
CR 105 between CR 102A and CR 28H

New Data 2/17/2021

CR 28H east of CR 102
CR 105 North of CR 32B
CR 32B between Mace Blvd and Co Road 105

2021 traffic counts at the CR 102 / CR 28H intersection we adjusted to pre-COVID levels based on the peak hour approach volume available from 24-hr counts on each roadway. Truck percentages on CR 105 were determined from the 2021 counts.

[1] Aggie Research Campus Traffic Operations Analysis Fehr & Peers, March 2020



EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers

5807-13 RA 5/14/2021

figure 2

Segment Level of Service. Table 5 identifies daily traffic volumes and current Level of Service on study area roads based peak hour volume following the methods employed in the General Plan EIR. As indicated, the two roads that provide direct access to the YCCL (i.e., CR 28H and CR 105) operate at LOS D and satisfy the LOS C minimum standard. Highest volumes occur on CR 102, and LOS D conditions exist on that roadway. As indicated, the General Plan acknowledges that LOS D will be acceptable on CR 102 with the expectation that the road will eventually be widened to provide passing lanes.

TABLE 5
EXISTING ROADWAY SEGMENT TRAFFIC VOLUMES AND LOS

Roadway	Segment	Juris.	Lanes	LOS Threshold	Existing Conditions (2019)		
					Volume		Level of Service
					Daily	PM Peak Hour	
Chiles Rd/CR 32B	Mace Blvd to Webster Rd	D / Y	2	C	5,458	580	C
CR 28H	CR 102 to CR 105	Y	2	C	1,639	171	B
CR 32A	Mace Blvd to CR 105	D / Y	2	C	1,755	300	C
	CR 105 to Webster Rd	Y	2	D	2,789	448	C
CR 105	Co Rd 32B to Co Rd 28H	Y	2	C	1,805	123	B
CR 102	Covell Blvd to CR 29	D / Y	2	C[1]	9,968	**940**	**D**
	CR 29 to CR 27	Y	2	C[1]	9,403	**960**	**D**

Highlighted values exceed minimum LOS C
Jurisdiction Y is Yolo County; C is Caltrans, D is Davis
[1] LOS D accepted under GP policy with improvements

Intersection Level of Service. Table 6 presents the results of peak hour Level of Service analysis for the study area intersections. As indicated, all locations operate at LOS B or better, and all satisfy the General Plan's minimum LOS C requirement.

Traffic Signal Warrants. Current traffic volumes were compared to the requirements of MUTCD peak hour volume warrants for signalization to determine whether a traffic signal may be justified. No study intersection carries peak hour volume that reach warrant levels.

TABLE 6 EXISTING PEAK HOUR INTERSECTION LOS						
			AM Peak Hour		PM Peak Hour.	
Street	**Cross Street**	**Control**	**Average Delay (Sec/veh)**	**LOS**	**Average Delay (sec/veh)**	**LOS**
CR 102	CR 28H	SSS	14.8	B	14.7	B
CR 32A	CR 105	SSS	9.4	A	10.0	B
CR 32A	WB I-80 ramps	SSS	10.0	B	12.9	B
CR 32B	EB I-80 ramps	SSS	10.4	B	9.4	A

Note: Level of Service reported for intersections controlled by side street stops (SSS) is the "worst case" value the results for all movements that must yield the right of way.

Peak Period Queues. Table 7 presents 95^{th} percentile queues estimated for key left turn lanes and I-80 off ramps. As indicated, current peak period queues do not exceed available turn lane storage or extend down off ramps to the point that they might interfere with mainline I-80 traffic.

TABLE 7 EXISTING PEAK HOUR INTERSECTION QUEUES						
			AM Peak Hour		PM Peak Hour	
Intersection	**Lane**	**Storage (Feet)**	**Volume (Vph)**	**95^{th} % Queue (Feet)**	**Volume (Vph)**	**95^{th} % Queue (Feet)**
CR 102 / CR 28H	Southbound left	150	48	<25	17	<25
	Westbound left	80	30	<25	28	<25
CR 32A / WB I80	Off ramp	1,175[1]	139	<25	167	35
CR 32B / EB I-80	Off ramp	990[1]	9	<25	2	<25

[1] distance to mainline I-80 ramp gore

Collision History

Collision records maintained by Yolo County were obtained for the study are circulation system and reviewed to identify any locations where collision frequency was noteworthy. Information was assembled for the five years prior to COVID-19 as shown in Table 8. As indicated, only five collisions were identified from County records. Three occurred at intersections, and two were at midblock locations. The equivalent collision frequency rate was determined for each facility type (i.e., collisions per million entering vehicles at intersections, and collisions per million vehicle miles on segments). The results were compared to current statewide averages for similar facilities, and as indicated the recent collision frequencies are less than the statewide averages, indicating that no location would be considered “high accident frequency” location.

TABLE 8
YEAR 2015-2019 COLLISION HISTORY

Intersection	Total Collisions	Predominate Collision Type	Frequency rate	State Average Rate
CR 105 / CR 28H	1	Hit object	0.16 / MV	0.25 / MV[1]
CR 102 / CR 29	2	Hit object; broadside	0.09 / MV	0.25 / MV
CR 102 from CR 29 to CR 28H	1	Rear end (DUI)	0.33 / MVM	0.70 / MVM[2]
CR 28H east of CR 102 to CR 105	1	Hit object	0.11 / MVM	0.70 / MVM
CR 105 from CR 28H to CR 29	0	none	none	0.70 / MVM

MV is million entering vehicles. MVM is million vehicle miles.
[1] average for rural intersection with stop control
[2] average for conventional 2 lane highway in flat terrain

Alternative Transportation Modes

Public Transportation. Public transportation in Yolo County consists of the following services and facilities:

- public bus service,
- commercial bus service,
- taxi service,
- vanpools and carpools, and
- park-and-ride facilities.

Yolo County Transportation District. The Yolo County Transportation District (YCTD) operates YOLOBUS, which serves the residents of Yolo County and provides regional, intercity, and local fixed-route services throughout the County. For the fixed-route service, 10 routes are local (within Yolo County), and other routes provide commuter route service to Sacramento

County and Solano County. The Yolobus System Overview map https://www.yolobus.com/media/YolobusSystemOverviewMap03-13.pdf is included in the Appendix.

The YCTD also provides paratransit through YOLOBUS Special, which provides local city, intercity, and rural County service. These services provide on-demand, door-to-door transportation primarily for elderly and disabled passengers. The paratransit service is in addition to the approximate ¾-mile route deviations that can be requested on some of the local fixed-routes.

Commercial bus service is provided by Greyhound, which provides over 3,600 service locations within North America. Greyhound provides limited service bus stops with stops in Davis and Woodland. Service at these bus stops may vary by schedule, day, week, carrier, or season, and no Greyhound ticketing or baggage facilities are available at these locations. These limited service bus stops provide connections to full-service stations located in the San Francisco Bay Area and the greater Sacramento area.

Taxi services are provided by several local companies located in Davis, Woodland, West Sacramento, and Knights Landing and are available on demand or by reservation.

Park-and-ride lots provide a place for commuters in single-occupant vehicles to transfer to public transit or carpools. Yolo County has four park-and-ride facilities with three along I-80 and one near I-505 in the City of Winters. (see Caltrans website for locations: http://dot.ca.gov/dist3/departments/planning/parknride.htm)

Bicycle and Pedestrian Circulation. The bicycle and pedestrian transportation system in Yolo County is composed of local and regional bikeways and trails. Yolo County is a favorable area for bicycling because of its flat terrain, mild climate, and relatively short distance between cities. In addition, the City of Davis and UCD have an extensive network of bicycle facilities with good connections to the County's bicycle network.

Bikeways are classified into the following three types (refer to Figure IV.C-7):

Class I – off-street bike paths.
Class II – on-street bike lanes marked by pavement striping.
Class III – on-street bike routes that share the road with motorized vehicles.

The County of Yolo Bicycle Transportation Plan (BTP) was updated and adopted by the Board of Supervisors in March 2013. According to the Yolo County BTP, five major bikeways exist within the unincorporated area (https://www.yolocounty.org/home/showdocument?id=2538):

- Class I path along I-80 and Russell Boulevard, and Class II bike lanes along County Road 32A.
- Class II bike lanes along County Road 102 from Knights Landing to eastern Woodland and on to nearby Davis.

- Class II bike lane along County Road 99 from the southern city limit of Woodland south to County Road 29, then east one mile to County Road 99D, then south on County Road 99D to the City of Davis.
- Class II bike lane along County Road 31, County Road 93A and Russell Boulevard between Davis and Winters.
- Class I bike path along County Road 32 west from Davis to County Road 95A.

The County has developed a Parks and Open Space Master Plan (September 2006) that includes descriptions and resources of hiking trails within the unincorporated parts of the County.

REGULATORY SETTING

Transportation policies, laws, and regulations that would apply to the General Plan Circulation Element are summarized below. This information provides a context for the impact discussion related to the plan's consistency with applicable regulatory conditions.

State of California

SB 743. SB 743 governs the application of new CEQA guidelines for addressing transportation impacts based on Vehicle Miles Traveled (VMT).

> ***SB 743.*** Senate Bill 743 (Steinberg, 2013), which was codified in Public Resources Code section 21099, required changes to the guidelines implementing CEQA (CEQA Guidelines) (Cal. Code Regs., Title 14, Div. 6, Ch. 3, § 15000 et seq.) regarding the analysis of transportation impacts. The Governor's Office of Planning and Research (OPR) has proposed, and the California Natural Resources Agency (Agency) has certified and adopted, changes to the CEQA Guidelines that identify vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts. With the California Natural Resources Agency's certification and adoption of the changes to the CEQA Guidelines, automobile delay, as measured by "level of service" and other similar metrics, generally no longer constitutes a significant environmental effect under CEQA. (Pub. Resources Code, § 21099, subd. (b)(3).)"

The California Governor's Office of Planning and Research (OPR) document *Technical Advisory on Evaluating Transportation Impacts in CEQA* (California Governor's Office of Planning and Research 2018) provides general direction regarding the methods to be employed and significance criteria to evaluate VMT impacts, absent polices adopted by local agencies. At the time this analysis commenced, Yolo County had not adopted guidelines for analyzing VMT or determining the significance of a project's impact on VMT. The VMT analysis presented herein is not intended to pre-empt any Yolo County process of developing and adopting VMT guidelines. Rather, the analysis presented in this traffic impact study is intended to be a good-faith effort at disclosing and identifying the VMT impacts of the project based on currently available data and guidance.

Route Concept Reports. Caltrans has completed transportation or route concept reports for a number of state freeways and highways in Yolo County. These reports identify long-range improvements for specific state freeway and highway corridors and establish the "concept," or desired, LOS for specific corridor segments. The reports also identify long-range improvements needed to bring an existing facility up to expected standards needed to adequately serve 20-year traffic forecasts. Additionally, the reports identify the ultimate design concept for conditions beyond the immediate 20-year design period. Yolo County freeways and highways that have concept reports are I-5, I-80, I-505, SR 16, SR 45, SR 84, SR 113, and SR 128. A limitation of these reports is that they do not consider funding availability.

Interstate 80 Transportation Concept Report (I-80 TCR). The Interstate 80 Transportation Concept Report (Caltrans, July 2017) identifies the 20-year concept and ultimate facility for the corridor as widening the existing six lanes through Yolo County (including the Yolo Causeway) to include high occupancy vehicle lanes in both directions. The concept also includes increasing transit service and implementing traffic operation systems such as ramp metering and changeable message signs along the corridor. Caltrans has established a concept LOS of E for I-80 through Yolo County. In addition to the concept report, a **Corridor System Management Plan** (Caltrans, May 2009) provides for "the integrated management of travel modes and roadways to facilitate the efficient and effective mobility of people and goods within California's most congested transportation corridors." This document identifies the addition of HOV lanes between Mace Boulevard (in Davis) and Enterprise Drive (in West Sacramento) along I-80 in both directions.

State Route 113 Transportation Concept Report (SR 113 TCR). The State Route 113 Transportation Concept Report (Caltrans, July 2014) contains the 20-year improvement concept for SR 113. The concept facility for the section between I-80 and I-5 is to maintain the existing four-lane freeway. North of I-5 the concept facility remains a two-lane conventional highway. The ultimate concept LOS from the Solano County line to I-5 is LOS E, while north of I-5 the concept is LOS D.

Caltrans LOS Criteria

With the implementation of SB 743, Caltrans has indicated that for CEQA purposes LOS on State highways is no longer a significance criteria. Instead, a project's impact on safety is to be evaluated. Peak period queue lengths in comparison to available storage is the primary evaluation.

Regional Agencies

SACOG is responsible for regional transportation planning in Yolo County. The 2016 Metropolitan Transportation Plan / Sustainable Communities Strategy (MTP/SCS) (SACOG, February 2016) is a federally mandated long-range fiscally constrained transportation plan for the six-County area that includes El Dorado, Placer, Sacramento, Sutter, Yolo and Yuba counties.

Most of this area is designated a federal non-attainment area for ozone, indicating that the transportation system is required to meet stringent air quality emissions budgets to reduce pollutant levels that contribute to ozone formation. To receive federal funding, transportation projects nominated by cities, counties and agencies must be consistent with the MTP/SCS. A project is considered consistent if it is contained in the MTP/SCS and is included in the computer modeling of transportation and air quality impacts by SACOG. In addition, any regionally significant transportation project planned for a City or County must be included in the MTP/SCS because of its potential effect on travel demand and air pollution.

The 2015/18 Metropolitan Transportation Improvement Program (MTIP) (SACOG 2014) is a list of transportation projects and programs to be funded and implemented over the three-year period. SACOG submits this document to Caltrans and amends the program on a quarterly cycle. The MTIP and its amendments are subject to air quality conformity analysis under federal regulations, which limits the use of federal funds for regionally significant, capacity-increasing roadway projects.

Local

The **Yolo County General Plan (November 10, 2009)** contains policies and actions related to transportation and circulation that are incorporated herein by reference**.**

Yolo County LOS Policies. Policy CI-3.1 of the Yolo County General Plan sets forth the LOS thresholds for the County roadways. This policy reads as follows:

Maintain Level of Service (LOS) C or better for roadways and intersections in the unincorporated county. In no case shall land use be approved that would either result in worse than LOS C conditions, or require additional improvements to maintain the required level of service, except as specified below. As noted, some exceptions are contingent on specific improvements. Because Yolo County has not established a mechanism to fund these improvements, the LOS C minimum will shall apply, as noted in *italics.*

- *A. Interstate 5 (County Road 6 to Interstate 505) – LOS D is acceptable to the County, assuming that one additional auxiliary lane is constructed in each direction through this segment.*
- B. Interstate 5 (Interstate 505 to Woodland City Limit) – LOS D is acceptable to the County.
- C. Interstate 5 (Woodland City Limit to Sacramento County Line) – LOS F is acceptable to the County.
- **D. Interstate 80 (Davis City Limit to West Sacramento City Limit) – LOS F is acceptable to the County.**
- E. State Route 16 (County Road 78 to County Road 85B) – LOS D is acceptable.
- F. State Route 16 (County Road 85B to County Road 21A) – LOS E is acceptable.
- *G. State Route 16 (County Road 21A to Interstate 505) – LOS D is acceptable, assuming that this segment is widened to four lanes with intersection improvements appropriate for an arterial roadway.*

H. *State Route 16 (Interstate 505 to County Road 98) – LOS D is acceptable, assuming that passing lanes and appropriate intersection improvements are constructed.*
I. State Route 113 (Sutter County Line to County Road 102) – LOS F is acceptable to the County.
J. State Route 113 (County Road 102 to Woodland City Limits) – LOS D is acceptable.
K. State Route 128 (Interstate 505 to Napa County Line) – LOS D is acceptable.
L. Old River Road (Interstate 5 to West Sacramento City limits) – LOS D is acceptable.
M. South River Road (West Sacramento City Limit to the Freeport Bridge) – LOS D is acceptable.
N. *County Road 6 (County Road 99W to the Tehama Colusa Canal) – LOS D is acceptable, assuming this segment is widened to four lanes.*
O. County Road 24 (County Road 95 to County Road 98) – LOS D is acceptable.
P. County Road 27 (County Road 98 to State Route 113) – LOS D is acceptable.
Q. County Road 31 (County Road 95 to County Road 98) – LOS D is acceptable.
R. County Road 32A (County Road 105 to Interstate 80) – LOS D is acceptable.
S. County Road 98 (County Road 29 to County Road 27) – LOS D is acceptable
T. *County Road 102 (County Road 13 to County Road 17) – LOS D is acceptable, assuming that passing lanes and appropriate intersection improvements are constructed.*
U. *County Road 102 (County Road 17 to the Woodland City Limit) - LOS E is acceptable, assuming that passing lanes and appropriate intersection improvements are constructed.*
V. County Road 102 (Woodland City Limit to Davis City Limit) – LOS D is acceptable assuming that passing lanes and appropriate intersection improvements are constructed.

Yolo County Transportation Impact Study Guidelines (February 2010) have been developed to provide a clear and consistent technical approach to transportation impact analysis for projects within Yolo County's jurisdiction. This document establishes protocol for transportation impact studies and reports based on the current state-of-the-practice in transportation planning and engineering. The County expects these guidelines to result in studies that provide comprehensive and accurate analysis of potential transportation impacts to County facilities and services. This information is essential for decision makers and the public when evaluating individual projects.

The **County of Yolo Bicycle Transportation Plan (March 2013)** contains a system of existing and planned bikeway facilities to provide for transportation and recreational bicycle travel. Specific policies and implementation strategies were developed to accomplish the following overall goal:

> *It is the goal of Yolo County to provide for and encourage the development of an integrated system of bikeway facilities. These facilities would provide for safe and convenient travel for bicyclists throughout the County. The County recognizes the benefits of improved air quality, improved energy efficiency, reduced traffic congestion, and improved personal fitness that can be realized by encouraging bicycle travel for transportation and recreation.*

Standards of Significance: Levels of Service - Methodology

Governing agencies adopt minimum LOS standards and standards of significance.

Yolo County General Plan / Traffic Study Guidelines. Minimum acceptable Level of Service standards within Yolo County are defined by the General Plan. The minimum standard for roadway and intersections is LOS C with specific exceptions where LOS D, LOS E and LOS F is acceptable.

For **Bicycle Facilities**, a project's impact is significant if:

- A project disrupts existing or planned bicycle facilities or conflicts with adopted County nonauto plans, guidelines, policies, or standards.
- The project adds trips to an existing transportation facility or service (e.g., bike path) that does not meet current design standards.

For **Pedestrian Facilities and Americans with Disabilities Act (ADA) compliance** a project's impact is significant if:

- A project fails to provide accessible and safe pedestrian connections between buildings and to adjacent streets and transit facilities.
- A project disrupts existing or planned pedestrian facilities or conflicts with adopted County nonauto plans, guidelines, policies, or standards.
- The project adds trips to an existing transportation facility or service (e.g., sidewalk) that does not meet current design standards.

For **Trucks or other Heavy Vehicles**, a project's impact is significant if:

- A project fails to provide safe accommodation of forecast truck traffic or temporary construction-related truck traffic.
- The project adds 100 daily passenger vehicle trips (or equivalent – see Section 2 Vehicle and Truck Trip Equivalencies) to an existing roadway that does not meet current County design standards (e.g., structural section, horizontal and vertical curves, lane and shoulder width, etc.).

For **Transit**, a project's impact is significant if:

- A project creates demand for public transit services above the crush load capacity that is provided or planned.
- A project disrupts existing or planned transit facilities and services or conflicts with adopted County non-auto plans, guidelines, policies, or standards.

PROJECT CHARACTERISTICS

Assumptions

This analysis addresses the traffic operational effects implementing the proposed YCCL permit revision based on the potential truck and employee traffic associated with individual projects that have been identified for implementation over the life of the permit. Table 9 identifies the number of truck loads associated with each potential project at the landfill site, as well as other additional truck traffic to be permitted. The number of employees associated with each project is also identified.

Trip Generation

Daily Trip Generation. Table 9 presents the daily truck and automobile trip generation associated with implementing the modified permit. As indicated, the project is expected to generate 516 daily truck trips and 70 daily automobile trips.

Passenger Car Equivalents. Because large trucks take up more space than automobiles and have different performance characteristics in terms of acceleration and deceleration, it is common practice to convert truck trips into a **Passenger Car Equivalent (PCE's)** for operational analysis. Trucks are assumed to represent 2.0 to 4.0 PCE's depending on the size of the truck. For this analysis, 12-ton trucks are assumed to be 3.0 PCE's and 20-ton tractor-trailer combinations are 4.0 PCE's. as indicated, the project is projected to generate 1,676 daily PCE's.

TABLE 9
DAILY TRIP GENERATION ESTIMATES

Proposed Uses	Daily Trucks					Employees	Employee Trips[3]
	Loads under SWFP	Total Loads	Total Trips[3]	PCE / Truck	Total PCE's		
Increased Daily Permitted Tonnage	104	104	208	3[1]	624	5	10
Wood Pellet Facility	8	8	16	4[2]	64	5	10
Large Scale Floating Solar Photovoltaic System	0	0	0	0	0	0	0
Waste Gasification Facility	15	15	30	4	120	15	30
Expanded Biogas Utilization Options	0	0	0	0	0	0	0
Peaking Power Plant	0	0	0	0	0	0	0
New Class 2 Surface Impoundment	0	0	0	0	0	0	0
Organic Waste Fertilizer Facility	4	4	8	4	32	5	10
Stormwater Treatment System and Discharge	0	0	0	0	0	0	0
Additional Groundwater Pumping (Possible Treatment and Discharge)	0	0	0	0	0	0	0
Transfer Station	25	25	50	4	200	0	0
Non-Specific Future Borrow Site	0	100	200	3	600	0	0
Thermal Pressure Hydrolysis System	0	0	0	0	0	3	6
Biogas to Methanol Pilot Facility	2	2	4	4	16	2	4
Total	158	258	516		1,656	35	70

[1] 12 tons per vehicle
[2] 20 ton Tractor / Trailer
[3] Total trips are 2 times the vehicles (counted as 1 inbound trip and 1 outbound trip)

Peak Hour Characteristics. The trips generated by project trucks will be spread throughout the day but based on the typical hours of operation employee travel will likely fall into normal commute periods. Today the landfill receives materials from 6:30 a.m. to 4:00 p.m. (i.e., 9.5 hours), and no change to that schedule is anticipated. For this analysis it was assumed that the expansion of current permitted waste tonnage will follow that schedule, with no materials arriving during the p.m. peak hour. The truck trips associated with the other uses would similarly have relatively little truck traffic after 4:00 p.m.

The peak hour share of the daily employee traffic accompanying new projects would be similar to the share identified for other employment related businesses. For example, ITE data indicates that a.m. or p.m. peak hour traffic associated with light industrial and manufacturing uses represents 12% to 17% of the daily trip generation. For this analysis it has been very conservatively assumed that employee commute traffic will represent 25% of the daily employee trip generation. Similarly, the directional distribution of peak hour trips will likely mimic the patterns of these uses. For industrial and manufacturing uses 77% to 88% of the a.m. peak hour trips are inbound, and 69% to 87% of the p.m. peak hour trips were outbound. For this analysis it has been conservatively assumed that 90% of the a.m. employee trips will be inbound and 90% of the employee trips will be outbound in the p.m.

Resulting peak hour trip generation rates and forecasts are shown in Table 10. As shown the project is estimated to generate 82 trips in the a.m. peak hour and 22 trips in the p.m. peak hour.

TABLE 10
PEAK HOUR TRIP GENERATION FORECASTS

Trip Type	Quantity	Trips/PCE's						
		Daily	AM Peak			PM Peak		
			Inbound	Outbound	Total	Inbound	Outbound	Total
Vehicle Trips								
Automobiles	1	2	90%	10%	0.50[1]	10%	90%	0.50[1]
	35	70	16	2	18	2	16	18
Truck Loads	1	2	50%	50%	0.25	50%	50%	0.01
	258	516	32	32	64	2	2	4
Total Vehicle Trips		586	48	34	82	4	18	22
PCE Trips								
Automobiles	35	70	16	2	18	2	16	18
Truck Loads	258	1,656	73	73	146	6	6	12
Total PCE Trips		1,726	89	75	164	8	22	30

[1] assumes ¼ employees arrive / depart in peak hour

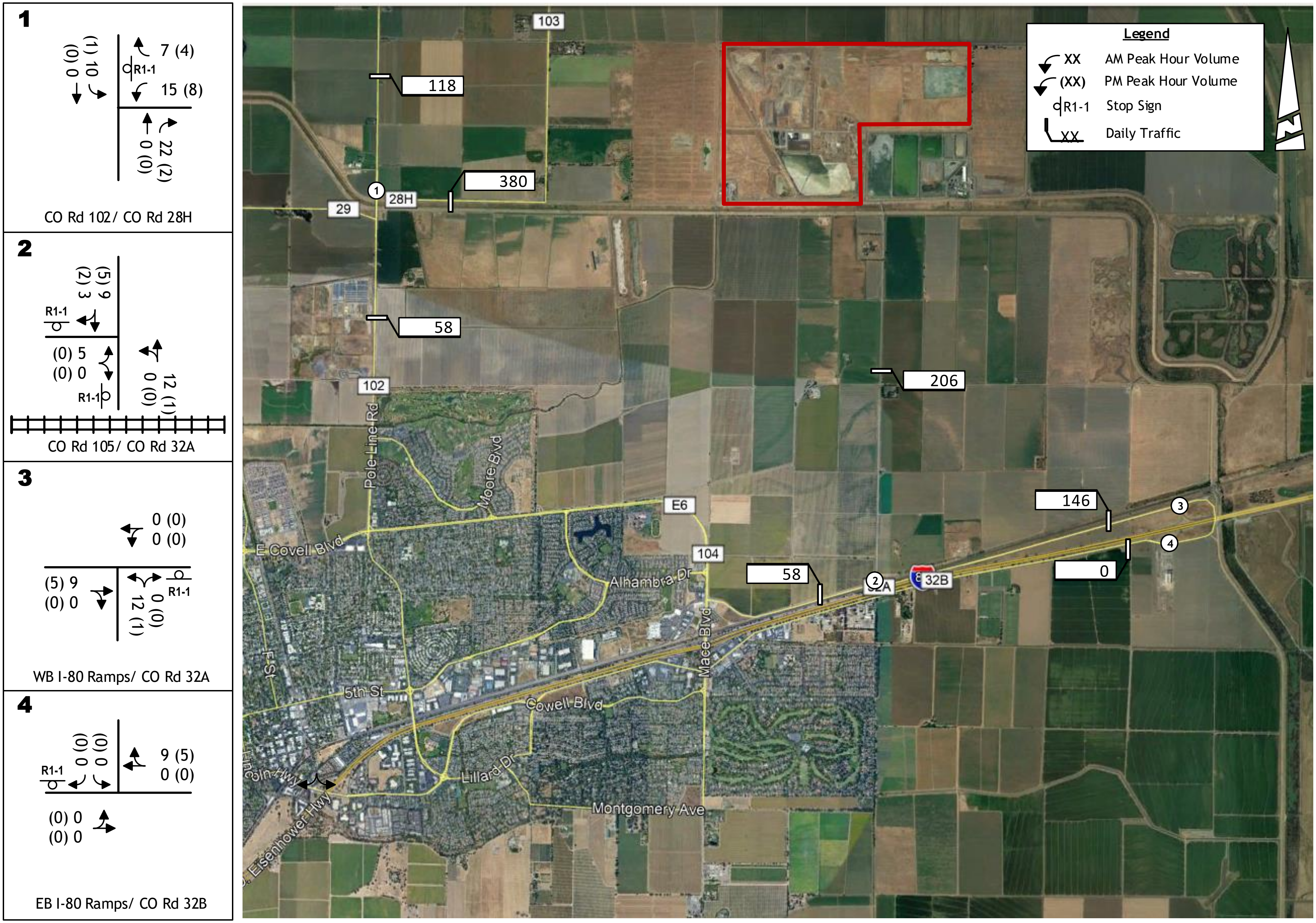
Trip Distribution Assumptions

Having determined the number of vehicle trips that are expected to be generated by the project, it is necessary to identify the directional distribution of project-generated traffic in order to distribute these trips to the study area circulation system. For this analysis the travel characteristics of trips associated with new employment were determined based on the general distribution of residents in Yolo County. The distribution of truck trips was developed as a weighted average of the probable destination of the various potential development projects and current travel patterns. As noted in Table 11, the regional distribution of trips indicates that most truck traffic will use CR 29 to SR 113.

TABLE 11
PROJECT TRIP DISTRIBUTION ASSUMPTIONS

Direction	Route	Percent of Total	
		Trucks	Employees
North	CR 102	14%	3%
East	Sacramento via I-80	18%	32%
West	CR 29 to SR 113	60%	25%
South	Davis via Mace Blvd	6%	39%
	Davis Via CR 102	2%	1%
Total		100%	100%

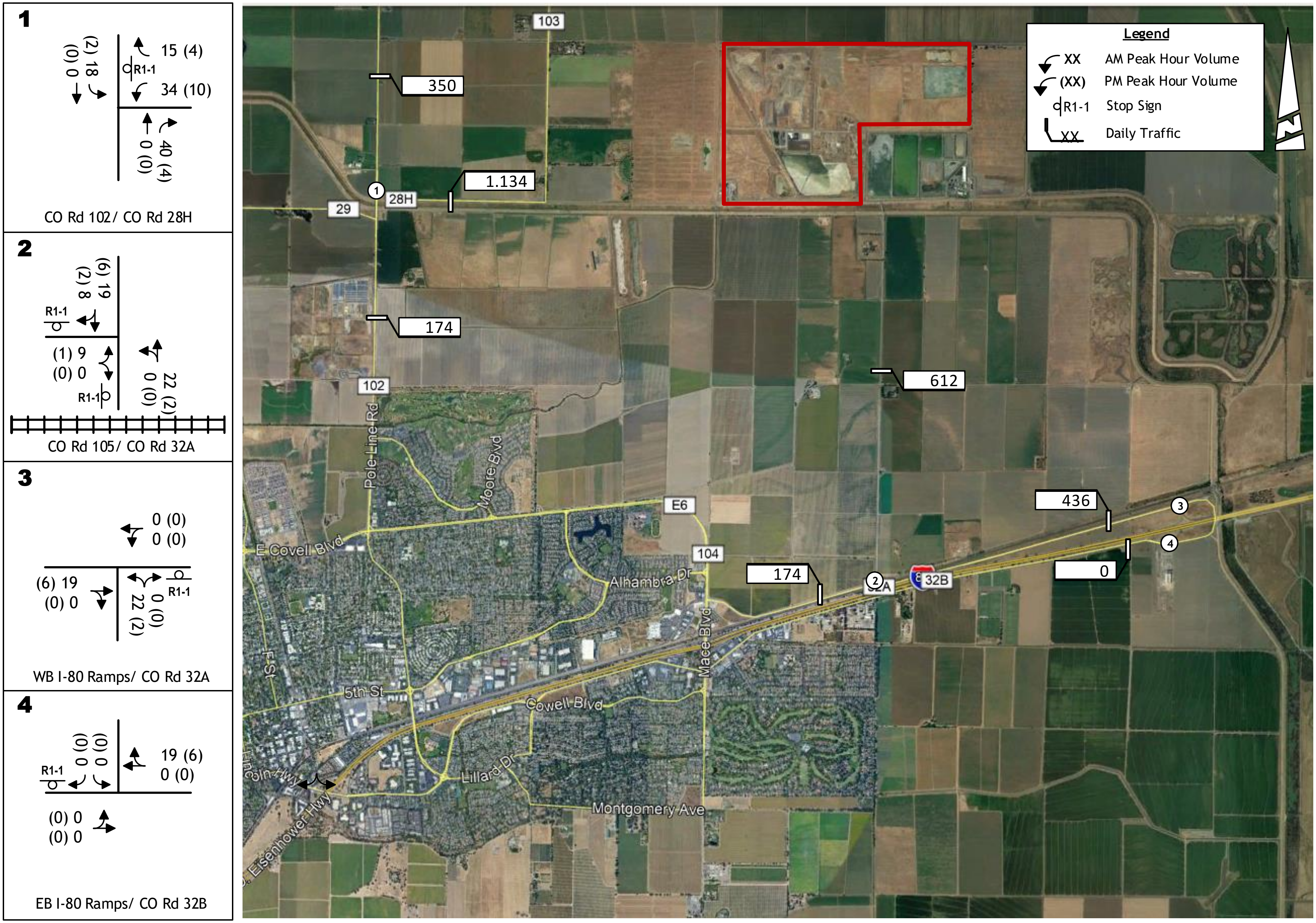
Project Trip Assignment. The assignment of project daily and peak hour trips under these assumptions is presented in Figure 3. Figure 4 presents the alignment of the project's Passenger Car Equivalents (PCE's), as noted later in the report in the discussion of truck impacts.



PROJECT ONLY TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers

5807-13 RA 5/14/2021



PROJECT ONLY (PCE) TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers

5807-13 RA 5/14/2021

figure 4

CEQA TRANSPORTATION IMPACTS

Vehicle Miles Traveled (VMT) Analysis

VMT refers to the amount and distance of vehicle travel attributable to a project. VMT generally represents the number of vehicle trips generated by a project multiplied by the average trip length for those trips. For CEQA transportation impact assessment, VMT shall be calculated using the origin-destination VMT method, which accounts for the full distance of vehicle trips with one end from the project.

The California Governor's Office of Planning and Research (OPR) document *Technical Advisory on Evaluating Transportation Impacts in CEQA* (California Governor's Office of Planning and Research 2018) provides general direction regarding the methods to be employed and significance criteria to evaluate VMT impacts, absent polices adopted by local agencies. The directive addresses several aspects of VMT impact analysis, and is organized as follows:

- ***Screening Criteria***: Screening criteria are intended to quickly identify when a project should be expected to cause a less-than-significant VMT impact without conducting a detailed study.
- ***Significance Thresholds***: Significance thresholds define what constitutes an acceptable level of VMT and what could be considered a significant level of VMT requiring mitigation.
- ***Analysis Methodology***: These are the potential procedures and tools for producing VMT forecasts to use in the VMT impact assessment.
- ***Mitigation***: Projects that are found to have a significant VMT impact based on the County's significance thresholds are required to implement mitigation measures to reduce impacts to a less than significant level (or to the extent feasible).

Screening Criteria. Screening criteria can be used to quickly identify whether sufficient evidence exists to presume a project will have a less than significant VMT impact without conducting a detailed study. However, each project should be evaluated against the evidence supporting that screening criteria to determine if it applies. Projects meeting at least one of the criteria below can be presumed to have a less than significant VMT impact, absent substantial evidence that the project will lead to a significant impact.

The extent to which the proposed project qualifies under each criterion is noted.

- ***Regional Truck Traffic:*** The OPR directive specially focuses on the need to evaluate residential and employment based travel, either from the standpoint of home-based trips or through evaluation of commute trips associated with employment centers. While not specifically listed, the directive notes that regional truck traffic can be omitted from VMT estimates.
- ***Small Projects:*** Defined as a project that generates 110 or fewer average daily vehicle trips.

- ***Affordable Housing:*** Defined as a project consisting of deed-restricted affordable housing.
- ***Local-Serving Non-Residential Development***: The directive notes that local serving retail uses can reduce travel by offering customers more choices in closer proximity. Local serving retail uses of 50,000 square feet or less can be presumed to have a less than significant impact.
- ***Projects in Low VMT-Generating Area:*** Defined as a residential or office project that is in a VMT efficient area based on an available VMT Estimation Tool. The project must be consistent in size and land use type (i.e., density, mix of uses, transit accessibility, etc.) as the surrounding built environment.
- ***Proximity to High Quality Transit.*** The directive notes that employment and residential development located within ½ mile of a high-quality transit corridor can be presumed to have a less than significant impact.

Evaluation. The extent to which the proposed project's VMT impacts can he presumed to be less than significant has been determined based on review of the OPR directive's screening criteria and general guidance.

The OPR Small project criteria is applicable to this project. The project is projected to generate 586 daily vehicle trips. Of that total, 70 trips would be made by employees commuting to and from the site via automobile, and 516 trips would be made by trucks hauling materials to and from the site. Because truck traffic can be excluded from the analysis, the employee trip generation estimate of 70 trips can be compared to the OPR threshold of 110 daily trips.

> ***Conclusion:*** As the 110 ADT threshold for automobiles is not exceeded, the project's VMT impacts can be presumed to be less than significant.

<u>Multi-Modal General Plan Consistency</u>

The significance of the project's Multi-Modal impacts is discussed in the text which follows.

Transit Service and Facilities. As Yolobus does not operate on the CR 102, CR 28H or CR 105, nor is any route planned in the future, the project does not physically disrupt an existing transit service or facility nor interfere with implementation of a planned transit service or facility. The project's traffic contribution to roads that are used by Yolobus, (i.e. I-80, SR 113) would be too small to result in increased travel time for busses that adversely effect on-time performance. The project would not result in increased transit ridership demands that result in passenger loads that exceed vehicle loading standards. As the project access is not adjacent to any transit facility, the project does not result in increased potential for safety conflicts involving transit vehicles and other modes of travel.

> ***Conclusion.*** The project's impact to Transit Service and Facilities is not significant.

Bicycle Facilities. The project does not interfere with use of Class I bike trail along CR 32A nor the Class II bike lanes on CR 102. The project does not physically disrupt an existing bicycle facility or interfere with implementation of a planned bicycle facility. Some project employees might elect to ride bicycles to the site. The Regional Bicycle, Pedestrian and Trails Master Plan, SACOG, 2015 indicates that 10.1% of Yolo County commuters reported using bicycles. If 10% of the project's employee trips were made by bicycle, then 8 additional bicycle trips might be added to the area circulation system per day. With the presence of bikes lanes on CR 102, this use would not result in a significant increase in bicyclists on a facility that does not have adequate bicycle facilities, such that conflicts between bicyclists and other travel modes are likely to increase.

Conclusion. The project's impact to Bicycle Facilities is not significant.

Pedestrian Facilities. The project's frontage improvements on Berg Street and Douglas Blvd include sidewalks, and the project provides accessible and safe pedestrian connections between buildings and adjacent streets and transit facilities. The project provides a pedestrian route across the new driveway and maintains sidewalks with modifications to Douglas Blvd. The project does not physically disrupt an existing pedestrian facility nor interfere with implementation of a planned pedestrian facility. Some employees or patients may walk to the site. The Regional Bicycle, Pedestrian and Trails Master Plan, SACOG, 2015 indicates that 2.7% of Yolo County commuters reported walking. If 3% of the project's trips were made on foot, then 2 additional pedestrians might be added to the area circulation system. The project does not result in an increased presence of vehicles and/or pedestrians on a facility that does not have adequate pedestrian facilities, such that conflicts between pedestrians and other travel modes are likely to increase.

Conclusion. The project's impact to Pedestrian Facilities is not significant.

Roadway Design and Users. As addressed in the LTA, the project would not substantially increase hazards to vehicle safety due to increased traffic at locations with geometric design features (e.g., sharp curves or dangerous intersections). Regular site traffic and vehicles visiting the site during construction will be comprised of automobiles and trucks permitted under the California Vehicle Code (CVC) and no farm equipment is expected. The project does not introduce incompatible users (e.g., farm equipment) to a roadway or transportation facility not intended for those users.

Conclusion. The project's impact with regards to Roadway Design and Users is not significant.

State Highways. The project will add traffic to Interstate 80 and its ramps on CR 32A and CR 32B, as addressed in the traffic analysis. However, the projects traffic does not appreciably increase current peak period queuing on I-80 off-ramps, and as result the project would not contribute to a safety problem on state facilities.

Conclusion. The project's impact with regards to State facilities is not significant.

TRAFFIC OPERATIONAL EFFECTS

Existing Plus Project Traffic Conditions and Levels of Service

Project traffic was added to the current background conditions to create the "Existing plus Project" traffic volumes shown in Figure 5. Similarly, the project's PCE's were superimposed onto background traffic in Figure 6.

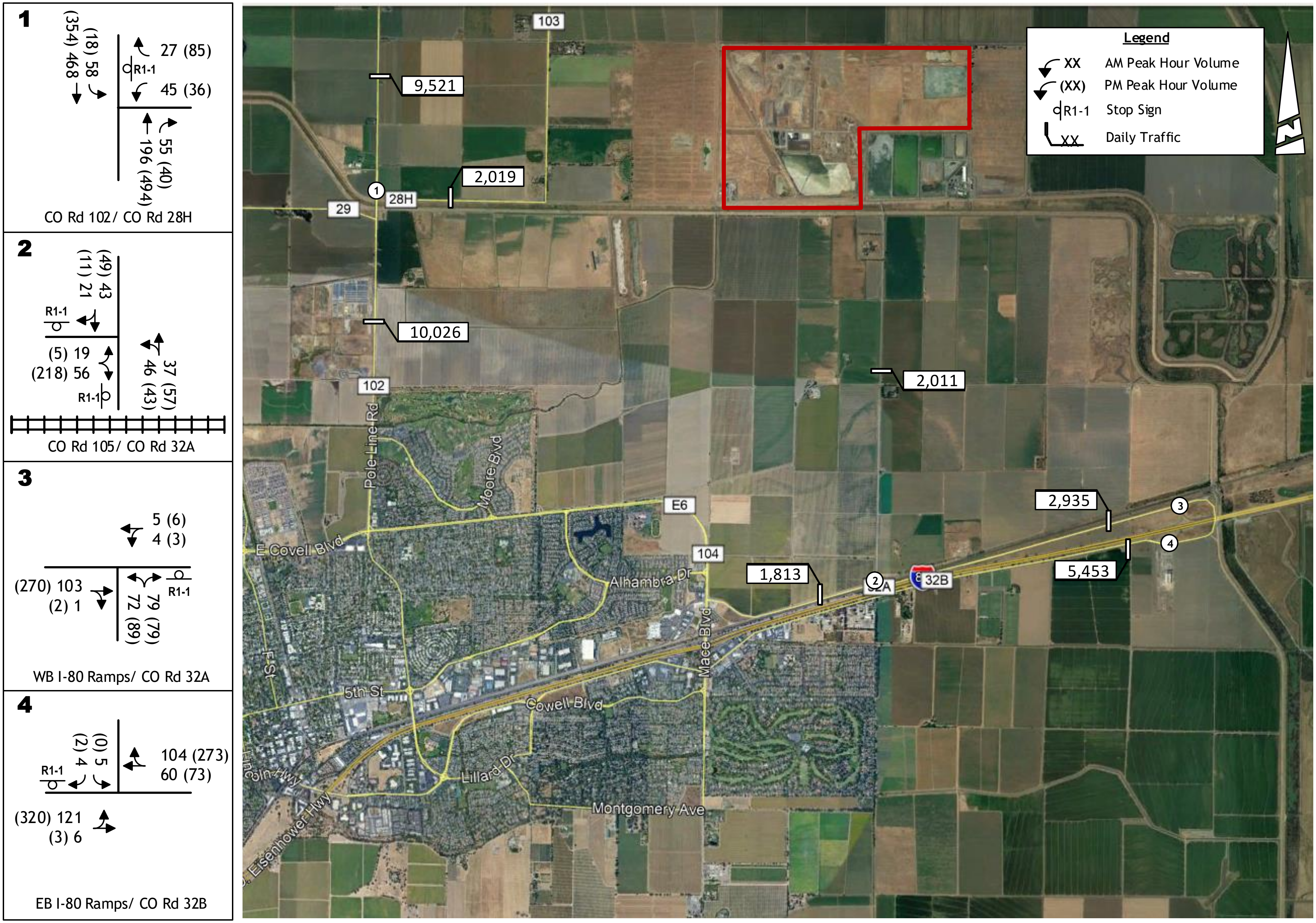
Daily Traffic Volumes. Table 12 compares Existing and Existing plus Project daily traffic and p.m. peak hour traffic volumes on study area streets. Resulting Level of Service based on peak hour volume are also shown. As indicated, the project does not result in any location operating with a Level of Service that exceeds the General Plan minimum.

The project will add traffic to CR 102, which today operates at LOS D. This Level of Service is accepted by the General Plan under the assumption that passing lanes will eventually be installed and intersection improvements will be made whether needed.

Intersection LOS. Table 13 identifies and compares Existing and Existing Plus Project a.m. and p.m. peak hour Level of Service at study intersections. The resulting Levels of Service are shown assuming the project's traffic contribution is expressed in "vehicles" or, more conservatively, as PCE's. As indicated, the project does not result in any location operating with a Level of Service that exceeds the General Plan LOS C minimum.

Interstate 80 Ramp Queues. Table 14 compared current and "plus project" traffic volumes on the adjoining eastbound and westbound I-80 off-ramps. In this case the project's contribution is expressed based on PCE's. As shown, the project does not result in any change in the current length of off-ramp queues, and the project's effect on safety at these locations is not significant.

Traffic Signal Warrants. The peak hour volumes at study intersections were compared to MUTCD requirements under Warrant 3 (peak hour volume). As shown in Table 15, no location carries volumes that reach the level that would satisfy this warrant.



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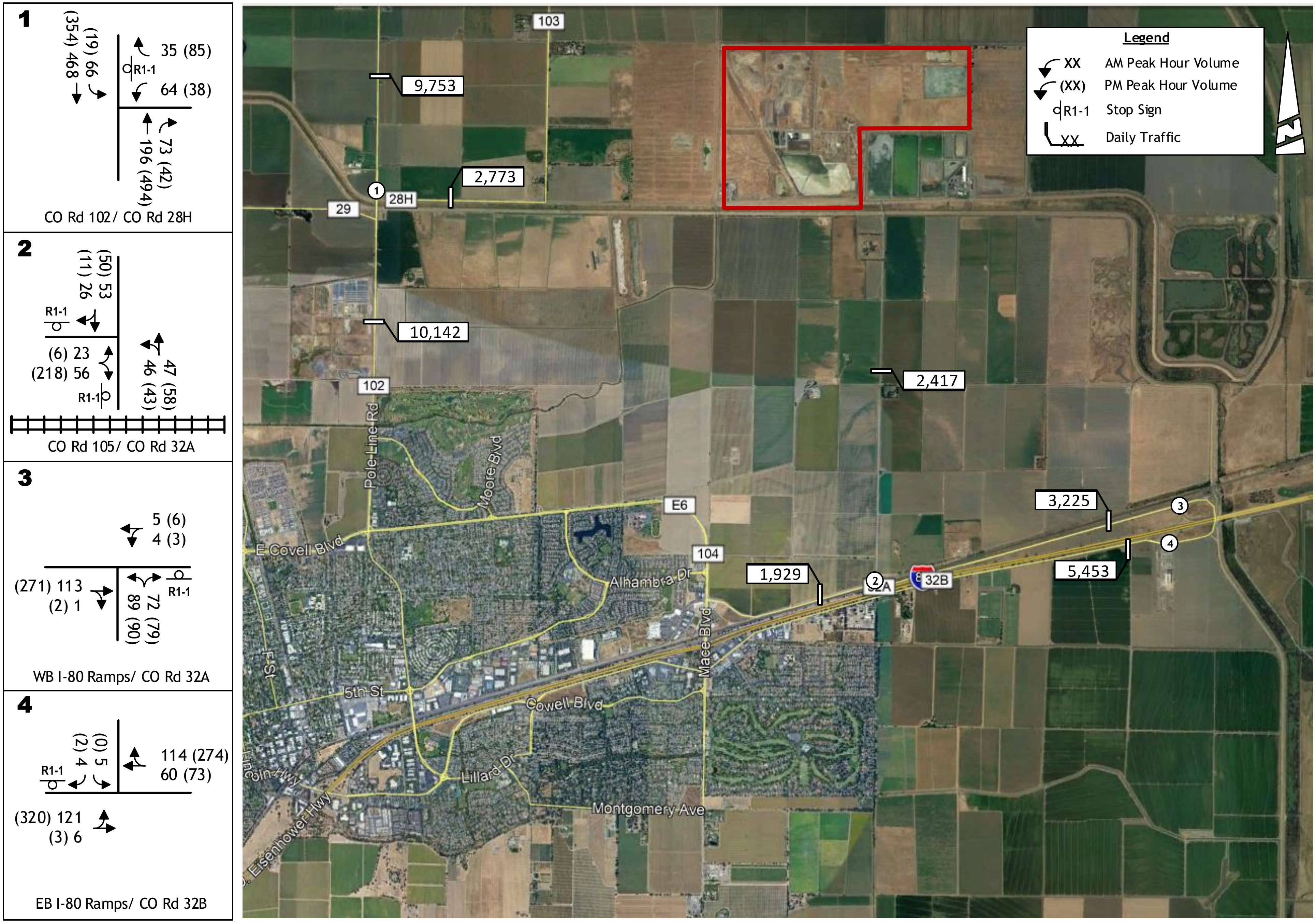
Transportation Engineers
5807-13 RA 5/14/2021

EXISTING PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

figure 5



EXISTING PLUS PROJECT (PCE) TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers
5807-13 RA 5/14/2021

figure 6

TABLE 12
EXISTING PLUS PROJECT ROADWAY SEGMENT TRAFFIC VOLUMES AND LOS

Roadway	Segment	Juris.	Lanes	LOS Threshold	Existing Conditions (2019)			Existing Plus YCCL Permit Revision				
					Volume			Daily Volume		PM Peak Hour		
					Daily	PM Peak Hour	Level of Service	Project Only	Total	Project Only	Total	Level of Service
Chiles Rd/CR 32B	Mace Blvd to Webster Rd	D / Y	2	C	5,458	580	C	0	5,458	0	580	C
CR 28H	CR 102 to CR 105	Y	2	C	1,639	171	B	382	2,021	13	184	B
CR 32A	Mace Blvd to CR 105	D / Y	2	C	1,755	300	C	60	1,815	2	302	C
	CR 105 to Webster Rd	Y	2	D	2,789	448	C	148	2,937	7	455	C
CR 105	CR 32B to CR 28H	Y	2	C	1,805	123	B	204	2,009	9	132	B
CR 102	Covell Blvd to CR 29	D / Y	2	C[1]	9,968	940	D	60	10,028	3	943	D
	CR 29 to CR 27	Y	2	C[1]	9,403	960	D	118	9,521	2	962	D

Highlighted values exceed minimum LOS D
Jurisdiction Y is Yolo County; C is Caltrans, D is Davis
[1] LOS D accepted under GP policy with improvements

TABLE 13 EXISTING PLUS PROJECT PEAK HOUR INTERSECTION LOS															
			AM Peak Hour						PM Peak Hour						
			Existing		Existing Plus Project				Existing		Existing Plus Project				
					Vehicles		PCE's				Vehicles		PCE's		
Street	Cross Street	Control	Ave Delay (Sec/veh)	LOS	Ave Delay (sec/veh)	LOS	Ave Delay (sec/veh)	LOS	Ave Delay (sec/veh)	LOS	Ave Delay (sec/veh)	LOS	Ave Delay (sec/veh)	LOS	
CR 102	CR 28H	SSS	14.8	B	15.9	C	17.5	C	14.7	B	15.2	C	15.3	C	
CR 32A	CR 105	SSS	9.4	A	9.6	A	9.8	A	10.0	B	10.0	B	10.1	B	
CR 32A	WB I-80 ramps	SSS	10.0	B	10.2	B	10.4	B	12.9	B	13.1	B	13.1	B	
CR 32B	EB I-80 ramps	SSS	10.4	B	10.5	B	10.5	B	9.4	A	9.5	A	9.5	A	

TABLE 14 EXISTING PLUS PROJECT PEAK HOUR INTERSECTION QUEUES										
			AM Peak Hour				PM Peak Hour			
			Existing		Existing Plus Project		Existing		Existing Plus Project	
Intersection	Lane	Storage (feet)	Volume (vph)	95^{th} % Queue (feet)	Volume (vph)	95^{th} % Queue (feet)	Volume (vph)	95^{th} % Queue (feet)	Volume (vph)	95^{th} % Queue (feet)
CR 102 / CR 28H	Southbound left	150	48	<25	58	<25	17	<25	18	<25
	Westbound left	80	30	<25	45	25	28	<25	36	<25
CR 32A / WB I-80	Off ramp	1,175[1]	139	<25	161	<25	167	35	169	35
CR 32B / EB I-80	Off ramp	990[1]	9	<25	9	<25	2	<25	2	<25

[1] distance to mainline I-80 ramp gore

TABLE 15
EXISTING PLUS PROJECT PEAK HOUR TRAFFIC SIGNAL WARRANTS

Street	Cross Street	Approach	AM Peak Hour				PM Peak Hour.			
			Existing		Existing Plus Project		Existing		Existing Plus Project	
			Volume	Met?	Volume	Met?	Volume	Met?	Volume	Met?
CR 102	CR 28H	Major	745	No	777	No	903	No	906	No
		Minor	50		72		109		121	
CR 32A	CR 105	Major	123	No	147	No	223	No	223	No
		Minor	70		75		99		100	
CR 32A	WB I-80 ramps	Major	104	No	113	No	276	No	281	No
		Minor	139		151		167		168	
CR 32B	EB I-80 ramps	Major	282	No	291	No	664	No	669	No
		Minor	9		9		2		2	

Truck Impacts to Roadway Structural Sections

Compared to automobiles, trucks have a disproportionate impact on roadway structural sections due to their weight. Thus, the pavement of roads carrying large numbers of trucks can deteriorate quickly and maintenance can be needed more frequently.

As noted in Figure 4, the project's contribution to area roads in terms of Passenger Car Equivalents (PCE's) has been identified. As shown, the number of PCE's added to CR 28H, CR 32A and CR 105 exceed the 100 PCE per day threshold contained in Yolo County traffic study guidelines.

The methodology used to assess truck loading is contained in Chapter 6 of the Caltrans Highway Design Manual (HDM). Pavements are engineered to carry the truck traffic loads expected during the pavement design life. Truck traffic, which includes transit vehicles, trucks and tractor-trailers, is the primary factor affecting pavement design life and its serviceability. Passenger cars and pickups are considered to have negligible effect when determining traffic loads. Truck traffic information that is required for pavement engineering includes projected volume for each of various categories of truck and transit vehicle types by axle classification (2-, 3-, 4-, and 5-axles or more). This information is used to estimate anticipated traffic loading and performance of the pavement structure. Caltrans currently estimates traffic loading by using established constants for a 10 or 20-year pavement design life to convert truck traffic data into 18-kip equivalent single axle loads (ESAL's). A "kip" is a US customary unit of force. It equals 1,000 pounds-force and is used by American architects and engineers to measure engineering loads. The total projected ESALs during the pavement design life are in turn converted into a Traffic Index (TI) that is used to determine minimum pavement thickness.

Table 16 indicates average daily truck trips (vehicles) on these facilities based on a maximum of 258 truck loads per day.

TABLE 16
HAUL ROUTE TRUCK TRIPS

Route	Average Daily Truck Traffic (vehicle trips)	
	12 ton Trucks	20 ton Tractor Trailers
CR 28H from CR 102 to Landfill	326	68
CR 205 from CR 42A to CR 28H	82	40

Truck Forecasts. Table 17 identifies the projected daily one-way truck volume data developed for the midpoint of 20-year background traffic volume forecasts, as well as the resulting tabulation of ESAL's. In the case of background truck loadings, the 20-year average volume assumes that local roads will see annual traffic increase of 1% based on a general annual population growth rate that is commonly applied in the absence of other information. Thus, current truck activity will increase by 10% to the 10 year midpoint.

To assess project impacts it was assumed that the project would be fully built out and all trips generated in 20 years. From the standpoint of truck loadings, it was assumed that ½ of the ultimate buildout volume would occur at 10-year midpoint of ESAL analysis.

Traffic Index. To identify applicable TI's it is necessary to compare the total one-way ESALs' in each lane to the TI thresholds in HDM Table 613.3C. As shown in Table 18 below, the number of ESAL's added by the project changes the 20 year TI calculated CR 28H from 9.0 to 9.5, while on CR 105 the TI values do not change. Thus, the project's truck traffic could be expected to change the need for and nature of regular maintenance on CR 28H. However, because the structural make up of these roads is unknown, the exact nature of improvements that should be made is unknown.

TABLE 17
20 YEAR ONE-WAY ESAL'S

Road	Condition	Automobiles		2 axle trucks		3 axle trucks		4 axle trucks		≥ 5 axles		Total	
		2019 AADT	ESAL's	AADT	ESAL's (1,380)	AADT	ESAL's (3,680)	AADT	ESAL's (5,880)	AADT	ESAL's (13,780)	AADT	ESAL's
Background Traffic Over 20 Years													
CR 28H - CR 102 to landfill	2019 total one-way	626	0	80	110,400	85	312,800	9	52,920	20	275,600	820	751,270
	20 year average[1]	63	0	8	11,040	9	33,120	1	5,880	2	27,560	82	77,600
	Project only[2]	12	0	0	0	81	298,080	0	0	17	234,260	110	532,340
	Total	701	0	88	121,440	175	644,000	10	58,800	39	537,420	1022	1,361,210
CR 105 - CR 32A to CR 28H	2019 total one-way	74	0	98	135,240	74	272,320	35	205,800	41	564,980	903	1,178,340
	20 year average[2]	16	0	10	13,800	7	25,760	4	23,520	4	55,120	90	118,200
	Project only[2]	8	0	0	0	21	81,480	0	0	10	137,800	43	219,280
	Total	102	0	108	149,040	102	379,560	19	229,320	55	757,900	1,036	1,515,820

[1] incremental increase (1% annually) in average daily traffic over 10 years
[2] average trucks per day at ½ occupancy.
ESAL's for 20 year equivalent daily truck volume

TABLE 18
TOTAL ONE-WAY ESAL's & TRAFFIC INDICES

Road	Location	Background		YCCL Permit Revisions and Projects	Background Plus Project	
		Total ESAL'S	TI	Total ESAL's	ESAL's	TI
Background Traffic Over 20 Years						
CR 28H	SR 102 to Landfill	828,870	9.0	532,230	1,361,210	9.5
CR 105	CR 28H to CR 32A	1,296,540	9.5	219,280	1,515,820	9.5

Highlighted values would be a significant effect

APPENDIX

5807-13

Prepared by National Data & Surveying Services

SR 102 & Co Rd 28H

Peak Hour Turning Movement Count

ID: 21-070021-001
City: Davis

Day: Wednesday
Date: 02/17/2021

	PEAK HOURS	COUNT PERIODS
AM	07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

SR 102 — SOUTHBOUND

	Right	Through	Left	U-Turn	Exiting (Northbound)
AM	0	259	41	0	167
NOON	0	0	0	0	0
PM	0	331	17	0	456
(red)	0	0	0	0	

Co Rd 28H — WESTBOUND

	PM	NOON	AM	(red)
Right	59	0	20	0
Through	0	0	0	0
Left	20	0	30	0
U-Turn	0	0	0	0
Exiting (Eastbound)	55	0	69	

Co Rd 28H — EASTBOUND

	AM	NOON	PM	(red)
Exiting (Westbound)	0	0	0	
U-Turn	0	0	0	0
Left	0	0	0	0
Through	0	0	0	0
Right	0	0	0	0

SR 102 — NORTHBOUND

	Exiting (Southbound)	U-Turn	Left	Through	Right
(red)		0	0	0	0
PM	351	0	0	397	38
NOON	0	0	0	0	0
AM	289	0	0	147	28

CONTROL

1-Way Stop (WB)

	AM	NOON	PM
TEV	525	0	862
PHF	0.93		0.95

Cars (AM)

Southbound	0, 256, 35
Westbound	15, 0, 23
Northbound	0, 145, 20
Eastbound	0, 0, 0

HT (AM)

Southbound	0, 3, 6
Westbound	5, 0, 7
Northbound	0, 2, 8
Eastbound	0, 0, 0

Cars (NOON)

Southbound	N/A, N/A, N/A
Westbound	N/A, N/A, N/A
Northbound	N/A, N/A, N/A
Eastbound	N/A, N/A, N/A

HT (NOON)

Southbound	N/A, N/A, N/A
Westbound	N/A, N/A, N/A
Northbound	N/A, N/A, N/A
Eastbound	N/A, N/A, N/A

Cars (PM)

Southbound	0, 331, 16
Westbound	46, 0, 19
Northbound	0, 395, 37
Eastbound	0, 0, 0

HT (PM)

Southbound	0, 0, 1
Westbound	13, 0, 1
Northbound	0, 2, 1
Eastbound	0, 0, 0

Pedestrians (Crosswalks)

	AM	NOON	PM
North (eastward)	0	0	0
North (westward)	0	0	0
West (southward)	0	0	0
West (northward)	0	0	0
East (southward)	0	0	0
East (northward)	1	0	0
South (eastward)	0	0	0
South (westward)	0	0	0
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR 102 & Co Rd 28H
City: Davis
Control: 1-Way Stop (WB)

Project ID: 21-070021-001
Date: 2/17/2021

Total

NS/EW Streets:	SR 102				SR 102				Co Rd 28H				Co Rd 28H				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	20	5	0	6	41	0	0	0	0	0	0	1	0	5	0	78
7:15 AM	0	23	4	0	8	38	0	0	0	0	0	0	4	0	7	0	84
7:30 AM	0	40	10	0	7	60	0	0	0	0	0	0	7	0	3	0	127
7:45 AM	0	43	10	0	10	59	0	0	0	0	0	0	7	0	7	0	136
8:00 AM	0	30	3	0	16	62	0	0	0	0	0	0	7	0	3	0	121
8:15 AM	0	34	5	0	8	78	0	0	0	0	0	0	9	0	7	0	141
8:30 AM	0	33	10	0	2	66	0	0	0	0	0	0	5	0	6	0	122
8:45 AM	0	41	5	0	9	54	0	0	0	0	0	0	5	0	6	0	120
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	264	52	0	66	458	0	0	0	0	0	0	45	0	44	0	929
APPROACH %'s :	0.00%	83.54%	16.46%	0.00%	12.60%	87.40%	0.00%	0.00%					50.56%	0.00%	49.44%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	147	28	0	41	259	0	0	0	0	0	0	30	0	20	0	525
PEAK HR FACTOR :	0.000	0.855	0.700	0.000	0.641	0.830	0.000	0.000	0.000	0.000	0.000	0.000	0.833	0.000	0.714	0.000	0.931
	0.825				0.872								0.781				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	95	9	0	6	88	0	0	0	0	0	0	10	0	18	0	226
4:15 PM	0	100	11	0	5	70	0	0	0	0	0	0	0	0	17	0	203
4:30 PM	0	101	11	0	3	87	0	0	0	0	0	0	4	0	13	0	219
4:45 PM	0	101	7	0	3	86	0	0	0	0	0	0	6	0	11	0	214
5:00 PM	0	96	5	0	2	84	0	0	0	0	0	0	9	0	14	0	210
5:15 PM	0	115	5	0	5	74	0	0	0	0	0	0	4	0	10	0	213
5:30 PM	0	79	7	0	6	93	0	0	0	0	0	0	5	0	6	0	196
5:45 PM	0	80	6	0	2	67	0	0	0	0	0	0	4	0	6	0	165
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	767	61	0	32	649	0	0	0	0	0	0	42	0	95	0	1646
APPROACH %'s :	0.00%	92.63%	7.37%	0.00%	4.70%	95.30%	0.00%	0.00%					30.66%	0.00%	69.34%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	397	38	0	17	331	0	0	0	0	0	0	20	0	59	0	862
PEAK HR FACTOR :	0.000	0.983	0.864	0.000	0.708	0.940	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.819	0.000	0.954
	0.971				0.926								0.705				

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR 102 & Co Rd 28H
City: Davis
Control: 1-Way Stop (WB)

Project ID: 21-070021-001
Date: 2/17/2021

Cars

NS/EW Streets:	SR 102				SR 102				Co Rd 28H				Co Rd 28H				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	20	4	0	5	40	0	0	0	0	0	0	0	0	4	0	73
7:15 AM	0	23	4	0	7	36	0	0	0	0	0	0	3	0	3	0	76
7:30 AM	0	40	5	0	7	58	0	0	0	0	0	0	6	0	1	0	117
7:45 AM	0	43	8	0	9	59	0	0	0	0	0	0	4	0	7	0	130
8:00 AM	0	29	3	0	11	62	0	0	0	0	0	0	5	0	3	0	113
8:15 AM	0	33	4	0	8	77	0	0	0	0	0	0	8	0	4	0	134
8:30 AM	0	33	10	0	1	64	0	0	0	0	0	0	5	0	3	0	116
8:45 AM	0	41	4	0	9	53	0	0	0	0	0	0	4	0	5	0	116
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	262	42	0	57	449	0	0	0	0	0	0	35	0	30	0	875
APPROACH %'s :	0.00%	86.18%	13.82%	0.00%	11.26%	88.74%	0.00%	0.00%					53.85%	0.00%	46.15%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	145	20	0	35	256	0	0	0	0	0	0	23	0	15	0	494
PEAK HR FACTOR :	0.00	0.843	0.625	0.000	0.795	0.831	0.000	0.000	0.000	0.000	0.000	0.000	0.719	0.000	0.536	0.000	0.922
	0.809				0.856								0.792				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	94	9	0	6	88	0	0	0	0	0	0	10	0	12	0	219
4:15 PM	0	100	11	0	4	70	0	0	0	0	0	0	0	0	13	0	198
4:30 PM	0	101	10	0	3	87	0	0	0	0	0	0	4	0	10	0	215
4:45 PM	0	100	7	0	3	86	0	0	0	0	0	0	5	0	11	0	212
5:00 PM	0	96	5	0	2	83	0	0	0	0	0	0	9	0	14	0	209
5:15 PM	0	114	5	0	5	74	0	0	0	0	0	0	4	0	10	0	212
5:30 PM	0	79	7	0	6	92	0	0	0	0	0	0	5	0	6	0	195
5:45 PM	0	79	6	0	2	67	0	0	0	0	0	0	4	0	6	0	164
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	763	60	0	31	647	0	0	0	0	0	0	41	0	82	0	1624
APPROACH %'s :	0.00%	92.71%	7.29%	0.00%	4.57%	95.43%	0.00%	0.00%					33.33%	0.00%	66.67%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	395	37	0	16	331	0	0	0	0	0	0	19	0	46	0	844
PEAK HR FACTOR :	0.00	0.978	0.841	0.000	0.667	0.940	0.000	0.000	0.000	0.000	0.000	0.000	0.475	0.000	0.885	0.000	0.963
	0.973				0.923								0.739				

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR 102 & Co Rd 28H
City: Davis
Control: 1-Way Stop (WB)

Project ID: 21-070021-001
Date: 2/17/2021

HT

NS/EW Streets:	SR 102				SR 102				Co Rd 28H				Co Rd 28H				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	1	1	0	0	0	0	0	0	1	0	1	0	5
7:15 AM	0	0	0	0	1	2	0	0	0	0	0	0	1	0	4	0	8
7:30 AM	0	0	5	0	0	2	0	0	0	0	0	0	1	0	2	0	10
7:45 AM	0	0	2	0	1	0	0	0	0	0	0	0	3	0	0	0	6
8:00 AM	0	1	0	0	5	0	0	0	0	0	0	0	2	0	0	0	8
8:15 AM	0	1	1	0	0	1	0	0	0	0	0	0	1	0	3	0	7
8:30 AM	0	0	0	0	1	2	0	0	0	0	0	0	0	0	3	0	6
8:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	1	0	1	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	10	0	9	9	0	0	0	0	0	0	10	0	14	0	54
APPROACH %'s :	0.00%	16.67%	83.33%	0.00%	50.00%	50.00%	0.00%	0.00%					41.67%	0.00%	58.33%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	2	8	0	6	3	0	0	0	0	0	0	7	0	5	0	31
PEAK HR FACTOR :	0.000	0.500	0.400	0.000	0.300	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.583	0.000	0.417	0.000	0.775
	0.500				0.450								0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	6	0	7
4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4	0	5
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	4
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	1	0	1	2	0	0	0	0	0	0	1	0	13	0	22
APPROACH %'s :	0.00%	80.00%	20.00%	0.00%	33.33%	66.67%	0.00%	0.00%					7.14%	0.00%	92.86%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	2	1	0	1	0	0	0	0	0	0	0	1	0	13	0	18
PEAK HR FACTOR :	0.00	0.500	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.542	0.000	0.643
	0.750				0.250								0.583				

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR 102 & Co Rd 28H
City: Davis
Control: 1-Way Stop (WB)

Project ID: 21-070021-001
Date: 2/17/2021

Bikes

NS/EW Streets:	SR 102				SR 102				Co Rd 28H				Co Rd 28H				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	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	0	0	0
8:00 AM	0	0	0	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	0	0	0
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	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
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	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
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3
APPROACH %'s :	0.00%	50.00%	0.00%	50.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
					0.250												

National Data & Surveying Services

Intersection Turning Movement Count

Location: SR 102 & Co Rd 28H
City: Davis

Project ID: 21-070021-001
Date: 2/17/2021

Pedestrians (Crosswalks)

NS/EW Streets:	SR 102		SR 102		Co Rd 28H		Co Rd 28H		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	1	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	0	0	0	1
APPROACH %'s :					100.00%	0.00%			
PEAK HR :	07:30 AM - 08:30 AM								TOTAL
PEAK HR VOL :	0	0	0	0	1	0	0	0	1
PEAK HR FACTOR :					0.250				0.250
					0.250				

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0
APPROACH %'s :									
PEAK HR :	04:00 PM - 05:00 PM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Co Rd 28H E/O SR 102

Day: Wednesday
Date: 2/17/2021

City: Davis
Project #: CA21_070022_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	764	759	1,523

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	0		0				12:00	0	0	22		19		41	
00:15	0	0	0		0				12:15	0	0	10		17		27	
00:30	0	0	0		0				12:30	0	0	11		25		36	
00:45	0	0	0		0				12:45	0	0	21	64	12	73	33	137
01:00	0	0	0		0				13:00	0	0	17		12		29	
01:15	0	0	0		2		2		13:15	0	0	16		25		41	
01:30	0	0	0		0				13:30	0	0	10		13		23	
01:45	0	0	0		0	2		2	13:45	0	0	17	60	19	69	36	129
02:00	0	0	0		0				14:00	0	0	12		14		26	
02:15	0	0	0		0				14:15	0	0	16		17		33	
02:30	0	0	0		0				14:30	0	0	22		21		43	
02:45	0	0	1	1	1	1	2	2	14:45	0	0	19	69	13	65	32	134
03:00	0	0	0		0				15:00	0	0	13		14		27	
03:15	0	0	0		0				15:15	0	0	18		19		37	
03:30	0	0	0		0				15:30	0	0	22		14		36	
03:45	0	0	0		0				15:45	0	0	22	75	33	80	55	155
04:00	0	0	2		0		2		16:00	0	0	16		27		43	
04:15	0	0	1		0		1		16:15	0	0	16		16		32	
04:30	0	0	2		0		2		16:30	0	0	13		18		31	
04:45	0	0	1	6	0		1	6	16:45	0	0	8	53	15	76	23	129
05:00	0	0	1		0		1		17:00	0	0	9		25		34	
05:15	0	0	4		0		4		17:15	0	0	10		14		24	
05:30	0	0	7		1		8		17:30	0	0	13		10		23	
05:45	0	0	9	21	7	8	16	29	17:45	0	0	8	40	9	58	17	98
06:00	0	0	11		3		14		18:00	0	0	3		6		9	
06:15	0	0	13		5		18		18:15	0	0	1		9		10	
06:30	0	0	18		8		26		18:30	0	0	2		1		3	
06:45	0	0	17	59	6	22	23	81	18:45	0	0	0	6	9	25	9	31
07:00	0	0	9		6		15		19:00	0	0	1		1		2	
07:15	0	0	13		11		24		19:15	0	0	0		1		1	
07:30	0	0	18		10		28		19:30	0	0	3		1		4	
07:45	0	0	20	60	14	41	34	101	19:45	0	0	0	4	0	3		7
08:00	0	0	19		11		30		20:00	0	0	2		2		4	
08:15	0	0	13		15		28		20:15	0	0	0		0			
08:30	0	0	11		11		22		20:30	0	0	0		1		1	
08:45	0	0	15	58	11	48	26	106	20:45	0	0	0	2	1	4	1	6
09:00	0	0	15		8		23		21:00	0	0	1		0		1	
09:15	0	0	15		14		29		21:15	0	0	0		3		3	
09:30	0	0	16		20		36		21:30	0	0	0		1		1	
09:45	0	0	10	56	14	56	24	112	21:45	0	0	1	2	4	8	5	10
10:00	0	0	9		5		14		22:00	0	0	1		2		3	
10:15	0	0	16		13		29		22:15	0	0	1		1		2	
10:30	0	0	18		6		24		22:30	0	0	0		0			
10:45	0	0	15	58	18	42	33	100	22:45	0	0	0	2	2	5	2	7
11:00	0	0	18		21		39		23:00	0	0	1		1		2	
11:15	0	0	21		15		36		23:15	0	0	0		1		1	
11:30	0	0	12		17		29		23:30	0	0	0		0			
11:45	0	0	16	67	18	71	34	138	23:45	0	0	0	1	0	2		3
TOTALS				386		291		**677**	**TOTALS**				378		468		**846**
SPLIT %				57.0%		43.0%		**44.5%**	**SPLIT %**				44.7%		55.3%		**55.5%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	764	759	1,523

AM Peak Hour			10:30	11:45	**11:15**	**PM Peak Hour**			15:15	15:45	**15:15**
AM Pk Volume			72	79	**140**	**PM Pk Volume**			78	94	**171**
Pk Hr Factor			0.857	0.790	**0.854**	**Pk Hr Factor**			0.886	0.712	**0.777**
7 - 9 Volume	0	0	118	89	**207**	**4 - 6 Volume**	0	0	93	134	**227**
7 - 9 Peak Hour			07:15	07:45	**07:30**	**4 - 6 Peak Hour**			16:00	16:00	**16:00**
7 - 9 Pk Volume	0	0	70	51	**120**	**4 - 6 Pk Volume**	0	0	53	76	**129**
Pk Hr Factor	0.000	0.000	0.875	0.850	**0.882**	**Pk Hr Factor**	0.000	0.000	0.828	0.704	**0.750**

Prepared by National Data & Surveying Services

CLASSIFICATION

Co Rd 28H E/O SR 102

Day: Wednesday
Date: 2/17/2021

City: Davis
Project #: CA21_070022_001

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15	0	1	1	0	0	0	0	0	0	0	0	0	0	2
01:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45	0	1	0	0	0	0	0	0	1	0	0	0	0	2
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	1	0	0	1	0	0	0	0	0	0	0	0	2
04:15	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:30	0	1	1	0	0	0	0	0	0	0	0	0	0	2
04:45	0	0	0	0	0	0	0	0	1	0	0	0	0	1
05:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:15	0	2	2	0	0	0	0	0	0	0	0	0	0	4
05:30	0	3	4	0	1	0	0	0	0	0	0	0	0	8
05:45	0	6	10	0	0	0	0	0	0	0	0	0	0	16
06:00	0	7	5	0	0	1	0	0	1	0	0	0	0	14
06:15	0	8	9	0	0	0	1	0	0	0	0	0	0	18
06:30	0	12	6	0	1	7	0	0	0	0	0	0	0	26
06:45	0	4	7	1	4	5	0	1	1	0	0	0	0	23
07:00	0	9	2	0	0	4	0	0	0	0	0	0	0	15
07:15	0	11	6	0	4	2	0	0	1	0	0	0	0	24
07:30	0	16	6	0	1	2	0	0	3	0	0	0	0	28
07:45	0	17	10	0	2	5	0	0	0	0	0	0	0	34
08:00	0	15	7	0	2	5	1	0	0	0	0	0	0	30
08:15	0	14	8	0	2	3	0	0	1	0	0	0	0	28
08:30	0	10	9	0	2	1	0	0	0	0	0	0	0	22
08:45	0	9	13	0	2	2	0	0	0	0	0	0	0	26
09:00	0	6	7	0	3	5	0	0	2	0	0	0	0	23
09:15	0	9	10	0	3	4	2	0	1	0	0	0	0	29
09:30	0	9	16	0	2	4	0	0	5	0	0	0	0	36
09:45	0	7	9	0	3	3	1	0	1	0	0	0	0	24
10:00	0	4	6	0	2	1	0	0	1	0	0	0	0	14
10:15	0	7	13	0	4	4	0	0	1	0	0	0	0	29
10:30	0	10	9	1	1	2	0	0	1	0	0	0	0	24
10:45	0	11	10	1	3	5	1	0	2	0	0	0	0	33
11:00	1	14	9	0	10	4	1	0	0	0	0	0	0	39
11:15	0	12	15	0	3	6	0	0	0	0	0	0	0	36
11:30	0	15	9	0	2	2	0	0	1	0	0	0	0	29
11:45	0	15	9	0	4	5	0	0	1	0	0	0	0	34
12:00 PM	0	12	12	1	8	7	1	0	0	0	0	0	0	41
12:15	0	10	8	0	4	3	1	0	1	0	0	0	0	27
12:30	0	12	13	1	4	6	0	0	0	0	0	0	0	36
12:45	0	11	10	0	6	4	0	0	2	0	0	0	0	33
13:00	0	12	8	1	3	4	0	0	1	0	0	0	0	29
13:15	1	12	18	0	5	4	0	0	1	0	0	0	0	41
13:30	0	4	11	0	2	3	1	0	2	0	0	0	0	23
13:45	1	9	13	0	8	5	0	0	0	0	0	0	0	36
14:00	0	9	7	0	4	5	1	0	0	0	0	0	0	26
14:15	0	12	12	0	3	4	0	0	2	0	0	0	0	33
14:30	0	20	11	0	9	3	0	0	0	0	0	0	0	43
14:45	0	8	13	0	6	3	2	0	0	0	0	0	0	32
15:00	1	8	7	0	4	4	0	0	3	0	0	0	0	27
15:15	0	14	18	0	1	3	1	0	0	0	0	0	0	37
15:30	0	20	9	0	2	4	0	1	0	0	0	0	0	36
15:45	0	35	13	0	1	5	1	0	0	0	0	0	0	55
16:00	0	24	14	0	1	4	0	0	0	0	0	0	0	43
16:15	0	17	9	1	2	3	0	0	0	0	0	0	0	32
16:30	0	18	10	0	1	2	0	0	0	0	0	0	0	31
16:45	0	18	4	0	1	0	0	0	0	0	0	0	0	23
17:00	0	28	6	0	0	0	0	0	0	0	0	0	0	34
17:15	0	21	3	0	0	0	0	0	0	0	0	0	0	24
17:30	0	17	5	0	1	0	0	0	0	0	0	0	0	23
17:45	0	14	3	0	0	0	0	0	0	0	0	0	0	17
18:00	0	6	3	0	0	0	0	0	0	0	0	0	0	9
18:15	0	9	1	0	0	0	0	0	0	0	0	0	0	10
18:30	0	3	0	0	0	0	0	0	0	0	0	0	0	3
18:45	0	6	2	0	1	0	0	0	0	0	0	0	0	9
19:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
19:15	0	0	1	0	0	0	0	0	0	0	0	0	0	1
19:30	0	3	0	0	1	0	0	0	0	0	0	0	0	4
19:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
20:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:30	0	1	0	0	0	0	0	0	0	0	0	0	0	1
20:45	0	1	0	0	0	0	0	0	0	0	0	0	0	1
21:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
21:15	0	2	0	0	1	0	0	0	0	0	0	0	0	3
21:30	0	1	0	0	0	0	0	0	0	0	0	0	0	1
21:45	0	4	1	0	0	0	0	0	0	0	0	0	0	5
22:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
22:15	0	1	1	0	0	0	0	0	0	0	0	0	0	2
22:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:45	0	2	0	0	0	0	0	0	0	0	0	0	0	2
23:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
23:15	0	1	0	0	0	0	0	0	0	0	0	0	0	1
23:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	4	681	478	7	141	158	15	2	37					1523
% of Totals	0%	45%	31%	0%	9%	10%	1%	0%	2%					100%

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
AM Volumes	1	267	229	3	62	82	7	1	25	0	0	0	0	677
% AM	0%	18%	15%	0%	4%	5%	0%	0%	2%					44%
AM Peak Hour	10:15	07:30	08:45	10:00	11:45	11:45	09:00	06:00	09:00					11:15
Volume	1	62	46	2	20	21	3	1	9					140
PM Volumes	3	414	249	4	79	76	8	1	12	0	0	0	0	846
% PM	0%	27%	16%	0%	5%	5%	1%	0%	1%					56%
PM Peak Hour	13:00	15:30	15:15	12:00	13:45	12:00	14:00	14:45	12:45					15:15
Volume	2	96	54	2	24	20	3	1	6					171

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	207 ↔	14%	266 ↔	17%	227 ↔	15%	823 ↔	54%

Classification Definitions

1 Motorcycles	**4** Buses	**7** > =4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

CLASSIFICATION

Co Rd 28H E/O SR 102

Day: Wednesday
Date: 2/17/2021

City: Davis
Project #: CA21_070022_001

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
02:00	0	1	0	0	0	0	0	0	1	0	0	0	0	2
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	2	2	0	1	0	0	0	1	0	0	0	0	6
05:00	0	12	16	0	1	0	0	0	0	0	0	0	0	29
06:00	0	31	27	1	5	13	1	1	2	0	0	0	0	81
07:00	0	53	24	0	7	13	0	0	4	0	0	0	0	101
08:00	0	48	37	0	8	11	1	0	1	0	0	0	0	106
09:00	0	31	42	0	11	16	3	0	9	0	0	0	0	112
10:00	0	32	38	2	10	12	1	0	5	0	0	0	0	100
11:00	1	56	42	0	19	17	1	0	2	0	0	0	0	138
12:00 PM	0	45	43	2	22	20	2	0	3	0	0	0	0	137
13:00	2	37	50	1	18	16	1	0	4	0	0	0	0	129
14:00	0	49	43	0	22	15	3	0	2	0	0	0	0	134
15:00	1	77	47	0	8	16	2	1	3	0	0	0	0	155
16:00	0	77	37	1	5	9	0	0	0	0	0	0	0	129
17:00	0	80	17	0	1	0	0	0	0	0	0	0	0	98
18:00	0	24	6	0	1	0	0	0	0	0	0	0	0	31
19:00	0	4	2	0	1	0	0	0	0	0	0	0	0	7
20:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
21:00	0	8	1	0	1	0	0	0	0	0	0	0	0	10
22:00	0	5	2	0	0	0	0	0	0	0	0	0	0	7
23:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
Totals	4	681	478	7	141	158	15	2	37					1523
% of Totals	0%	45%	31%	0%	9%	10%	1%	0%	2%					100%

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
AM Volumes	1	267	229	3	62	82	7	1	25	0	0	0	0	677
% AM	0%	18%	15%	0%	4%	5%	0%	0%	2%					44%
AM Peak Hour	11:00	11:00	09:00	10:00	11:00	11:00	09:00	06:00	09:00					11:00
Volume	1	56	42	2	19	17	3	1	9					138
PM Volumes	3	414	249	4	79	76	8	1	12	0	0	0	0	846
% PM	0%	27%	16%	0%	5%	5%	1%	0%	1%					56%
PM Peak Hour	13:00	17:00	13:00	12:00	12:00	12:00	14:00	15:00	13:00					15:00
Volume	2	80	50	2	22	20	3	1	4					155

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	207	14%	266	17%	227	15%	823	54%

Classification Definitions

1 Motorcycles	4 Buses	7 > =4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

5807-13

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Co Rd 30B Bet. Mace Blvd & Co Rd 105

Day: Wednesday
Date: 2/17/2021

City: Davis
Project #: CA21_070022_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	46	42	88

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00	0	0	0		0				12:00	0	0	1		1		2	
00:15	0	0	0		0				12:15	0	0	0		0			
00:30	0	0	0		0				12:30	0	0	3		1		4	
00:45	0	0	0		0				12:45	0	0	0	4	1	3	1	7
01:00	0	0	0		0				13:00	0	0	1		1		2	
01:15	0	0	0		0				13:15	0	0	1		0		1	
01:30	0	0	0		0				13:30	0	0	0		1		1	
01:45	0	0	0		0				13:45	0	0	1	3	4	6	5	9
02:00	0	0	0		0				14:00	0	0	1		1		2	
02:15	0	0	0		0				14:15	0	0	0		0			
02:30	0	0	0		0				14:30	0	0	3		0		3	
02:45	0	0	0		0				14:45	0	0	1	5	0	1	1	6
03:00	0	0	0		0				15:00	0	0	1		1		2	
03:15	0	0	0		0				15:15	0	0	1		0		1	
03:30	0	0	0		0				15:30	0	0	1		2		3	
03:45	0	0	0		0				15:45	0	0	0	3	1	4	1	7
04:00	0	0	0		0				16:00	0	0	0		1		1	
04:15	0	0	0		0				16:15	0	0	1		0		1	
04:30	0	0	0		0				16:30	0	0	1		0		1	
04:45	0	0	0		0				16:45	0	0	0	2	1	2	1	4
05:00	0	0	0		0				17:00	0	0	1		2		3	
05:15	0	0	0		0				17:15	0	0	2		3		5	
05:30	0	0	0		0				17:30	0	0	3		2		5	
05:45	0	0	0		0				17:45	0	0	3	9	2	9	5	18
06:00	0	0	0		0				18:00	0	0	0		0			
06:15	0	0	0		0				18:15	0	0	0		0			
06:30	0	0	0		0				18:30	0	0	0		0			
06:45	0	0	0		0				18:45	0	0	0		0			
07:00	0	0	0		1		1		19:00	0	0	0		1		1	
07:15	0	0	0		1		1		19:15	0	0	0		0			
07:30	0	0	1		0		1		19:30	0	0	0		1		1	
07:45	0	0	0	1	0	2		3	19:45	0	0	0		0	2		2
08:00	0	0	1		0		1		20:00	0	0	0		0			
08:15	0	0	1		1		2		20:15	0	0	0		0			
08:30	0	0	0		1		1		20:30	0	0	0		0			
08:45	0	0	0	2	2	4	2	6	20:45	0	0	1	1	0		1	1
09:00	0	0	1		0		1		21:00	0	0	0		0			
09:15	0	0	0		0				21:15	0	0	0		0			
09:30	0	0	1		0		1		21:30	0	0	0		0			
09:45	0	0	0	2	0			2	21:45	0	0	0		0			
10:00	0	0	1		1		2		22:00	0	0	0		0			
10:15	0	0	2		0		2		22:15	0	0	0		0			
10:30	0	0	0		2		2		22:30	0	0	0		0			
10:45	0	0	1	4	0	3	1	7	22:45	0	0	0		0			
11:00	0	0	5		1		6		23:00	0	0	0		0			
11:15	0	0	1		1		2		23:15	0	0	0		1		1	
11:30	0	0	2		2		4		23:30	0	0	0		0			
11:45	0	0	2	10	1	5	3	15	23:45	0	0	0		0	1		1
TOTALS				19		14		**33**	**TOTALS**				27		28		**55**
SPLIT %				57.6%		42.4%		**37.5%**	**SPLIT %**				49.1%		50.9%		**62.5%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	46	42	88

	NB	SB	EB	WB	Total		NB	SB	EB	WB	Total
AM Peak Hour			11:00	11:00	**11:00**	**PM Peak Hour**			17:00	17:00	**17:00**
AM Pk Volume			10	5	**15**	**PM Pk Volume**			9	9	**18**
Pk Hr Factor			0.500	0.625	**0.625**	**Pk Hr Factor**			0.750	0.750	**0.900**
7 - 9 Volume	0	0	3	6	**9**	**4 - 6 Volume**	0	0	11	11	**22**
7 - 9 Peak Hour			07:30	08:00	**08:00**	**4 - 6 Peak Hour**			17:00	17:00	**17:00**
7 - 9 Pk Volume	0	0	3	4	**6**	**4 - 6 Pk Volume**	0	0	9	9	**18**
Pk Hr Factor	0.000	0.000	0.750	0.500	**0.750**	**Pk Hr Factor**	0.000	0.000	0.750	0.750	**0.900**

Prepared by National Data & Surveying Services

CLASSIFICATION

Co Rd 30B Bet. Mace Blvd & Co Rd 105

Day: Wednesday
Date: 2/17/2021

City: Davis
Project #: CA21_070022_002

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
07:15	0	0	1	0	0	0	0	0	0	0	0	0	0	1
07:30	0	0	1	0	0	0	0	0	0	0	0	0	0	1
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
08:15	0	0	2	0	0	0	0	0	0	0	0	0	0	2
08:30	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:45	0	1	1	0	0	0	0	0	0	0	0	0	0	2
09:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30	0	1	0	0	0	0	0	0	0	0	0	0	0	1
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	1	0	0	1	0	0	0	0	0	0	0	0	2
10:15	0	2	0	0	0	0	0	0	0	0	0	0	0	2
10:30	0	0	0	0	2	0	0	0	0	0	0	0	0	2
10:45	0	0	1	0	0	0	0	0	0	0	0	0	0	1
11:00	0	4	2	0	0	0	0	0	0	0	0	0	0	6
11:15	0	1	0	0	1	0	0	0	0	0	0	0	0	2
11:30	0	3	1	0	0	0	0	0	0	0	0	0	0	4
11:45	0	1	2	0	0	0	0	0	0	0	0	0	0	3
12:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	2
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	1	2	0	1	0	0	0	0	0	0	0	0	4
12:45	0	0	0	0	1	0	0	0	0	0	0	0	0	1
13:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
13:15	0	1	0	0	0	0	0	0	0	0	0	0	0	1
13:30	0	1	0	0	0	0	0	0	0	0	0	0	0	1
13:45	0	1	2	0	2	0	0	0	0	0	0	0	0	5
14:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	2	1	0	0	0	0	0	0	0	0	0	0	3
14:45	0	1	0	0	0	0	0	0	0	0	0	0	0	1
15:00	0	0	1	0	1	0	0	0	0	0	0	0	0	2
15:15	0	0	0	0	1	0	0	0	0	0	0	0	0	1
15:30	0	1	1	0	1	0	0	0	0	0	0	0	0	3
15:45	0	1	0	0	0	0	0	0	0	0	0	0	0	1
16:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
16:15	0	1	0	0	0	0	0	0	0	0	0	0	0	1
16:30	0	0	1	0	0	0	0	0	0	0	0	0	0	1
16:45	0	0	1	0	0	0	0	0	0	0	0	0	0	1
17:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
17:15	0	5	0	0	0	0	0	0	0	0	0	0	0	5
17:30	0	4	1	0	0	0	0	0	0	0	0	0	0	5
17:45	0	5	0	0	0	0	0	0	0	0	0	0	0	5
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
19:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:30	0	0	1	0	0	0	0	0	0	0	0	0	0	1
19:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:45	0	1	0	0	0	0	0	0	0	0	0	0	0	1
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:15	0	0	1	0	0	0	0	0	0	0	0	0	0	1
23:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals		49	28		11									88
% of Totals		56%	32%		13%									100%

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
AM Volumes	0	15	14	0	4	0	0	0	0	0	0	0	0	33
% AM		17%	16%		5%									38%
AM Peak Hour		11:00	08:15		09:45									11:00
Volume		9	5		3									15
PM Volumes	0	34	14	0	7	0	0	0	0	0	0	0	0	55
% PM		39%	16%		8%									63%
PM Peak Hour		17:00	13:45		14:45									17:00
Volume		16	4		3									18

Directional Peak Periods	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
All Classes	Volume	%	Volume	%	Volume	%	Volume	%
	9	10%	16	18%	22	25%	41	47%

Classification Definitions

1 Motorcycles	**4** Buses	**7** > =4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

CLASSIFICATION

Co Rd 30B Bet. Mace Blvd & Co Rd 105

Day: Wednesday
Date: 2/17/2021

City: Davis
Project #: CA21_070022_002

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	3	0	0	0	0	0	0	0	0	0	0	3
08:00	0	2	4	0	0	0	0	0	0	0	0	0	0	6
09:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
10:00	0	3	1	0	3	0	0	0	0	0	0	0	0	7
11:00	0	9	5	0	1	0	0	0	0	0	0	0	0	15
12:00 PM	0	3	2	0	2	0	0	0	0	0	0	0	0	7
13:00	0	5	2	0	2	0	0	0	0	0	0	0	0	9
14:00	0	4	2	0	0	0	0	0	0	0	0	0	0	6
15:00	0	2	2	0	3	0	0	0	0	0	0	0	0	7
16:00	0	2	2	0	0	0	0	0	0	0	0	0	0	4
17:00	0	16	2	0	0	0	0	0	0	0	0	0	0	18
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
20:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Totals		49	28		11									88
% of Totals		56%	32%		13%									100%

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
AM Volumes	0	15	14	0	4	0	0	0	0	0	0	0	0	33
% AM		17%	16%		5%									38%
AM Peak Hour		11:00	11:00		10:00									11:00
Volume		9	5		3									15
PM Volumes	0	34	14	0	7	0	0	0	0	0	0	0	0	55
% PM		39%	16%		8%									63%
PM Peak Hour		17:00	12:00		15:00									17:00
Volume		16	2		3									18

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	9	10%	16	18%	22	25%	41	47%

Classification Definitions

1	Motorcycles	4	Buses	7	> =4-Axle Single Units	10	>=6-Axle Single Trailers	13	>=7-Axle Multi-Trailers
2	Passenger Cars	5	2-Axle, 6-Tire Single Units	8	<=4-Axle Single Trailers	11	<=5-Axle Multi-Trailers		
3	2-Axle, 4-Tire Single Units	6	3-Axle Single Units	9	5-Axle Single Trailers	12	6-Axle Multi-Trailers		

Prepared by NDS/ATD

Prepared by National Data & Surveying Services

VOLUME

Co Rd 105 N/O Co Rd 32B

Day: Wednesday
Date: 2/17/2021

City: Davis
Project #: CA21_070022_003

DAILY TOTALS	NB	SB	EB	WB	Total
	619	542	0	0	1,161

AM Period	NB		SB		EB	WB	TOTAL	
00:00	0		0		0	0		
00:15	1		0		0	0	1	
00:30	0		0		0	0		
00:45	0	1	0		0	0		1
01:00	2		0		0	0	2	
01:15	0		0		0	0		
01:30	0		0		0	0		
01:45	0	2	0		0	0		2
02:00	0		0		0	0		
02:15	0		0		0	0		
02:30	0		0		0	0		
02:45	1	1	0		0	0	1	1
03:00	0		1		0	0	1	
03:15	0		0		0	0		
03:30	0		0		0	0		
03:45	1	1	0	1	0	0	1	2
04:00	0		3		0	0	3	
04:15	0		1		0	0	1	
04:30	0		1		0	0	1	
04:45	0		2	7	0	0	2	7
05:00	0		1		0	0	1	
05:15	1		3		0	0	4	
05:30	6		4		0	0	10	
05:45	8	15	0	8	0	0	8	23
06:00	5		4		0	0	9	
06:15	10		6		0	0	16	
06:30	11		11		0	0	22	
06:45	14	40	3	24	0	0	17	64
07:00	13		7		0	0	20	
07:15	10		12		0	0	22	
07:30	9		11		0	0	20	
07:45	5	37	16	46	0	0	21	83
08:00	11		11		0	0	22	
08:15	6		9		0	0	15	
08:30	9		7		0	0	16	
08:45	9	35	14	41	0	0	23	76
09:00	8		4		0	0	12	
09:15	14		5		0	0	19	
09:30	7		11		0	0	18	
09:45	12	41	8	28	0	0	20	69
10:00	8		9		0	0	17	
10:15	13		10		0	0	23	
10:30	12		14		0	0	26	
10:45	14	47	7	40	0	0	21	87
11:00	10		9		0	0	19	
11:15	8		9		0	0	17	
11:30	12		6		0	0	18	
11:45	19	49	8	32	0	0	27	81
TOTALS		269		227				**496**
SPLIT %		54.2%		45.8%				**42.7%**

PM Period	NB		SB		EB	WB	TOTAL	
12:00	14		10		0	0	24	
12:15	16		8		0	0	24	
12:30	13		6		0	0	19	
12:45	7	50	7	31	0	0	14	81
13:00	12		11		0	0	23	
13:15	17		10		0	0	27	
13:30	8		10		0	0	18	
13:45	15	52	12	43	0	0	27	95
14:00	7		10		0	0	17	
14:15	14		9		0	0	23	
14:30	15		13		0	0	28	
14:45	11	47	14	46	0	0	25	93
15:00	12		16		0	0	28	
15:15	13		14		0	0	27	
15:30	16		10		0	0	26	
15:45	18	59	24	64	0	0	42	123
16:00	9		17		0	0	26	
16:15	12		16		0	0	28	
16:30	10		14		0	0	24	
16:45	18	49	12	59	0	0	30	108
17:00	12		9		0	0	21	
17:15	16		11		0	0	27	
17:30	10		13		0	0	23	
17:45	5	43	10	43	0	0	15	86
18:00	8		4		0	0	12	
18:15	8		3		0	0	11	
18:30	3		3		0	0	6	
18:45	4	23	2	12	0	0	6	35
19:00	3		3		0	0	6	
19:15	2		3		0	0	5	
19:30	2		2		0	0	4	
19:45	1	8	1	9	0	0	2	17
20:00	2		0		0	0	2	
20:15	0		2		0	0	2	
20:30	1		0		0	0	1	
20:45	1	4	0	2	0	0	1	6
21:00	2		0		0	0	2	
21:15	0		1		0	0	1	
21:30	3		0		0	0	3	
21:45	5	10	1	2	0	0	6	12
22:00	0		0		0	0		
22:15	1		0		0	0	1	
22:30	0		2		0	0	2	
22:45	3	4	0	2	0	0	3	6
23:00	0		1		0	0	1	
23:15	1		1		0	0	2	
23:30	0		0		0	0		
23:45	0	1	0	2	0	0		3
TOTALS		350		315				**665**
SPLIT %		52.6%		47.4%				**57.3%**

DAILY TOTALS	NB	SB	EB	WB	Total
	619	542	0	0	1,161

	NB	SB	EB	WB	Total
AM Peak Hour	11:45	07:15			**11:45**
AM Pk Volume	62	50			**94**
Pk Hr Factor	0.816	0.781			**0.870**
7 - 9 Volume	72	87	0	0	**159**
7 - 9 Peak Hour	07:00	07:15			**07:15**
7 - 9 Pk Volume	37	50	0	0	**85**
Pk Hr Factor	0.712	0.781	0.000	0.000	**0.966**

	NB	SB	EB	WB	Total
PM Peak Hour	15:00	15:45			**15:00**
PM Pk Volume	59	71			**123**
Pk Hr Factor	0.819	0.740			**0.732**
4 - 6 Volume	92	102	0	0	**194**
4 - 6 Peak Hour	16:30	16:00			**16:00**
4 - 6 Pk Volume	56	59	0	0	**108**
Pk Hr Factor	0.778	0.868	0.000	0.000	**0.900**

Prepared by National Data & Surveying Services

CLASSIFICATION

Co Rd 105 N/O Co Rd 32B

Day: Wednesday
Date: 2/17/2021

City: Davis
Project #: CA21_070022_003

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:15	0	0	1	0	0	0	0	0	0	0	0	0	0	1
00:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
00:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
01:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45	0	0	0	0	0	0	1	0	0	0	0	0	0	1
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	2	0	0	1	0	0	0	0	0	0	0	0	3
04:15	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:30	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:45	0	1	0	0	1	0	0	0	0	0	0	0	0	2
05:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:15	0	3	1	0	0	0	0	0	0	0	0	0	0	4
05:30	0	5	5	0	0	0	0	0	0	0	0	0	0	10
05:45	0	4	4	0	0	0	0	0	0	0	0	0	0	8
06:00	0	6	3	0	0	0	0	0	0	0	0	0	0	9
06:15	0	11	4	0	0	1	0	0	0	0	0	0	0	16
06:30	0	14	3	0	2	3	0	0	0	0	0	0	0	22
06:45	0	9	3	1	2	1	0	0	1	0	0	0	0	17
07:00	1	8	4	0	3	4	0	0	0	0	0	0	0	20
07:15	0	11	4	0	3	3	0	1	0	0	0	0	0	22
07:30	1	10	2	0	6	1	0	0	0	0	0	0	0	20
07:45	0	11	4	0	5	1	0	0	0	0	0	0	0	21
08:00	0	12	7	0	2	1	0	0	0	0	0	0	0	22
08:15	0	7	4	0	1	2	0	1	0	0	0	0	0	15
08:30	1	7	5	0	0	2	1	0	0	0	0	0	0	16
08:45	0	11	7	0	5	0	0	0	0	0	0	0	0	23
09:00	0	6	2	0	0	2	0	0	2	0	0	0	0	12
09:15	0	11	5	1	0	1	0	0	1	0	0	0	0	19
09:30	0	7	6	0	4	1	0	0	0	0	0	0	0	18
09:45	0	11	6	0	0	1	0	0	2	0	0	0	0	20
10:00	0	6	5	0	3	1	1	0	1	0	0	0	0	17
10:15	1	8	7	2	1	3	0	0	1	0	0	0	0	23
10:30	0	12	7	0	6	1	0	0	0	0	0	0	0	26
10:45	0	4	7	0	3	5	2	0	0	0	0	0	0	21
11:00	1	8	5	0	3	2	0	0	0	0	0	0	0	19
11:15	1	9	5	0	0	1	0	0	1	0	0	0	0	17
11:30	0	7	4	0	2	4	0	0	1	0	0	0	0	18
11:45	1	7	9	1	3	3	2	0	1	0	0	0	0	27
12:00 PM	1	13	4	0	5	1	0	0	0	0	0	0	0	24
12:15	0	14	6	0	2	2	0	0	0	0	0	0	0	24
12:30	1	6	8	0	2	1	1	0	0	0	0	0	0	19
12:45	0	9	4	0	0	1	0	0	0	0	0	0	0	14
13:00	0	9	3	0	5	6	0	0	0	0	0	0	0	23
13:15	0	10	11	0	2	3	0	0	1	0	0	0	0	27
13:30	0	6	5	0	5	1	1	0	0	0	0	0	0	18
13:45	0	12	4	0	5	4	1	0	1	0	0	0	0	27
14:00	0	5	6	0	4	2	0	0	0	0	0	0	0	17
14:15	1	8	8	0	1	4	1	0	0	0	0	0	0	23
14:30	0	14	8	0	3	2	1	0	0	0	0	0	0	28
14:45	0	10	6	0	4	2	1	0	2	0	0	0	0	25
15:00	0	13	4	0	4	6	1	0	0	0	0	0	0	28
15:15	0	16	9	0	2	0	0	0	0	0	0	0	0	27
15:30	0	13	8	0	3	1	0	1	0	0	0	0	0	26
15:45	0	28	9	1	0	1	2	1	0	0	0	0	0	42
16:00	0	14	10	0	1	0	0	1	0	0	0	0	0	26
16:15	0	24	4	0	0	0	0	0	0	0	0	0	0	28
16:30	0	13	9	0	1	1	0	0	0	0	0	0	0	24
16:45	0	22	7	0	1	0	0	0	0	0	0	0	0	30
17:00	0	13	5	0	3	0	0	0	0	0	0	0	0	21
17:15	0	18	6	0	3	0	0	0	0	0	0	0	0	27
17:30	0	16	6	0	1	0	0	0	0	0	0	0	0	23
17:45	0	12	2	0	1	0	0	0	0	0	0	0	0	15
18:00	0	10	2	0	0	0	0	0	0	0	0	0	0	12
18:15	0	9	2	0	0	0	0	0	0	0	0	0	0	11
18:30	0	3	2	0	1	0	0	0	0	0	0	0	0	6
18:45	0	5	0	0	1	0	0	0	0	0	0	0	0	6
19:00	0	4	1	0	1	0	0	0	0	0	0	0	0	6
19:15	0	1	3	0	1	0	0	0	0	0	0	0	0	5
19:30	0	4	0	0	0	0	0	0	0	0	0	0	0	4
19:45	0	1	0	0	1	0	0	0	0	0	0	0	0	2
20:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
20:15	0	1	1	0	0	0	0	0	0	0	0	0	0	2
20:30	0	1	0	0	0	0	0	0	0	0	0	0	0	1
20:45	0	1	0	0	0	0	0	0	0	0	0	0	0	1
21:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
21:15	0	1	0	0	0	0	0	0	0	0	0	0	0	1
21:30	0	3	0	0	0	0	0	0	0	0	0	0	0	3
21:45	0	4	2	0	0	0	0	0	0	0	0	0	0	6
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:15	0	0	1	0	0	0	0	0	0	0	0	0	0	1
22:30	0	2	0	0	0	0	0	0	0	0	0	0	0	2
22:45	0	3	0	0	0	0	0	0	0	0	0	0	0	3
23:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
23:15	0	2	0	0	0	0	0	0	0	0	0	0	0	2
23:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	10	610	298	6	119	82	16	5	15					1161
% of Totals	1%	53%	26%	1%	10%	7%	1%	0%	1%					100%

AM Volumes	7	233	131	5	56	44	7	2	11	0	0	0	0	496
% AM	1%	20%	11%	0%	5%	4%	1%	0%	1%					43%
AM Peak Hour	11:00	07:15	11:45	09:30	07:00	10:45	10:00	06:30	09:00					11:45
Volume	3	44	27	2	17	12	3	1	5					94
PM Volumes	3	377	167	1	63	38	9	3	4	0	0	0	0	665
% PM	0%	32%	14%	0%	5%	3%	1%	0%	0%					57%
PM Peak Hour	12:00	15:30	15:15	15:00	13:00	13:00	14:15	15:15	13:00					15:00
Volume	2	79	36	1	17	14	4	3	2					123

Directional Peak Periods All Classes	**AM 7-9**		**NOON 12-2**		**PM 4-6**		**Off Peak Volumes**	
	Volume	%	Volume	%	Volume	%	Volume	%
	159	14%	176	15%	194	17%	632	54%

Classification Definitions

1 Motorcycles	**4** Buses	**7** > =4-Axle Single Units	**10** >=6-Axle Single Trailers	**13** >=7-Axle Multi-Trailers
2 Passenger Cars	**5** 2-Axle, 6-Tire Single Units	**8** <=4-Axle Single Trailers	**11** <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	**6** 3-Axle Single Units	**9** 5-Axle Single Trailers	**12** 6-Axle Multi-Trailers	

Prepared by National Data & Surveying Services

CLASSIFICATION

Co Rd 105 N/O Co Rd 32B

Day: Wednesday
Date: 2/17/2021

City: Davis
Project #: CA21_070022_003

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1
01:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	1	0	0	0	0	0	0	1
03:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
04:00	0	4	1	0	2	0	0	0	0	0	0	0	0	7
05:00	0	13	10	0	0	0	0	0	0	0	0	0	0	23
06:00	0	40	13	1	4	5	0	0	1	0	0	0	0	64
07:00	2	40	14	0	17	9	0	1	0	0	0	0	0	83
08:00	1	37	23	0	8	5	1	1	0	0	0	0	0	76
09:00	0	35	19	1	4	5	0	0	5	0	0	0	0	69
10:00	1	30	26	2	13	10	3	0	2	0	0	0	0	87
11:00	3	31	23	1	8	10	2	0	3	0	0	0	0	81
12:00 PM	2	42	22	0	9	5	1	0	0	0	0	0	0	81
13:00	0	37	23	0	17	14	2	0	2	0	0	0	0	95
14:00	1	37	28	0	12	10	3	0	2	0	0	0	0	93
15:00	0	70	30	1	9	8	3	2	0	0	0	0	0	123
16:00	0	73	30	0	3	1	0	1	0	0	0	0	0	108
17:00	0	59	19	0	8	0	0	0	0	0	0	0	0	86
18:00	0	27	6	0	2	0	0	0	0	0	0	0	0	35
19:00	0	10	4	0	3	0	0	0	0	0	0	0	0	17
20:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
21:00	0	9	3	0	0	0	0	0	0	0	0	0	0	12
22:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
23:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
Totals	10	610	298	6	119	82	16	5	15					1161
% of Totals	1%	53%	26%	1%	10%	7%	1%	0%	1%					100%

	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
AM Volumes	7	233	131	5	56	44	7	2	11	0	0	0	0	496
% AM	1%	20%	11%	0%	5%	4%	1%	0%	1%					43%
AM Peak Hour	11:00	06:00	10:00	10:00	07:00	10:00	10:00	07:00	09:00					10:00
Volume	3	40	26	2	17	10	3	1	5					87
PM Volumes	3	377	167	1	63	38	9	3	4	0	0	0	0	665
% PM	0%	32%	14%	0%	5%	3%	1%	0%	0%					57%
PM Peak Hour	12:00	16:00	15:00	15:00	13:00	13:00	14:00	15:00	13:00					15:00
Volume	2	73	30	1	17	14	3	2	2					123

Directional Peak Periods All Classes	AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
	Volume	%	Volume	%	Volume	%	Volume	%
	159	14%	176	15%	194	17%	632	54%

Classification Definitions

1	Motorcycles	4	Buses	7	> =4-Axle Single Units	10	>=6-Axle Single Trailers	13	>=7-Axle Multi-Trailers
2	Passenger Cars	5	2-Axle, 6-Tire Single Units	8	<=4-Axle Single Trailers	11	<=5-Axle Multi-Trailers		
3	2-Axle, 4-Tire Single Units	6	3-Axle Single Units	9	5-Axle Single Trailers	12	6-Axle Multi-Trailers		

KDA

Yolo County
Traffic Engineering Department

Traffic Collision History Report
Midblock Collisions

Arterial: COUNTY ROAD 102
Limit 1: COUNTY ROAD 28H
Limit 2: COUNTY ROAD 29 (S)

Total Number of Collisions: 3
Date Range Reported: 1/1/2015 - 4/1/2021

Report No.	Date Time	Dist/Dir	Location	Type of Collision	Motor Veh. Involved With	DOT1	MPC 1	DOT2	MPC 2	PCF	# Inj	# Kld
6884737	3/17/15 22:20	192' North of	County Road 102/County Road 29 (N)	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Driving Under Influence	1	0
90431289	4/5/17 13:20	20' South of	County Road 102/County Road 29 (N)	Hit Object	Fixed Object	South	Proceeding Straight	East	Making Left Turn	Auto R/W Violation	1	0
90477148	5/19/17 15:00	0' In Int.	County Road 102/County Road 29 (N)	Broadside	Other Motor Vehicle	East	Making Left Turn	South	Slowing/Stopping	Unknown	2	0

Yolo County

Traffic Engineering Department

Traffic Collision History Report
Midblock Collisions

Arterial: COUNTY ROAD 102
Limit 1: COUNTY ROAD 28H
Limit 2: COUNTY ROAD 29 (S)

Total Number of Collisions: 3
Date Range Reported: 1/1/2015 - 4/1/2021

Report No.	Date Time	Dist/Dir	Location	Type of Collision	Motor Veh. Involved With	DOT1	MPC 1	DOT2	MPC 2	PCF	# Inj	# Kld

Total Number of Collisions: 3 **Segment Length:** 0.18 miles (951')

Settings Used For Query

Parameter	Setting
Limit 1	Include Intersection Related
Limit 2	Include Intersection Related
Intermediate Intersections	Include Intersection Related
Sorted By	'Date and Time'

Yolo County
Traffic Engineering Department

Collisions by Severity / Type / PCF / Lighting

4/1/2021

Date Range Reported: 1/1/2015 - 4/1/2021

COUNTY ROAD 102 from COUNTY ROAD 28H to COUNTY ROAD 29 (S)

TotalCollisions: 3

Collision Type

Broadside	1
Head-On	0
Hit Object	1
Not Stated	0
Other	0
Overturned	0
Rear-End	1
Sideswipe	0
Vehicle - Pedestrian	0
Total:	**3**

Day/Night

Day	2
Night	1
Unknown	0
Total:	**3**

Highest Degree of Injury

Complaint of Pain	3
Fatal	0
Other Visible Injury	0
Property Damage Only	0
Severe Injury	0
Total:	**3**

Primary Collision Factor

Auto R/W Violation	1
Brakes	0

Driving Under Influence	1
Fell Asleep	0
Following Too Closely	0
Hazardous Parking	0
Impeding Traffic	0
Improper Passing	0
Improper Turning	0
Lights	0
Not Stated	0
Other	0
Other Equipment	0
Other Hazardous Movement	0
Other Improper Driving	0
Other Than Driver	0
Other Than Driver or Ped	0
Ped or Other Under Influence	0
Ped R/W Violation	0
Pedestrian Violation	0
Traffic Signals and Signs	0
Unknown	1
Unsafe Lane Change	0
Unsafe Speed	0
Unsafe Starting or Backing	0
Wrong Side of Road	0
Total:	**3**

Settings Used For Query

Parameter	Setting
Limit 1	Include Intersection Related
Limit 2	Include Intersection Related
Intermediate Intersections	Include Intersection Related
Sorted By	'Date and Time'

Yolo County

Traffic Engineering Department

Traffic Collision History Report
Midblock Collisions

Arterial: COUNTY ROAD 105
Limit 1: COUNTY ROAD 28H
Limit 2: COUNTY ROAD 29

Total Number of Collisions: 1
Date Range Reported: 1/1/2015 - 4/1/2021

Report No.	Date Time	Dist/Dir	Location	Type of Collision	Motor Veh. Involved With	DOT1	MPC 1	DOT2	MPC 2	PCF	# Inj	# Kld
90010448	8/14/15 17:52	27' South of	County Road 105/County Road 28h	Hit Object	Fixed Object	South	Making Right Turn			Unsafe Speed	0	0

Yolo County

Traffic Engineering Department

Traffic Collision History Report
Midblock Collisions

Arterial: COUNTY ROAD 105
Limit 1: COUNTY ROAD 28H
Limit 2: COUNTY ROAD 29

Total Number of Collisions: 1
Date Range Reported: 1/1/2015 - 4/1/2021

Report No.	Date Time	Dist/Dir	Location	Type of Collision	Motor Veh. Involved With	DOT1	MPC 1	DOT2	MPC 2	PCF	# Inj	# Kld

Total Number of Collisions: 1   Segment Length: 0.07 miles (376')

Settings Used For Query

Parameter	Setting
Limit 1	Include Intersection Related
Limit 2	Include Intersection Related
Intermediate Intersections	Include Intersection Related
Sorted By	'Date and Time'

Yolo County
Traffic Engineering Department

Collisions by Severity / Type / PCF / Lighting

4/1/2021

Date Range Reported: 1/1/2015 - 4/1/2021

COUNTY ROAD 105 from COUNTY ROAD 28H to COUNTY ROAD 29

TotalCollisions: 1

Collision Type

Broadside	0
Head-On	0
Hit Object	1
Not Stated	0
Other	0
Overturned	0
Rear-End	0
Sideswipe	0
Vehicle - Pedestrian	0
Total:	**1**

Day/Night

Day	1
Night	0
Unknown	0
Total:	**1**

Highest Degree of Injury

Complaint of Pain	0
Fatal	0
Other Visible Injury	0
Property Damage Only	1
Severe Injury	0
Total:	**1**

Primary Collision Factor

Auto R/W Violation	0
Brakes	0

Driving Under Influence	0
Fell Asleep	0
Following Too Closely	0
Hazardous Parking	0
Impeding Traffic	0
Improper Passing	0
Improper Turning	0
Lights	0
Not Stated	0
Other	0
Other Equipment	0
Other Hazardous Movement	0
Other Improper Driving	0
Other Than Driver	0
Other Than Driver or Ped	0
Ped or Other Under Influence	0
Ped R/W Violation	0
Pedestrian Violation	0
Traffic Signals and Signs	0
Unknown	0
Unsafe Lane Change	0
Unsafe Speed	1
Unsafe Starting or Backing	0
Wrong Side of Road	0
Total:	**1**

Settings Used For Query

Parameter	Setting
Limit 1	Include Intersection Related
Limit 2	Include Intersection Related
Intermediate Intersections	Include Intersection Related
Sorted By	'Date and Time'

Yolo County

Traffic Engineering Department

Traffic Collision History Report
Midblock Collisions

Arterial: COUNTY ROAD 28H
Limit 1: COUNTY ROAD 102
Limit 2: COUNTY ROAD 105

Total Number of Collisions: 1
Date Range Reported: 1/1/2015 - 4/1/2021

Report No.	Date Time	Dist/Dir	Location	Type of Collision	Motor Veh. Involved With	DOT1	MPC 1	DOT2	MPC 2	PCF	# Inj	# Kld
90493145	6/20/17 16:07	528' East of	County Road 28h/County Road 104	Hit Object	Fixed Object	West	Proceeding Straight			Other Than Driver or Ped	0	0

Yolo County

Traffic Engineering Department

Traffic Collision History Report
Midblock Collisions

Arterial: COUNTY ROAD 28H
Limit 1: COUNTY ROAD 102
Limit 2: COUNTY ROAD 105

Total Number of Collisions: 1
Date Range Reported: 1/1/2015 - 4/1/2021

Report No.	Date Time	Dist/Dir	Location	Type of Collision	Motor Veh. Involved With	DOT1	MPC 1	DOT2	MPC 2	PCF	# Inj	# Kld

Total Number of Collisions: 1 **Segment Length:** 3.00 miles (15,830')

Settings Used For Query

Parameter	Setting
Limit 1	Include Intersection Related
Limit 2	Include Intersection Related
Intermediate Intersections	Include Intersection Related
Sorted By	'Date and Time'

Yolo County
Traffic Engineering Department

Collisions by Severity / Type / PCF / Lighting

4/1/2021

Date Range Reported: 1/1/2015 - 4/1/2021

COUNTY ROAD 28H from COUNTY ROAD 102 to COUNTY ROAD 105

TotalCollisions: 1

Collision Type

	Broadside	0
	Head-On	0
	Hit Object	1
	Not Stated	0
	Other	0
	Overturned	0
	Rear-End	0
	Sideswipe	0
	Vehicle - Pedestrian	0
	Total:	**1**

Day/Night

	Day	1
	Night	0
	Unknown	0
	Total:	**1**

Highest Degree of Injury

	Complaint of Pain	0
	Fatal	0
	Other Visible Injury	0
	Property Damage Only	1
	Severe Injury	0
	Total:	**1**

Primary Collision Factor

	Auto R/W Violation	0
	Brakes	0

Driving Under Influence	0
Fell Asleep	0
Following Too Closely	0
Hazardous Parking	0
Impeding Traffic	0
Improper Passing	0
Improper Turning	0
Lights	0
Not Stated	0
Other	0
Other Equipment	0
Other Hazardous Movement	0
Other Improper Driving	0
Other Than Driver	0
Other Than Driver or Ped	1
Ped or Other Under Influence	0
Ped R/W Violation	0
Pedestrian Violation	0
Traffic Signals and Signs	0
Unknown	0
Unsafe Lane Change	0
Unsafe Speed	0
Unsafe Starting or Backing	0
Wrong Side of Road	0
Total:	**1**

Settings Used For Query

Parameter	Setting
Limit 1	Include Intersection Related
Limit 2	Include Intersection Related
Intermediate Intersections	Include Intersection Related
Sorted By	'Date and Time'

KDA

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	20	196	33	48	468
Future Vol, veh/h	30	20	196	33	48	468
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	23	25	29	2	2	15
Mvmt Flow	32	22	211	35	52	503

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	818	211	0	0	246	0
Stage 1	211	-	-	-	-	-
Stage 2	607	-	-	-	-	-
Critical Hdwy	6.63	6.45	-	-	4.12	-
Critical Hdwy Stg 1	5.63	-	-	-	-	-
Critical Hdwy Stg 2	5.63	-	-	-	-	-
Follow-up Hdwy	3.707	3.525	-	-	2.218	-
Pot Cap-1 Maneuver	319	775	-	-	1320	-
Stage 1	777	-	-	-	-	-
Stage 2	505	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	307	775	-	-	1320	-
Mov Cap-2 Maneuver	307	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	485	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.8	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	307	775	1320	-
HCM Lane V/C Ratio	-	-	0.105	0.028	0.039	-
HCM Control Delay (s)	-	-	18.1	9.8	7.8	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0.1	-

Intersection						
Int Delay, s/veh	5.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	56	46	25	34	18
Future Vol, veh/h	14	56	46	25	34	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	18	18	18	18	18	18
Mvmt Flow	17	69	57	31	42	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	198	53	64	0	-	0
Stage 1	53	-	-	-	-	-
Stage 2	145	-	-	-	-	-
Critical Hdwy	6.58	6.38	4.28	-	-	-
Critical Hdwy Stg 1	5.58	-	-	-	-	-
Critical Hdwy Stg 2	5.58	-	-	-	-	-
Follow-up Hdwy	3.662	3.462	2.362	-	-	-
Pot Cap-1 Maneuver	756	971	1442	-	-	-
Stage 1	930	-	-	-	-	-
Stage 2	845	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	726	971	1442	-	-	-
Mov Cap-2 Maneuver	726	-	-	-	-	-
Stage 1	893	-	-	-	-	-
Stage 2	845	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	4.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1442	-	910	-	-
HCM Lane V/C Ratio	0.039	-	0.095	-	-
HCM Control Delay (s)	7.6	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection						
Int Delay, s/veh	5.8					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	94	1	4	5	67	72
Future Vol, veh/h	94	1	4	5	67	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	106	1	4	6	75	81

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	107	0	121	107
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	14	-
Critical Hdwy	-	-	4.25	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.335	-	3.635	3.435
Pot Cap-1 Maneuver	-	-	1406	-	844	913
Stage 1	-	-	-	-	886	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1406	-	841	913
Mov Cap-2 Maneuver	-	-	-	-	841	-
Stage 1	-	-	-	-	886	-
Stage 2	-	-	-	-	973	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.4	10
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	877	-	-	1406	-
HCM Lane V/C Ratio	0.178	-	-	0.003	-
HCM Control Delay (s)	10	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	121	6	60	95	5	4
Future Vol, veh/h	121	6	60	95	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	25	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	132	7	65	103	5	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	168	0	-	0	388	117
Stage 1	-	-	-	-	117	-
Stage 2	-	-	-	-	271	-
Critical Hdwy	4.16	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.254	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	1386	-	-	-	608	924
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	765	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1386	-	-	-	550	924
Mov Cap-2 Maneuver	-	-	-	-	550	-
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	765	-

Approach	EB	WB	SB
HCM Control Delay, s	7.5	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1386	-	-	-	550	924
HCM Lane V/C Ratio	0.095	-	-	-	0.01	0.005
HCM Control Delay (s)	7.9	0	-	-	11.6	8.9
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.3	-	-	-	0	0

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	69	50	0	0	0
Future Vol, veh/h	0	69	50	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	75	54	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	54	0	-	0	129	54
Stage 1	-	-	-	-	54	-
Stage 2	-	-	-	-	75	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1551	-	-	-	865	1013
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	948	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1551	-	-	-	865	1013
Mov Cap-2 Maneuver	-	-	-	-	865	-
Stage 1	-	-	-	-	969	-
Stage 2	-	-	-	-	948	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1551	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	81	494	38	17	354
Future Vol, veh/h	28	81	494	38	17	354
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	22	2	2	5	2
Mvmt Flow	29	85	520	40	18	373

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	929	520	0	0	560	0
Stage 1	520	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Critical Hdwy	6.45	6.42	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.498	-	-	2.245	-
Pot Cap-1 Maneuver	293	519	-	-	996	-
Stage 1	591	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	288	519	-	-	996	-
Mov Cap-2 Maneuver	288	-	-	-	-	-
Stage 1	591	-	-	-	-	-
Stage 2	652	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	288	519	996	-
HCM Lane V/C Ratio	-	-	0.102	0.164	0.018	-
HCM Control Delay (s)	-	-	18.9	13.3	8.7	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.6	0.1	-

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	218	43	56	44	9
Future Vol, veh/h	5	218	43	56	44	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	266	52	68	54	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	232	60	65	0	-	0
Stage 1	60	-	-	-	-	-
Stage 2	172	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	756	1005	1537	-	-	-
Stage 1	963	-	-	-	-	-
Stage 2	858	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	730	1005	1537	-	-	-
Mov Cap-2 Maneuver	730	-	-	-	-	-
Stage 1	929	-	-	-	-	-
Stage 2	858	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	3.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1537	-	997	-	-
HCM Lane V/C Ratio	0.034	-	0.273	-	-
HCM Control Delay (s)	7.4	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.1	-	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	265	2	3	6	88	79
Future Vol, veh/h	265	2	3	6	88	79
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	340	3	4	8	113	101

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	343	0	358	342
Stage 1	-	-	-	-	342	-
Stage 2	-	-	-	-	16	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1216	-	640	701
Stage 1	-	-	-	-	719	-
Stage 2	-	-	-	-	1007	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1216	-	638	701
Mov Cap-2 Maneuver	-	-	-	-	638	-
Stage 1	-	-	-	-	719	-
Stage 2	-	-	-	-	1004	-

Approach	EB		WB		NB	
HCM Control Delay, s	0		2.7		12.9	
HCM LOS					B	

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	666	-	-	1216	-
HCM Lane V/C Ratio	0.321	-	-	0.003	-
HCM Control Delay (s)	12.9	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	320	3	73	268	0	2
Future Vol, veh/h	320	3	73	268	0	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	-	-	-	-	25	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	348	3	79	291	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	370	0	-	0	924	225
Stage 1	-	-	-	-	225	-
Stage 2	-	-	-	-	699	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1183	-	-	-	298	812
Stage 1	-	-	-	-	810	-
Stage 2	-	-	-	-	491	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1183	-	-	-	210	812
Mov Cap-2 Maneuver	-	-	-	-	210	-
Stage 1	-	-	-	-	571	-
Stage 2	-	-	-	-	491	-

Approach	EB	WB	SB
HCM Control Delay, s	9.2	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1183	-	-	-	-	812
HCM Lane V/C Ratio	0.294	-	-	-	-	0.003
HCM Control Delay (s)	9.3	0	-	-	0	9.4
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	1.2	-	-	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	55	109	0	0	0
Future Vol, veh/h	0	55	109	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	60	118	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	118	0	-	0	178	118
Stage 1	-	-	-	-	118	-
Stage 2	-	-	-	-	60	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1470	-	-	-	812	934
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	963	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1470	-	-	-	812	934
Mov Cap-2 Maneuver	-	-	-	-	812	-
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	963	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1470	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	27	196	55	58	468
Future Vol, veh/h	45	27	196	55	58	468
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	23	25	29	2	2	15
Mvmt Flow	48	29	211	59	62	503

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	838	211	0	0	270	0
Stage 1	211	-	-	-	-	-
Stage 2	627	-	-	-	-	-
Critical Hdwy	6.63	6.45	-	-	4.12	-
Critical Hdwy Stg 1	5.63	-	-	-	-	-
Critical Hdwy Stg 2	5.63	-	-	-	-	-
Follow-up Hdwy	3.707	3.525	-	-	2.218	-
Pot Cap-1 Maneuver	310	775	-	-	1293	-
Stage 1	777	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	295	775	-	-	1293	-
Mov Cap-2 Maneuver	295	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	470	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.9	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	295	775	1293	-
HCM Lane V/C Ratio	-	-	0.164	0.037	0.048	-
HCM Control Delay (s)	-	-	19.6	9.8	7.9	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.1	0.2	-

Intersection						
Int Delay, s/veh	4.8					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	19	56	46	37	43	21
Future Vol, veh/h	19	56	46	37	43	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	18	18	18	18	18	18
Mvmt Flow	23	69	57	46	53	26

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	226	66	79	0	-	0
Stage 1	66	-	-	-	-	-
Stage 2	160	-	-	-	-	-
Critical Hdwy	6.58	6.38	4.28	-	-	-
Critical Hdwy Stg 1	5.58	-	-	-	-	-
Critical Hdwy Stg 2	5.58	-	-	-	-	-
Follow-up Hdwy	3.662	3.462	2.362	-	-	-
Pot Cap-1 Maneuver	728	955	1424	-	-	-
Stage 1	918	-	-	-	-	-
Stage 2	831	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	698	955	1424	-	-	-
Mov Cap-2 Maneuver	698	-	-	-	-	-
Stage 1	880	-	-	-	-	-
Stage 2	831	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	4.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1424	-	874	-	-
HCM Lane V/C Ratio	0.04	-	0.106	-	-
HCM Control Delay (s)	7.6	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection	
Int Delay, s/veh	6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	103	1	4	5	79	72
Future Vol, veh/h	103	1	4	5	79	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	116	1	4	6	89	81

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	117	0	131	117
Stage 1	-	-	-	-	117	-
Stage 2	-	-	-	-	14	-
Critical Hdwy	-	-	4.25	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.335	-	3.635	3.435
Pot Cap-1 Maneuver	-	-	1394	-	833	901
Stage 1	-	-	-	-	877	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1394	-	831	901
Mov Cap-2 Maneuver	-	-	-	-	831	-
Stage 1	-	-	-	-	877	-
Stage 2	-	-	-	-	973	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.4	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	863	-	-	1394	-
HCM Lane V/C Ratio	0.197	-	-	0.003	-
HCM Control Delay (s)	10.2	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	121	6	60	104	5	4
Future Vol, veh/h	121	6	60	104	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	25	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	132	7	65	113	5	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	178	0	-	0	393	122
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	271	-
Critical Hdwy	4.16	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.254	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	1374	-	-	-	604	918
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	765	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1374	-	-	-	546	918
Mov Cap-2 Maneuver	-	-	-	-	546	-
Stage 1	-	-	-	-	808	-
Stage 2	-	-	-	-	765	-

Approach	EB	WB	SB
HCM Control Delay, s	7.5	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1374	-	-	-	546	918
HCM Lane V/C Ratio	0.096	-	-	-	0.01	0.005
HCM Control Delay (s)	7.9	0	-	-	11.7	8.9
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.3	-	-	-	0	0

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	81	50	17	12	22
Future Vol, veh/h	31	81	50	17	12	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	88	54	18	13	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	72	0	-	0	219	63
Stage 1	-	-	-	-	63	-
Stage 2	-	-	-	-	156	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1528	-	-	-	769	1002
Stage 1	-	-	-	-	960	-
Stage 2	-	-	-	-	872	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1528	-	-	-	751	1002
Mov Cap-2 Maneuver	-	-	-	-	751	-
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	872	-

Approach	EB		WB		SB	
HCM Control Delay, s	2.1		0		9.2	
HCM LOS					A	

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1528	-	-	-	896
HCM Lane V/C Ratio	0.022	-	-	-	0.041
HCM Control Delay (s)	7.4	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	85	494	40	18	354
Future Vol, veh/h	36	85	494	40	18	354
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	22	2	2	5	2
Mvmt Flow	38	89	520	42	19	373

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	931	520	0	0	562	0
Stage 1	520	-	-	-	-	-
Stage 2	411	-	-	-	-	-
Critical Hdwy	6.45	6.42	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.498	-	-	2.245	-
Pot Cap-1 Maneuver	293	519	-	-	995	-
Stage 1	591	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	287	519	-	-	995	-
Mov Cap-2 Maneuver	287	-	-	-	-	-
Stage 1	591	-	-	-	-	-
Stage 2	650	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	287	519	995	-
HCM Lane V/C Ratio	-	-	0.132	0.172	0.019	-
HCM Control Delay (s)	-	-	19.4	13.4	8.7	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.6	0.1	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	218	43	57	49	11
Future Vol, veh/h	5	218	43	57	49	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	266	52	70	60	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	241	67	73	0	-	0
Stage 1	67	-	-	-	-	-
Stage 2	174	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	747	997	1527	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	856	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	721	997	1527	-	-	-
Mov Cap-2 Maneuver	721	-	-	-	-	-
Stage 1	923	-	-	-	-	-
Stage 2	856	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	3.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1527	-	989	-	-
HCM Lane V/C Ratio	0.034	-	0.275	-	-
HCM Control Delay (s)	7.4	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.1	-	-

Intersection						
Int Delay, s/veh	5					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	270	2	3	6	89	79
Future Vol, veh/h	270	2	3	6	89	79
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	346	3	4	8	114	101

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	349	0	364	348
Stage 1	-	-	-	-	348	-
Stage 2	-	-	-	-	16	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1210	-	635	695
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	1007	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1210	-	633	695
Mov Cap-2 Maneuver	-	-	-	-	633	-
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	1004	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	661	-	-	1210	-
HCM Lane V/C Ratio	0.326	-	-	0.003	-
HCM Control Delay (s)	13.1	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	320	3	73	273	0	2
Future Vol, veh/h	320	3	73	273	0	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	-	-	-	-	25	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	348	3	79	297	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	376	0	-	0	927	228
Stage 1	-	-	-	-	228	-
Stage 2	-	-	-	-	699	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1177	-	-	-	297	809
Stage 1	-	-	-	-	808	-
Stage 2	-	-	-	-	491	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1177	-	-	-	209	809
Mov Cap-2 Maneuver	-	-	-	-	209	-
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	491	-

Approach	EB	WB	SB
HCM Control Delay, s	9.3	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1177	-	-	-	-	809
HCM Lane V/C Ratio	0.296	-	-	-	-	0.003
HCM Control Delay (s)	9.3	0	-	-	0	9.5
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	1.2	-	-	-	-	0

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↱		Y	
Traffic Vol, veh/h	3	55	109	1	6	12
Future Vol, veh/h	3	55	109	1	6	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	60	118	1	7	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	119	0	-	0	185	119
Stage 1	-	-	-	-	119	-
Stage 2	-	-	-	-	66	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1469	-	-	-	804	933
Stage 1	-	-	-	-	906	-
Stage 2	-	-	-	-	957	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1469	-	-	-	802	933
Mov Cap-2 Maneuver	-	-	-	-	802	-
Stage 1	-	-	-	-	904	-
Stage 2	-	-	-	-	957	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1469	-	-	-	885
HCM Lane V/C Ratio	0.002	-	-	-	0.022
HCM Control Delay (s)	7.5	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	64	35	196	73	66	468
Future Vol, veh/h	64	35	196	73	66	468
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	23	25	29	2	2	15
Mvmt Flow	69	38	211	78	71	503

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	856	211	0	0	289	0
Stage 1	211	-	-	-	-	-
Stage 2	645	-	-	-	-	-
Critical Hdwy	6.63	6.45	-	-	4.12	-
Critical Hdwy Stg 1	5.63	-	-	-	-	-
Critical Hdwy Stg 2	5.63	-	-	-	-	-
Follow-up Hdwy	3.707	3.525	-	-	2.218	-
Pot Cap-1 Maneuver	302	775	-	-	1273	-
Stage 1	777	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	285	775	-	-	1273	-
Mov Cap-2 Maneuver	285	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	458	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	17.5		0		1	
HCM LOS	C					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	285	775	1273	-
HCM Lane V/C Ratio	-	-	0.241	0.049	0.056	-
HCM Control Delay (s)	-	-	21.6	9.9	8	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %tile Q(veh)	-	-	0.9	0.2	0.2	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	56	46	47	53	23
Future Vol, veh/h	23	56	46	47	53	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	18	18	18	18	18	18
Mvmt Flow	28	69	57	58	65	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	251	79	93	0	-	0
Stage 1	79	-	-	-	-	-
Stage 2	172	-	-	-	-	-
Critical Hdwy	6.58	6.38	4.28	-	-	-
Critical Hdwy Stg 1	5.58	-	-	-	-	-
Critical Hdwy Stg 2	5.58	-	-	-	-	-
Follow-up Hdwy	3.662	3.462	2.362	-	-	-
Pot Cap-1 Maneuver	704	939	1407	-	-	-
Stage 1	905	-	-	-	-	-
Stage 2	821	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	674	939	1407	-	-	-
Mov Cap-2 Maneuver	674	-	-	-	-	-
Stage 1	867	-	-	-	-	-
Stage 2	821	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	3.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1407	-	843	-	-
HCM Lane V/C Ratio	0.04	-	0.116	-	-
HCM Control Delay (s)	7.7	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Intersection						
Int Delay, s/veh	6					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	113	1	4	5	89	72
Future Vol, veh/h	113	1	4	5	89	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	15	15	15	15	15	15
Mvmt Flow	127	1	4	6	100	81

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	128	0	142	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	14	-
Critical Hdwy	-	-	4.25	-	6.55	6.35
Critical Hdwy Stg 1	-	-	-	-	5.55	-
Critical Hdwy Stg 2	-	-	-	-	5.55	-
Follow-up Hdwy	-	-	2.335	-	3.635	3.435
Pot Cap-1 Maneuver	-	-	1381	-	821	888
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1381	-	819	888
Mov Cap-2 Maneuver	-	-	-	-	819	-
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	973	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.4	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	848	-	-	1381	-
HCM Lane V/C Ratio	0.213	-	-	0.003	-
HCM Control Delay (s)	10.4	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	121	6	60	114	5	4
Future Vol, veh/h	121	6	60	114	5	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	25	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	132	7	65	124	5	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	189	0	-	0	398	127
Stage 1	-	-	-	-	127	-
Stage 2	-	-	-	-	271	-
Critical Hdwy	4.16	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.254	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	1361	-	-	-	600	913
Stage 1	-	-	-	-	889	-
Stage 2	-	-	-	-	765	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1361	-	-	-	542	913
Mov Cap-2 Maneuver	-	-	-	-	542	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	765	-

Approach	EB	WB	SB
HCM Control Delay, s	7.6	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1361	-	-	-	542	913
HCM Lane V/C Ratio	0.097	-	-	-	0.01	0.005
HCM Control Delay (s)	7.9	0	-	-	11.7	9
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0.3	-	-	-	0	0

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	58	81	50	31	26	49
Future Vol, veh/h	58	81	50	31	26	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	88	54	34	28	53

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	88	0	-	0	285	71
Stage 1	-	-	-	-	71	-
Stage 2	-	-	-	-	214	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1508	-	-	-	705	991
Stage 1	-	-	-	-	952	-
Stage 2	-	-	-	-	822	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1508	-	-	-	674	991
Mov Cap-2 Maneuver	-	-	-	-	674	-
Stage 1	-	-	-	-	910	-
Stage 2	-	-	-	-	822	-

Approach	EB	WB	SB
HCM Control Delay, s	3.1	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1508	-	-	-	852
HCM Lane V/C Ratio	0.042	-	-	-	0.096
HCM Control Delay (s)	7.5	0	-	-	9.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	85	494	42	19	354
Future Vol, veh/h	38	85	494	42	19	354
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	150	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	5	22	2	2	5	2
Mvmt Flow	40	89	520	44	20	373

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	933	520	0	0	564	0
Stage 1	520	-	-	-	-	-
Stage 2	413	-	-	-	-	-
Critical Hdwy	6.45	6.42	-	-	4.15	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.498	-	-	2.245	-
Pot Cap-1 Maneuver	292	519	-	-	993	-
Stage 1	591	-	-	-	-	-
Stage 2	661	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	286	519	-	-	993	-
Mov Cap-2 Maneuver	286	-	-	-	-	-
Stage 1	591	-	-	-	-	-
Stage 2	648	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.3	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	286	519	993	-
HCM Lane V/C Ratio	-	-	0.14	0.172	0.02	-
HCM Control Delay (s)	-	-	19.6	13.4	8.7	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.6	0.1	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	218	43	58	50	11
Future Vol, veh/h	6	218	43	58	50	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	266	52	71	61	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	243	68	74	0	-	0
Stage 1	68	-	-	-	-	-
Stage 2	175	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	745	995	1526	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	719	995	1526	-	-	-
Mov Cap-2 Maneuver	719	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	855	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	3.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1526	-	985	-	-
HCM Lane V/C Ratio	0.034	-	0.277	-	-
HCM Control Delay (s)	7.4	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.1	-	-

Intersection						
Int Delay, s/veh	5					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	271	2	3	6	90	79
Future Vol, veh/h	271	2	3	6	90	79
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	347	3	4	8	115	101

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	350	0	365	349
Stage 1	-	-	-	-	349	-
Stage 2	-	-	-	-	16	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1209	-	635	694
Stage 1	-	-	-	-	714	-
Stage 2	-	-	-	-	1007	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1209	-	633	694
Mov Cap-2 Maneuver	-	-	-	-	633	-
Stage 1	-	-	-	-	714	-
Stage 2	-	-	-	-	1004	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	660	-	-	1209	-
HCM Lane V/C Ratio	0.328	-	-	0.003	-
HCM Control Delay (s)	13.1	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	320	3	73	274	0	2
Future Vol, veh/h	320	3	73	274	0	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	-	-	-	-	25	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	348	3	79	298	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	377	0	-	0	927	228
Stage 1	-	-	-	-	228	-
Stage 2	-	-	-	-	699	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1176	-	-	-	297	809
Stage 1	-	-	-	-	808	-
Stage 2	-	-	-	-	491	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1176	-	-	-	209	809
Mov Cap-2 Maneuver	-	-	-	-	209	-
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	491	-

Approach	EB	WB	SB
HCM Control Delay, s	9.3	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1176	-	-	-	-	809
HCM Lane V/C Ratio	0.296	-	-	-	-	0.003
HCM Control Delay (s)	9.3	0	-	-	0	9.5
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	1.2	-	-	-	-	0

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	55	109	3	8	14
Future Vol, veh/h	5	55	109	3	8	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	60	118	3	9	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	121	0	-	0	190	120
Stage 1	-	-	-	-	120	-
Stage 2	-	-	-	-	70	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1467	-	-	-	799	931
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	953	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1467	-	-	-	796	931
Mov Cap-2 Maneuver	-	-	-	-	796	-
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	953	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1467	-	-	-	877
HCM Lane V/C Ratio	0.004	-	-	-	0.027
HCM Control Delay (s)	7.5	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

APPENDIX I

PAVEMENT SECTION DATA COUNTY ROADS 28H AND 105

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Project No.
16267.000.007

June 28, 2021

Mr. Mark Christison, PE
Yolo County
Department of Community Services, Public Works Division
292 W. Beamer Street
Woodland, CA 95695

Subject: Yolo County Road 28H and 105
Yolo County, California

PAVEMENT SECTION DATA

Dear Mr. Christison:

ENGEO prepared this letter to provide existing pavement section (thickness) data and to estimate a theoretical traffic index value for Yolo County Road 28H and 105 in Yolo County, California; these road segments are used to access the Yolo County Landfill. You authorized our scope in the Contract Work Proposal No. WP-7, dated June 3, 2021. Our scope of services included a subsurface field exploration to evaluate the hot mix asphalt (HMA) and Aggregate Base (AB) thickness, and engineering analyses to calculate an equivalent traffic index (TI) assuming the in-place pavement was new. A formal pavement condition survey and pavement rehabilitation analysis was not included in our scope.

PROJECT LOCATION AND DESCRIPTION

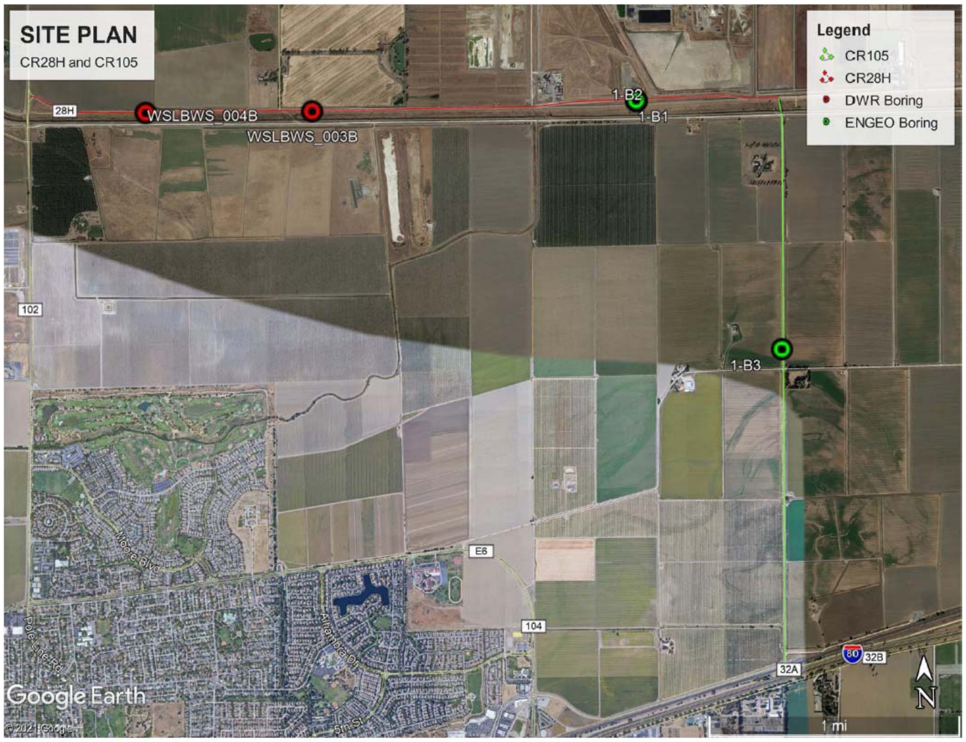
The road segments are located northeast of the City of Davis, as shown on Figure 1 below. County Road (CR) 28H is bounded by CR102 to the west and CR105 to the east and includes a total length of approximately 3 miles. CR28H is bordered by Willow Slough to the south and agricultural land and the Yolo County Landfill to the north. The western two-thirds of CR28H is located on the crest of the Willow Slough levee, which was evaluated as part of the California Department of Water Resources (DWR) Non-Urban Levee Evaluations (NULE) program. At your request, we studied existing geotechnical data published by DWR to characterize the existing pavement section for the western two-thirds of CR28H.

CR105 is bounded by CR28H to the north and CR32A to the south and includes a total length of approximately 2¼ miles. CR105 is bordered by agricultural land and residential properties.

FIELD EXPLORATION

On June 18, 2021, we observed the drilling of three shallow borings to measure the in-place pavement thickness. The borings were located within the travel lanes on the existing HMA pavement; we obtained a Yolo County encroachment permit for our work within the public right of way (PW2021-0165). Boring 1-B1 was located within the westbound lane of CR28H, Boring 1-B2 was located in the eastbound lane of CR28H, and Boring 1-B3 was located in the southbound lane of CR105.

FIGURE 1 – Site Plan



Base map source Google Earth

An ENGEO representative observed the drilling and logged the subsurface conditions at each location. We retained a truck-mounted Soil Test Ranger drill rig and crew to advance the borings. We used a 6-inch diameter electric core drill to core through the HMA surface, and then a 4½-inch-diameter solid flight auger to advance through the aggregate base to subgrade soil. At each boring location, we measured the thickness of HMA and AB, and visually classified the subgrade soil drill cuttings. Refer to Table 1 for a summary of the pavement section thickness and subgrade soil classification. Also attached is an exploration summary that includes photos of the pavement cores at each boring location along with a brief summary of the subsurface conditions.

At your request, we also reviewed the boring logs for Borings WSLBWS_003B and WSLBWS_004B from the DWR NULE study, attached. These borings were performed in November of 2010. A summary of the reported pavement section thickness and subgrade conditions based on our current explorations and the referenced DWR logs are included in Table 1.

TABLE 1: In-Place Pavement Section Data

BORING ID	ROAD	APPROXIMATE HMA THICKNESS (INCHES)	APPROXIMATE AB THICKNESS (INCHES)	VISUAL SOIL CLASSIFICATION OF SUBGRADE
WSLBWS_003B	CR28H	9	21	Fat Clay (CH)
WSLBWS_004B	CR28H	6	18	Fat Clay with Sand (CH)
1-B1	CR28H WB	4	20	Fat Clay (CH)
1-B2	CR28H EB	3½	16½	Fat Clay (CH)
1-B3	CR105 SB	4	16	Fat Clay (CH)

THEORETICAL TRAFFIC INDEX

As requested, we calculated the theoretical gravel equivalent of the pavement sections in Table 1. We treated the pavement sections as though they were new pavement designed in accordance with Topic 633 of the Caltrans Highway Design Manual (Caltrans, 2020) using a subgrade R-value of 5. We then determined the gravel factor of the in place HMA thickness at each location. This was an iterative process because the gravel factor for HMA is dependent on the design TI. Based on the existing thickness of HMA relative to the minimum HMA thickness for each TI using the Caltrans design methodology, we determined the gravel equivalent of the overall section and estimated the TI value.

TABLE 2: Existing Pavement Section Gravel Equivalent and Traffic Index Estimate*

BORING ID	ROAD SEGMENT	HMA GRAVEL FACTOR (based on TI)	TOTAL GRAVEL EQUIVALENT	EQUIVALENT TRAFFIC INDEX
WSLBWS_003B	CR28H – West of Landfill	1.75	38.8	10.5
WSLBWS_004B		1.94	31.5	8.5
1-B1	CR28H East of Landfill – WB Lane	2.14	30.6	7
1-B2	CR28 East of Landfill – EB Lane	2.14	25.6	7
1-B3	CR105 SB	2.14	26.2	7

*Design values are based on a subgrade R-Value of 5.

As a reminder, the equivalent TI values presented in Table 2 are estimated using Topic 633 of the Caltrans Highway Design Manual, assume gravel factors based on new HMA and AB materials, and a subgrade R-Value of 5. No aging or other pavement degradation factors have been applied.

CLOSING

The geotechnical data summarized in this letter represents the conditions at the time the explorations were performed. Changes in subsurface conditions are expected between exploration locations and the subsurface conditions can change over time. The pavement section thickness along the roadways is expected to vary based on the initial constructed thickness, repairs, overlays, and other routine maintenance. The TI estimates are only applicable for the pavement sections measured at these discrete locations. We strived to perform our professional services in accordance with generally accepted geotechnical engineering principles and practices currently employed in the area; no warranty is express or implied.

If you have any questions or comments regarding this summary letter, please call and we will be glad to discuss them with you.

Sincerely,
ENGEO Incorporated

REGISTERED PROFESSIONAL ENGINEER
NICHOLAS S. BROUSSARD
No. 3109
GEOTECHNICAL
STATE OF CALIFORNIA

Nicholas Broussard, GE
am/jb/dt

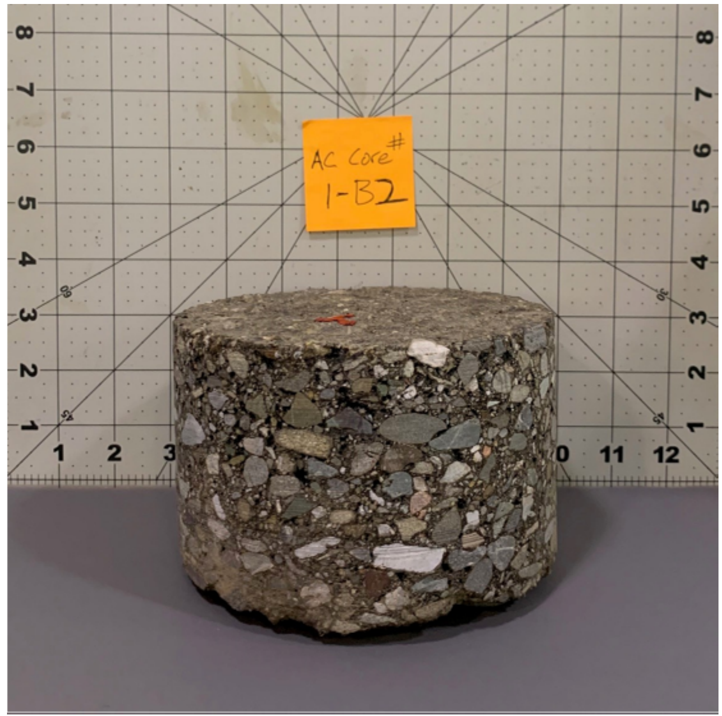
Jonathan Boland, GE

Attachments: ENGEO Core Photos (1 page)
DWR Borings Logs (2 pages)

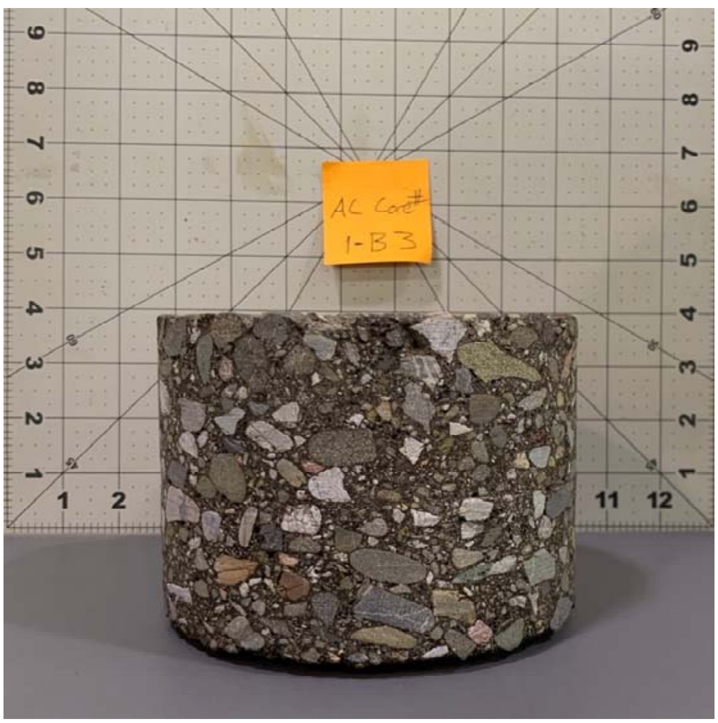
CORE PHOTOS

CORE PHOTO 1-B1

CORE PHOTO 1-B2



CORE PHOTO 1-B3



DWR BORING LOGS

16267.000.007
June 28, 2021

DATE STARTED 11/10/10 **DATE COMPLETED** 11/10/10	**GROUND ELEVATION** 35.6 ft **ELEVATION DATUM** NAVD 88	**TOTAL DEPTH OF BORING** 40.0 ft
DRILLING CONTRACTOR Gregg Drilling & Testing, Inc.	**DRILLER'S NAME** Jason Neff **HELPER'S NAME** Jeramy Neff	**TOTAL DEPTH OF FILL** 6.5 ft
DRILLING METHOD HSA/Mud Rotary	**DRILL RIG MAKE AND MODEL** Mobile B-53 (D-26)	**CONSULTANT COMPANY** URS Corporation
DRILL BIT SIZE AND TYPE (HOLE DIAMETER) 7-5/8 auger bit/5-1/2" combo (8" then 6")	**DRILLING ROD TYPE AND DIAMETER** 101 Rod/101mm	**FIELD LOGGER** Eric Wilson
[X] **VERTICAL** [ ] **INCLINED**	**CASING TYPE, DIAMETER, INSTALLATION DEPTH** 6-7/8" SWT 15'	**FIELD LOG REVIEWER** S. Janowski
SAMPLER TYPE(S) Bag, DCore(2.5"), MCal(2"), PCore(2.5"), Shelby(2.87"), SPT(1.375")	**HAMMER TYPE, MAKE/MODEL, WEIGHT/DROP** Marl, automatic, 140 lbs / 30-inch drop	**HAMMER EFFICIENCY** 77.4%
BOREHOLE BACKFILL OR COMPLETION Neat cement-bentonite grout	**GROUNDWATER READING:** **DURING DRILLING** Not Noted	**AFTER DRILLING (DATE-TIME)**

Elevation, feet	Depth, feet	CLASSIFICATION OF MATERIALS (Description)	Sample Number	Recovery, %	Blows per 6 in. [Blows per ft]	N_{60}(ASTM)	PP or TV, tsf	LABORATORY DATA: Water Content, %	Liquid Limit	Plasticity Index	Fines, % < #200	Other Lab Tests	REMARKS
35	0–1	[LEVEE FILL] 9 in. asphalt concrete over 21 in. aggregate base.	S01A										S01A_000_001B Hand auger to 5'. HSA to 10'.
	1–2.5	[LEVEE FILL] Well-Graded SAND with Silt and Gravel (SW-SM); dense; olive brown (2.5Y 4/3); dry; 60% fine to coarse sand; 30% fine gravel, max. 1/2 in.; 10% no plasticity fines; weak cementation.											
	2.5–5	[LEVEE FILL] FAT CLAY (CH); stiff; dark grayish brown (2.5Y 4/2); moist; 98% very high dry strength, high toughness fines; 2% fine sand.											
30 (FILL)	5–6.5	At 5 feet light olive brown (2.5Y 5/4) mottling and varigations.	S02A	100	2 3 3 [6]			26	59	38	98		S02A_005_007M
	6.5–8.5	LEAN CLAY (CL); stiff; very dark grayish brown (2.5Y 3/2); moist; medium plasticity, very high dry strength, high toughness fines.	S03A	100			1.7P						S03A_007_008P
	8.5–10	LEAN CLAY with Sand (CL); very stiff; dark grayish brown (2.5Y 4/2); moist; 83% medium dry strength, medium toughness fines; 17% fine sand; weak blocky texture, trace caliche development, trace caliche nodules.					3.2P						
25	10–12.5		S04A	80				23	36	20	83	UW	S04A_010_013T 250 psi Switch to mud at 10'.
	12.5–17	FAT CLAY (CH); very stiff; light olive brown (2.5Y 5/6); moist; 100% high plasticity, very high dry strength, high toughness fines; mottled with very dark grayish brown (2.5Y 3/2) and greenish gray (5GY 6/1); trace fine sand.	S05A	100			2.5P						S05A_015_016P Problems with fluid circulation outside casing and under mud pan. Greg reset casing.
20	16	At 16 feet 10% fine sand.											
	17–18.5	FAT CLAY (CH); very stiff; light olive brown (2.5Y 5/6); 87% high plasticity, very high dry strength, no dilatancy, high toughness fines; 13% fine sand.	S06A	83	3 4 5 [9]						87		S06A_017_019M
	18.5–20		S07A	95			3.7P						S07A_020_021P

Final Report Version 7/5/2012

Borehole Location: Levee Crest **County:** Yolo
Coordinates: Northing: 1,976,990.00 **Easting:** 6,644,753.00
Latitude: 38.59047 **Longitude:** -121.70931
Levee Station or Milepost: 1255+08 **Levee Mile:** 2.386
Levee Segment 169
Survey Method: GPS **Coord. System:** CA State Plane Zone II
Channel / River Name / Feature: Willow Slough

LOG OF BORING
WSLBWS_003B

Non-Urban Levee Geotechnical Evaluations Program Phase 2

Elevation, feet	Depth, feet	Classification of Materials (Description)	Sample Number	Recovery, %	Blows per 6 in. [Blows per ft]	N_{60}(ASTM)	PP or TV, tsf	Water Content, %	Liquid Limit	Plasticity Index	Fines, % < #200	Other Lab Tests	Remarks
15	20–22	At 20 feet pale brown (2.5Y 7/3) mottling weak fine blocky texture, weak to moderate caliche development, strong reaction with HCl on pale mottling.	S07A	95			3.7P						
	22–23.5	SANDY LEAN CLAY (CL); very stiff; light olive brown (2.5Y 5/6) mottled with very dark grayish brown (2.5Y 3/2); moist; 65% high dry strength, medium toughness fines; 35% fine sand.	S08A		10 11 12 [23]		3.8P	16	32	18	65		S08A_022_024M
10	23.5–27	SANDY LEAN CLAY (CL); medium stiff; light olive brown (2.5Y 5/6); 64% low dry strength, rapid dilatancy, low toughness fines; 36% fine sand. (from 25.5 ft)	S09A S10A	98			3.8P 0.5P						S09A_024_025P S10A_026_027P
	27–28.5		S11A	100	2 5 6 [11]			24	30	14	64		S11A_027_029M
5	28.5–31.5	SILT with Sand (ML); light olive brown (2.5Y 5/6); 85% low plasticity, low dry strength, slow dilatancy, low toughness fines; 15% fine sand; mottled with very dark brown (2.5Y 3/2) and local greenish gray (5GY 6/1) varigations.	S12A	76			0.7P						S12A_030_031P
	31.5–33.5	ELASTIC SILT (MH); light olive brown (2.5Y 5/6); low plasticity, medium dry strength, slow dilatancy, medium toughness fines; 10% fine sand; mottled with very dark brown (2.5Y 3/2) and local greenish gray (5GY 6/1) varigations.	S13A	50	5 7 9 [16]	21							S13A_032_034S
0	33.5–37	At 35 feet very soft.	S14A	64			0.3P						S14A_034_035P
	37–38.5		S15A	89	2 2 2 [4]								S15A_037_038M
	38.5–40		S16A	28	3 5 4 [9]	12							S16A_039_040S
-5	40–45	Borehole terminated 40'.											

Borehole terminated 40'.

Borehole backfilled with neat cement bentonite grout consisting of 8 bags (47 lbs) of Type II-V Portland cement, 15 pounds of bentonite and approximately 35 gallons of water.

Final Report Version 7/5/2012

Borehole Location: Levee Crest **County:** Yolo
Coordinates: Northing: 1,976,990.00 **Easting:** 6,644,753.00
Latitude: 38.59047 **Longitude:** -121.70931
Levee Station or Milepost: 1255+08 **Levee Mile:** 2.386
Levee Segment 169
Survey Method: GPS **Coord. System:** CA State Plane Zone II
Channel / River Name / Feature: Willow Slough

LOG OF BORING
WSLBWS_003B
Sheet 2 of 2

Non-Urban Levee Geotechnical Evaluations Program Phase 2

DATE STARTED	DATE COMPLETED	GROUND ELEVATION	ELEVATION DATUM	TOTAL DEPTH OF BORING
11/10/10	11/10/10	39.4 ft	NAVD 88	40.0 ft
DRILLING CONTRACTOR		**DRILLER'S NAME**	**HELPER'S NAME**	**TOTAL DEPTH OF FILL**
Gregg Drilling & Testing, Inc.		Jason Neff	Jeramy Neff	7 ft
DRILLING METHOD		**DRILL RIG MAKE AND MODEL**		**CONSULTANT COMPANY**
HSA/Mud Rotary		Mobile B-53 (D-26)		URS Corporation
DRILL BIT SIZE AND TYPE (HOLE DIAMETER)		**DRILLING ROD TYPE AND DIAMETER**		**FIELD LOGGER**
7-5/8 auger bit/5-1/2" combo (8" then 6")		101 Rod/101mm		Eric Wilson
X VERTICAL ☐ INCLINED		**CASING TYPE, DIAMETER, INSTALLATION DEPTH**		**FIELD LOG REVIEWER**
		6-7/8" SWT 15'		S. Janowski
SAMPLER TYPE(S)		**HAMMER TYPE, MAKE/MODEL, WEIGHT/DROP**		**HAMMER EFFICIENCY**
Bag, DCore(2.5"), MCal(2"), PCore(2.5"), Shelby(2.87"), SPT(1.375")		Marl, automatic, 140 lbs / 30-inch drop		77.4%
BOREHOLE BACKFILL OR COMPLETION		**GROUNDWATER READING:**	**DURING DRILLING**	**AFTER DRILLING (DATE-TIME)**
Neat cement-bentonite grout			Not Noted	

Elevation, feet	Depth, feet	CLASSIFICATION OF MATERIALS (Description)	Sample Number	Recovery, %	Blows per 6 in. [Blows per ft]	N_{60}(ASTM)	PP or TV, tsf	Water Content, %	Liquid Limit	Plasticity Index	Fines, % < #200	Other Lab Tests	REMARKS
	0	6 in. AC over 18 in. AB.											Hand auger upper 5' to clear utilities. HSA to 10' then switch to mud.
	1	[LEVEE FILL] Well-Graded GRAVEL with Silt and Sand (GW-GM); dense; very dark grayish brown (2.5Y 3/2); dry; 50% fine to coarse gravel, max. 1 in.; 40% fine to coarse sand; 10% low plasticity fines.	S01A										S01A_001_002B
	2–3	[LEVEE FILL] FAT CLAY with Sand (CH); medium stiff; very dark grayish brown (2.5Y 3/2); moist; 83% high dry strength, medium toughness fines; 17% fine to coarse sand; mottled with very dark brown (10YR 2/2) and dark yellowish brown (10YR 4/4) variations.	S02A										S02A_003_004B
35	5–6		S03A	100	1 2 3 [5]		0.8P	25	57	39	83		S03A_005_007M
FILL	7	FAT CLAY with Sand (CH); stiff; very dark grayish brown (2.5Y 3/2); moist; 83% high dry strength, medium toughness fines; 17% fine sand; weak fine crumb soil structure; bioturbation.	S04A	83			1.5P	24	67	49	83		S04A_008_009P
30	10												S05A_010_013T 450 psi
	11	LEAN CLAY with Sand (CL); yellowish brown (10YR 5/6); moist; 75% medium plasticity, medium dry strength, no dilatancy, medium toughness fines; 25% fine to medium sand.	S05A	63							75	HD PA	
	13	FAT CLAY (CH); very stiff; light olive brown (2.5Y 5/4) mottled with greenish gray (10G 5/1); moist; 100% high dry strength, high toughness fines; no reaction with HCl; weak fine blocky texture.	S06A	100									S06A_013_014P
25	15		S07A	100	3 6 9 [15]		2.8P						S07A_018_019P
	17	At 17.5 feet light olive brown (2.5Y 5/6) mottled with very dark grayish brown (2.5Y 3/2) and pale brown (2.5Y 7/3); 99% fines; 1% fine sand; weak caliche development, weak reaction with HCl associated with pale mottling.	S08A	97			2.1P	25	57	36	99		S08A_018_019P
20	20												

Final Report Version 7/5/2012

Borehole Location: Levee Crest	**County:** Yolo
Coordinates: Northing: 1,977,027.00	**Easting:** 6,641,257.00
Latitude: 38.59060	**Longitude:** -121.72154
Levee Station or Milepost: 1290+00	**Levee Mile:** 3.05
Levee Segment 169	
Survey Method: GPS	**Coord. System:** CA State Plane Zone II
Channel / River Name / Feature: Willow Slough	

LOG OF BORING
WSLBWS_004B
Sheet 1 of 2

Non-Urban Levee Geotechnical Evaluations Program Phase 2

Elevation, feet	Depth, feet	CLASSIFICATION OF MATERIALS (Description)	Sample Number	Recovery, %	Blows per 6 in. [Blows per ft]	N_{60}(ASTM)	PP or TV, tsf	Water Content, %	Liquid Limit	Plasticity Index	Fines, % < #200	Other Lab Tests	REMARKS
	20–22		S08A	97			2.1P						
	22–24		S09A	94	3 5 8 [13]								S09A_022_024M
15	24–27	LEAN CLAY (CL); very stiff; brownish yellow (10YR 6/6) mottled with greenish gray (10Y 5/1); 88% medium plasticity, medium dry strength, no dilatancy, medium toughness fines; 11% fine sand.	S10A	100			3.2P				88		S10A_025_026P
	27–29	SANDY LEAN CLAY (CL); light olive brown (2.5Y 5/4) mottled with light brownish gray (2.5Y 6/2); moist; 57% low dry strength, rapid dilatancy, low toughness fines; 43% fine sand.	S11A	89	4 6 7 [13]			26	29	11	57		S11A_027_029M
10	29–32	At 31 feet soft.	S12A	71			0.3P						S12A_030_031P
	32–34		S13A	61	3 5 6 [11]	14							S13A_032_034S
5	34–37	At 34 feet trace coarse sand to fine gravel sized caliche nodules.	S14A	62									S14A_035_036P
	37–39	LEAN CLAY (CL); stiff; light olive brown (2.5Y 5/4) mottled with light brownish gray (2.5Y 6/2); moist; 90% low to medium plasticity, medium dry strength, slow dilatancy, medium toughness fines; 10% fine sand.	S15A	78	5 10 13 [23]		1.5P						S15A_037_038M
0	39–40		S16A	67	5 7 9 [16]	21							S16A_038_040S
-5	40–45	Borehole terminated 40'. Borehole backfilled with neat cement bentonite grout consisting of 9 bags (47 lbs) of Type II-V Portland cement, 15 pounds of bentonite and approximately 40 gallons of water.											

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Sheet 2 of 2

Non-Urban Levee Geotechnical Evaluations Program Phase 2