PROJECT REPORT

TO: ENVIRONMENTAL EVALUATION COMMITTEE

AGENDA DATE: November 19, 2020

FROM: PLANNING & DEVELOPMENT SERVICES

AGENDA TIME 1:30 PM/ No. 2

PROJECT TYPE: Hay Kingdom, Inc. Conditional Use Permit #20-0014; SUPERVISOR DISTRICT #5

LOCATION: 393 E. Worthington Road Imperial, CA APN: 044-500-079-000

PARCEL SIZE: +/- 59.23 Acres

GENERAL PLAN (existing) Agriculture GENERAL PLAN (proposed) N/A

ZONE (existing) A-2 (General Agriculture) ZONE (proposed) N/A

GENERAL PLAN FINDINGS ☒ CONSISTENT ☐ INCONSISTENT ☐ MAY BE/FINDINGS

PLANNING COMMISSION DECISION: HEARING DATE: ____

☐ APPROVED ☐ DENIED ☐ OTHER

PLANNING DIRECTORS DECISION: HEARING DATE: ____

☐ APPROVED ☐ DENIED ☐ OTHER

ENVIROMENTAL EVALUATION COMMITTEE DECISION: HEARING DATE: 11/19/2020

INITIAL STUDY: 20-0016

☐ NEGATIVE DECLARATION ☐ MITIGATED NEG. DECLARATION ☐ EIR

DEPARTMENTAL REPORTS / APPROVALS:

PUBLIC WORKS	☐ NONE	☒ ATTACHED
AG	☒ NONE	☐ ATTACHED
APCD	☐ NONE	☒ ATTACHED
E.H.S.	☐ NONE	☒ ATTACHED
FIRE / OES	☐ NONE	☒ ATTACHED
SHERIFF.	☒ NONE	☐ ATTACHED
OTHER	See attached letter(s)	

REQUESTED ACTION:

(See Attached)

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☐ **NEGATIVE DECLARATION**
☒ **MITIGATED NEGATIVE DECLARATION**

Initial Study & Environmental Analysis
For:

Conditional Use Permit #20-0014
Hay Kingdom, Inc.

Prepared By:

COUNTY OF IMPERIAL
Planning & Development Services Department
801 Main Street
El Centro, CA 92243
(442) 265-1736
www.icpds.com

(November 2020)

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TABLE OF CONTENTS

SECTION 1
INTRODUCTION

A. PURPOSE

This document is a ☐ policy-level, ☒ project level Initial Study for evaluation of potential environmental impacts resulting with the proposed Conditional Use Permit #20-0014 (Refer to Exhibit "A" & "B").

B. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) REQUIREMENTS AND THE IMPERIAL COUNTY'S GUIDELINES FOR IMPLEMENTING CEQA

As defined by Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines and Section 7 of the County's "CEQA Regulations Guidelines for the Implementation of CEQA, as amended", an **Initial Study** is prepared primarily to provide the Lead Agency with information to use as the basis for determining whether an Environmental Impact Report (EIR), Negative Declaration, or Mitigated Negative Declaration would be appropriate for providing the necessary environmental documentation and clearance for any proposed project.

☐ According to Section 15065, an **EIR** is deemed appropriate for a particular proposal if the following conditions occur:

- The proposal has the potential to substantially degrade quality of the environment.
- The proposal has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
- The proposal has possible environmental effects that are individually limited but cumulatively considerable.
- The proposal could cause direct or indirect adverse effects on human beings.

☐ According to Section 15070(a), a **Negative Declaration** is deemed appropriate if the proposal would not result in any significant effect on the environment.

☒ According to Section 15070(b), a **Mitigated Negative Declaration** is deemed appropriate if it is determined that though a proposal could result in a significant effect, mitigation measures are available to reduce these significant effects to insignificant levels.

This Initial Study has determined that the proposed applications will not result in any potentially significant environmental impacts and therefore, a Mitigated Negative Declaration is deemed as the appropriate document to provide necessary environmental evaluations and clearance as identified hereinafter.

This Initial Study and Mitigated Negative Declaration are prepared in conformance with the California Environmental Quality Act of 1970, as amended (Public Resources Code, Section 21000 et. seq.); Section 15070 of the State & County of Imperial's Guidelines for Implementation of the California Environmental Quality Act of 1970, as amended (California Code of Regulations, Title 14, Chapter 3, Section 15000, et. seq.); applicable requirements of the County of Imperial; and the regulations, requirements, and procedures of any other responsible public agency or an agency with jurisdiction by law.

Pursuant to the County of Imperial Guidelines for Implementing CEQA, depending on the project scope, the County of Imperial Board of Supervisors, Planning Commission and/or Planning Director is designated the Lead Agency, in accordance with Section 15050 of the CEQA Guidelines. The Lead Agency is the public agency which has the principal responsibility for approving the necessary environmental clearances and analyses for any project in the County.

C. INTENDED USES OF INITIAL STUDY AND NEGATIVE DECLARATION

This Initial Study and Mitigated Negative Declaration are informational documents which are intended to inform County of Imperial decision makers, other responsible or interested agencies, and the general public of potential environmental effects of the proposed applications. The environmental review process has been established to enable public agencies to evaluate environmental consequences and to examine and implement methods of eliminating or reducing any potentially adverse impacts. While CEQA requires that consideration be given to avoiding environmental damage, the Lead Agency and other responsible public agencies must balance adverse environmental effects against other public objectives, including economic and social goals.

The Initial Study and Mitigated Negative Declaration, prepared for the project will be circulated for a period of 20 days (*30-days if submitted to the State Clearinghouse for a project of area-wide significance*) for public and agency review and comments. At the conclusion, if comments are received, the County Planning & Development Services Department will prepare a document entitled "Responses to Comments" which will be forwarded to any commenting entity and be made part of the record within 10-days of any project consideration.

D. CONTENTS OF INITIAL STUDY & NEGATIVE DECLARATION

This Initial Study is organized to facilitate a basic understanding of the existing setting and environmental implications of the proposed applications.

SECTION 1

I. INTRODUCTION presents an introduction to the entire report. This section discusses the environmental process, scope of environmental review, and incorporation by reference documents.

SECTION 2

II. ENVIRONMENTAL CHECKLIST FORM contains the County's Environmental Checklist Form. The checklist form presents results of the environmental evaluation for the proposed applications and those issue areas that would have either a significant impact, potentially significant impact, or no impact.

PROJECT SUMMARY, LOCATION AND EVIRONMENTAL SETTINGS describes the proposed project entitlements and required applications. A description of discretionary approvals and permits required for project implementation is also included. It also identifies the location of the project and a general description of the surrounding environmental settings.

ENVIRONMENTAL ANALYSIS evaluates each response provided in the environmental checklist form. Each response checked in the checklist form is discussed and supported with sufficient data and analysis as necessary. As appropriate, each response discussion describes and identifies specific impacts anticipated with project implementation.

SECTION 3

III. MANDATORY FINDINGS presents Mandatory Findings of Significance in accordance with Section 15065 of the CEQA Guidelines.

IV. PERSONS AND ORGANIZATIONS CONSULTED identifies those persons consulted and involved in preparation of this Initial Study and Negative Declaration.

V. REFERENCES lists bibliographical materials used in preparation of this document.

VI. NEGATIVE DECLARATION – COUNTY OF IMPERIAL

VII. FINDINGS

SECTION 4

VIII. RESPONSE TO COMMENTS (IF ANY)

IX. MITIGATION MONITORING & REPORTING PROGRAM (MMRP) (IF ANY)

E. SCOPE OF ENVIRONMENTAL ANALYSIS

For evaluation of environmental impacts, each question from the Environmental Checklist Form is summarized and responses are provided according to the analysis undertaken as part of the Initial Study. Impacts and effects will be evaluated and quantified, when appropriate. To each question, there are four possible responses, including:

1. **No Impact:** A "No Impact" response is adequately supported if the impact simply does not apply to the proposed applications.
2. **Less Than Significant Impact:** The proposed applications will have the potential to impact the environment. These impacts, however, will be less than significant; no additional analysis is required.
3. **Less Than Significant With Mitigation Incorporated:** This applies where incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact".
4. **Potentially Significant Impact:** The proposed applications could have impacts that are considered significant. Additional analyses and possibly an EIR could be required to identify mitigation measures that could reduce these impacts to less than significant levels.

F. POLICY-LEVEL or PROJECT LEVEL ENVIRONMENTAL ANALYSIS

This Initial Study and Mitigated Negative Declaration will be conducted under a ☐ policy-level, ☒ project level analysis. Regarding mitigation measures, it is not the intent of this document to "overlap" or restate conditions of approval that are commonly established for future known projects or the proposed applications. Additionally, those other standard requirements and regulations that any development must comply with, that are outside the County's jurisdiction, are also not considered mitigation measures and therefore, will not be identified in this document.

G. TIERED DOCUMENTS AND INCORPORATION BY REFERENCE

Information, findings, and conclusions contained in this document are based on incorporation by reference of tiered documentation, which are discussed in the following section.

1. Tiered Documents

As permitted in Section 15152(a) of the CEQA Guidelines, information and discussions from other documents can be included into this document. Tiering is defined as follows:

"Tiering refers to using the analysis of general matters contained in a broader EIR (such as the one prepared for a general plan or policy statement) with later EIRs and negative declarations on narrower projects;

incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration solely on the issues specific to the later project."

Tiering also allows this document to comply with Section 15152(b) of the CEQA Guidelines, which discourages redundant analyses, as follows:

"Agencies are encouraged to tier the environmental analyses which they prepare for separate but related projects including the general plans, zoning changes, and development projects. This approach can eliminate repetitive discussion of the same issues and focus the later EIR or negative declaration on the actual issues ripe for decision at each level of environmental review. Tiering is appropriate when the sequence of analysis is from an EIR prepared for a general plan, policy or program to an EIR or negative declaration for another plan, policy, or program of lesser scope, or to a site-specific EIR or negative declaration."

Further, Section 15152(d) of the CEQA Guidelines states:

"Where an EIR has been prepared and certified for a program, plan, policy, or ordinance consistent with the requirements of this section, any lead agency for a later project pursuant to or consistent with the program, plan, policy, or ordinance should limit the EIR or negative declaration on the later project to effects which:

(1) Were not examined as significant effects on the environment in the prior EIR; or

(2) Are susceptible to substantial reduction or avoidance by the choice of specific revisions in the project, by the imposition of conditions, or other means."

2. Incorporation By Reference

Incorporation by reference is a procedure for reducing the size of EIRs/MND and is most appropriate for including long, descriptive, or technical materials that provide general background information, but do not contribute directly to the specific analysis of the project itself. This procedure is particularly useful when an EIR or Negative Declaration relies on a broadly-drafted EIR for its evaluation of cumulative impacts of related projects (*Las Virgenes Homeowners Federation v. County of Los Angeles* [1986, 177 Ca.3d 300]). If an EIR or Negative Declaration relies on information from a supporting study that is available to the public, the EIR or Negative Declaration cannot be deemed unsupported by evidence or analysis (*San Francisco Ecology Center v. City and County of San Francisco* [1975, 48 Ca.3d 584, 595]). This document incorporates by reference appropriate information from the "Final Environmental Impact Report and Environmental Assessment for the "County of Imperial General Plan EIR" prepared by Brian F. Mooney Associates in 1993 and updates.

When an EIR or Negative Declaration incorporates a document by reference, the incorporation must comply with Section 15150 of the CEQA Guidelines as follows:

- The incorporated document must be available to the public or be a matter of public record (CEQA Guidelines Section 15150[a]). The General Plan EIR and updates are available, along with this document, at the County of Imperial Planning & Development Services Department, 801 Main Street, El Centro, CA 92243 Ph. (442) 265-1736.

- This document must be available for inspection by the public at an office of the lead agency (CEQA Guidelines Section 15150[b]). These documents are available at the County of Imperial Planning & Development Services Department, 801 Main Street, El Centro, CA 92243 Ph. (442) 265-1736.

- These documents must summarize the portion of the document being incorporated by reference or briefly describe information that cannot be summarized. Furthermore, these documents must describe the relationship between the incorporated information and the analysis in the tiered documents (CEQA Guidelines Section 15150[c]). As discussed above, the tiered EIRs address the entire project site and provide background and inventory information and data which apply to the project site. Incorporated information and/or data will be cited in the appropriate sections.

- These documents must include the State identification number of the incorporated documents (CEQA Guidelines Section 15150[d]). The State Clearinghouse Number for the County of Imperial General Plan EIR is SCH #93011023.

- The material to be incorporated in this document will include general background information (CEQA Guidelines Section 15150[f]). This has been previously discussed in this document.

II. Environmental Checklist

1. **Project Title**: Conditional Use Permit #20-0014
2. **Lead Agency**: Imperial County Planning & Development Services Department
3. **Contact person and phone number**: Joe Hernandez, Planner IV, (442)265-1736, ext.1748
4. **Address**: 801 Main Street, El Centro CA, 92243
5. **E-mail**: joehernandez@co.imperial.ca.us
6. **Project location**: 393 E. Worthington Road, Imperial, CA 92251
7. **Project sponsor's name and address**: Hay Kingdom, Inc.
   393 E. Worthington Road
   Imperial, CA 92251
8. **General Plan designation**: Agriculture
9. **Zoning**: A-2 (General Agriculture)
10. **Description of project**: Hay Kingdom, Inc., is requesting a new Conditional Use Permit (CUP) that would amend current CUP #04-0003 that was approved on July 4, 2004 and began operation in the fall of the same year. The Hay Kingdom facility is a hay storage and compressing operation located on a single parcel (APN 044-500-079-000) at 393 East Worthington Road, Imperial, CA, in unincorporated Imperial County. The parcel is irregular in shape and is bordered on the west by the Rose Canal and State Route (SR) 111. The northern boundary is bordered by a tail drain ditch, the McCall Drain #5 and East Worthington Road and the eastern boundary is bordered by the Rose Lateral 2.

Existing Facilities

Hay Kingdom is owned and managed by Michael and James Lin. This existing facility is located on approximately 59 acres surrounded with a 6-foot chain-linked fence topped with 1-foot 3-strand barbed wire. The hay press barn (with 3 presses) occupies approximately ±30,280 square feet (less than an acre) while the rest of the site is devoted primarily to hay barns and stacking areas. The site also has a truck scale, septic tank and leach lines, parking areas, truck dock/shop building, parking area, 1.5-acre detention basin, overhead utilities and a .95-acre fire reservoir (see site plan). A 10,000-gallon aboveground diesel tank is located approximately 60-feet from the hay press and is used for fueling trucks. Table 1 summarizes existing operations currently taking place at Hay Kingdom.

TABLE 1
Existing Operations

Hay Pressed (tons/day)	530 tons per day
Presses	3
Raw Hay Stored on-site at Stack yard	70,000 tons
Annual Raw Hay Processed	120,000 tons
Double trailer Tuck Round Trips to site	15
Container Truck Trips out	15
Employee, client, vendor, passenger car round-trips	68
Working hous	6 days*
Employees	38
Dust Collector	12,000 cubic feet per minute

Source: WRA 2020

*The hours of operation are two shifts and the working hours depend on the overtime needed to meet the projection. The regular schedule as follows: Morning shift starts at 6:00 a.m. and ends at 4:30 p.m. The night shift starts at 6:00 p.m. and ends at 4:30 a.m.

Water

Hay Kingdom receives its water from the Imperial Irrigation District (IID) Rose Canal via an existing delivery gate. Water from the Rose Canal is stored in a reservoir located along the western boundary of the site. Water from the point of entry (POE) system is used for the employees bathrooms and kitchen. A 5-gallon per minute potable water treatment plant is currently being planned for Hay Kingdom. A new monitored potable water treatment system is needed because the facility has exceeded the State's threshold of 25 employees (i.e. the facility currently has approximately 38 employees) more than 6 months of the year. The water cisterns, sand filters and pumps comprising the existing POE are located on the north end of the facility.

Fire Prevention

Fire prevention on-site is available through nine dry fire hydrants located throughout the facility. Water to feed the hydrants is held in the reservoir on the west side of the site.

Wastewater

Sanitary wastewater for employees is treated with on-site septic system including several 50-foot long leach lines, reserve area and an existing septic tank located on the northern portion of the facility, to the east of the existing office shop. A new 20-foot x 24-foot restroom facility, septic field and reserve field is proposed west of the existing truck parking and container area.

Electricity

Utilities at the facility include 480-volt electrical service from IID. A transformer is located on the west side of the hay compress building. An overhead power line extends south into the site from the north side of Worthington Road connecting to an existing service pole on the north side of truck parking and container area fed off of an IID distribution overhead line that extends eastwest along Worthington Road.

Telephone

The facility has two landlines for phone service.

Production

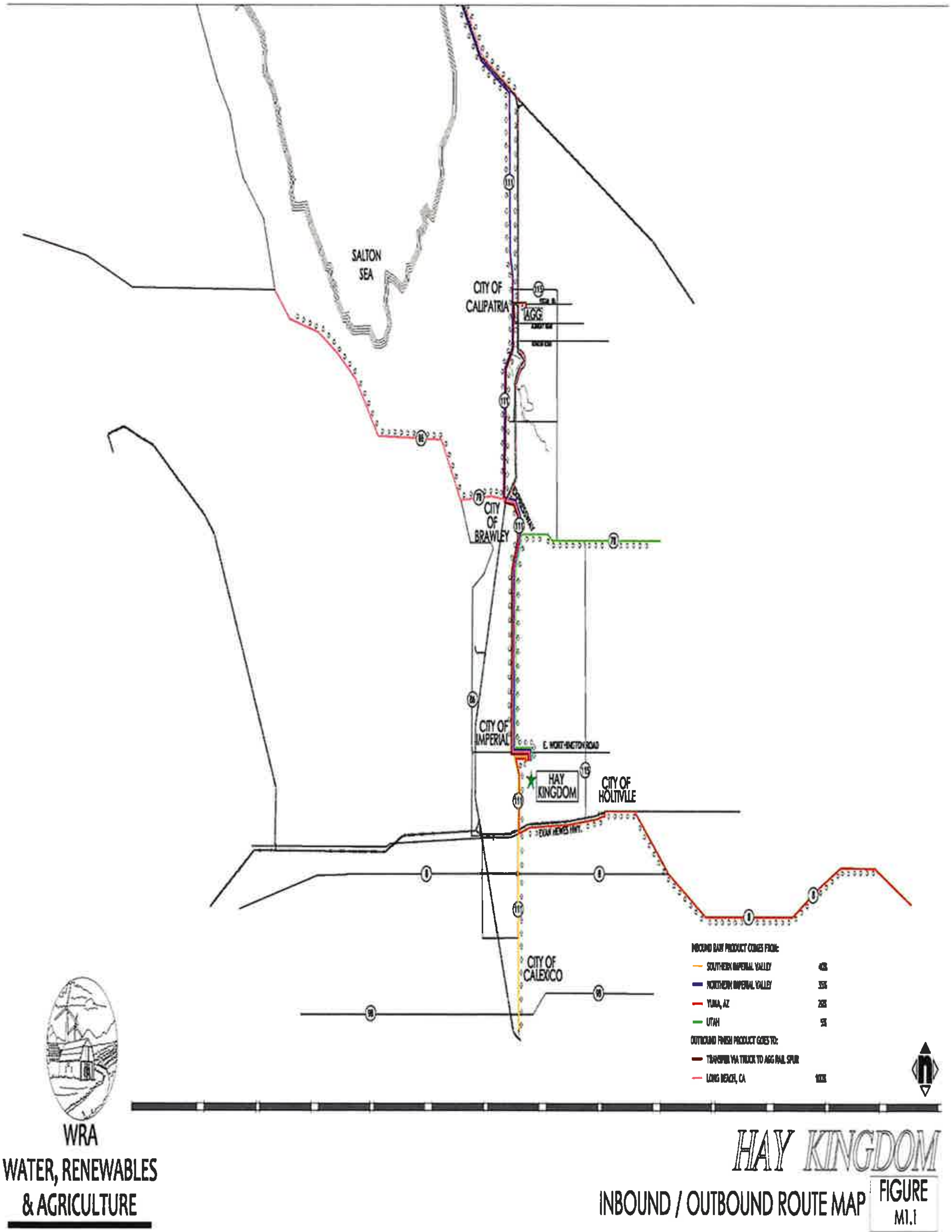
Hay Kingdom is permitted to press 530 tons of hay per day under its existing CUP. The facility currently operates six days per week, with two shifts: 6:00 a.m. to 4:30 p.m. and 6:00 p.m. to 4:30 a.m. As part of the new CUP, Hay Kingdom is proposing to increase its hay production to 1,100 tons per day (just over a two-fold increase). The amount of raw hay stored on-site and in the stackyard is proposed to remain at existing levels of 70,000 tons per day. The amount of annual raw hay processed is proposed to more than double from the existing 120,000 tons per annum to 250,000 tons per annum. Production would increase to 24-hours per day, 7 days a week, when necessary due to equipment maintenance issues.

Employees

Hay Kingdom currently employs 38 workers. Under the proposed expansion, the facility would increase the number of workers to 79.

Trucking

Trucks bring raw product to the facility from the northern and southern Imperial Valley, Yuma Arizona, and Utah. Finish product is hauled by trucks approximately 20 miles north along SR 111 to the All American Grain Rail Spur at 305 Yocum Road, Calipatria. Alternatively, hay is trucked to the Port of Long Beach via State Route 111 to State Route 86 (**Figure 3**). Trucks enter and exit the site from the main project driveway in the northeast corner of the site along East Worthington Road. An emergency secondary access is located further to the south along the western boundary of the site.


SALTON SEA
CITY OF CALIPATRIA
AGG
CITY OF BRAWLEY
CITY OF IMPERIAL
E. WORTHINGTON ROAD
HAY KINGDOM
CITY OF HOLTVILLE
CITY OF CALEXICO
INBOUND RAW PRODUCT COMES FROM:
SOUTHERN IMPERIAL VALLEY
NORTHERN IMPERIAL VALLEY
YUMA, AZ
UTAH
OUTBOUND FINISH PRODUCT GOES TO:
TRANSFER VIA TRUCK TO AGG RAIL SPUR
LONG BEACH, CA 100%
WRA
WATER, RENEWABLES & AGRICULTURE
HAY KINGDOM
INBOUND / OUTBOUND ROUTE MAP
FIGURE M1.1

Overall Increase in Operations

Table 2 below summarizes and compares existing and proposed operation that would occur under the new CUP. The changes (increase) in each area is shown in the far-right column.

	Existing	Proposed	Change
Hay Pressed (tons/day)	530 tons perday	1,100 tons perday	+570 tons perday
Presses	3 presses	4 presses	+ 1 presses
Raw Hay Stored On-Site and at Stack Yard	70,000 tons	70,000 tons	No Change
Annual Raw Hay Processed	120,000 tons	250,000 tons	+130,000 tons
Double Trailer Truck Round Trips to site	15	100 peak/24 low	+85 peak/+9 low
Container Truck Trips out	15	60	+45 trips
Employee, client, vendor, passengercar round trips	86	200	+114 trips
Working hours	6 a.m. - 4:30 p.m. & 6 p.m. to 4:30 a.m./ 6 days a week	24 hours/ 7 days a week	1 additional day/ +24-hours perweek
Employees	38 employees	80 employees	+42 employees
Dust Collector	12,000 cubic feet per minute		No change

Permits

Hay Kingdom currently has an Authority to Construct/Permit to Operate (ATC/PTO) from the Imperial County Air Pollution Control District. A new ATC/PTO would be issued for the new CUP. A Building Permit would also be issued from the Imperial County Planning & Development Services Department and a Septic Permit would be issued from Imperial County Environmental Health Services.

11. **Surrounding land uses and setting**: The project site consist of the existing Hay Kingdom hay press and storage facility and is located at the Southeast Quadrant of Worthington Road and State Route 111. The project site is surrounded agricultural fields to the north east and south, with State Route 111 on the west side.

12. **Other public agencies whose approval is required**: Imperial County Planning Commission, Imperial County Air Pollution Control District, Imperial County Public Works, Imperial County Public Health (Environmental Health Services)

13. **Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentially, etc.?** No, a letter was sent out to the Quechan Indian Tribe on June 26, 2020 and on July 2, 2020, an email was received from the Quechan Indian Tribe stating that they have no comment on the project.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

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

ENVIRONMENTAL EVALUATION COMMITTEE (EEC) DETERMINATION

After Review of the Initial Study, the Environmental Evaluation Committee has:

☐ Found that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ Found that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ Found that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ Found that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ Found that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE DE MINIMIS IMPACT FINDING: ☒ Yes ☐ No

EEC VOTES	YES	NO	ABSENT
PUBLIC WORKS	☒	☐	☐
ENVIRONMENTAL HEALTH SVCS	☐	☐	☒
OFFICE EMERGENCY SERVICES	☐	☐	☒
APCD	☒	☐	☐
AG	☒	☐	☐
SHERIFF DEPARTMENT	☐	☐	☒
ICPDS	☒	☐	☐

For [signature]

Jim Minnick, Director of Planning/EEC Chairman

Date: 11-20-2020

EEC ORIGINAL PKG

PROJECT SUMMARY

A. Project Location:

The project site is located at 393 E. Worthington Road, Imperial, CA, and is described as a Portion of Tract 114, Township 15 South, Range 14 East, SBB&M, and is further identified as Assessor Parcel Number 044-500-079-000.

B. Project Summary:

Applicant is requesting to replace existing Conditional Use Permit #04-0003 to expand its operation to include an increase tonnage to 1,100 tons of hay pressed per day, increase the number of presses to 4 presses, increase the annual raw hay processed to 250,000 tons, increase the double trailer truck round trip to site to 100 peak/24 low, increase container trips out to 60, increase employees to 80 and operate the facility 24 hours per day, 7 days a week (when necessary due to equipment maintenance issues).

C. Environmental Setting:

The project site is located at the Southeast quadrant of Worthington Road and State Route 111. Surrounding land uses are agriculture uses (farmground).

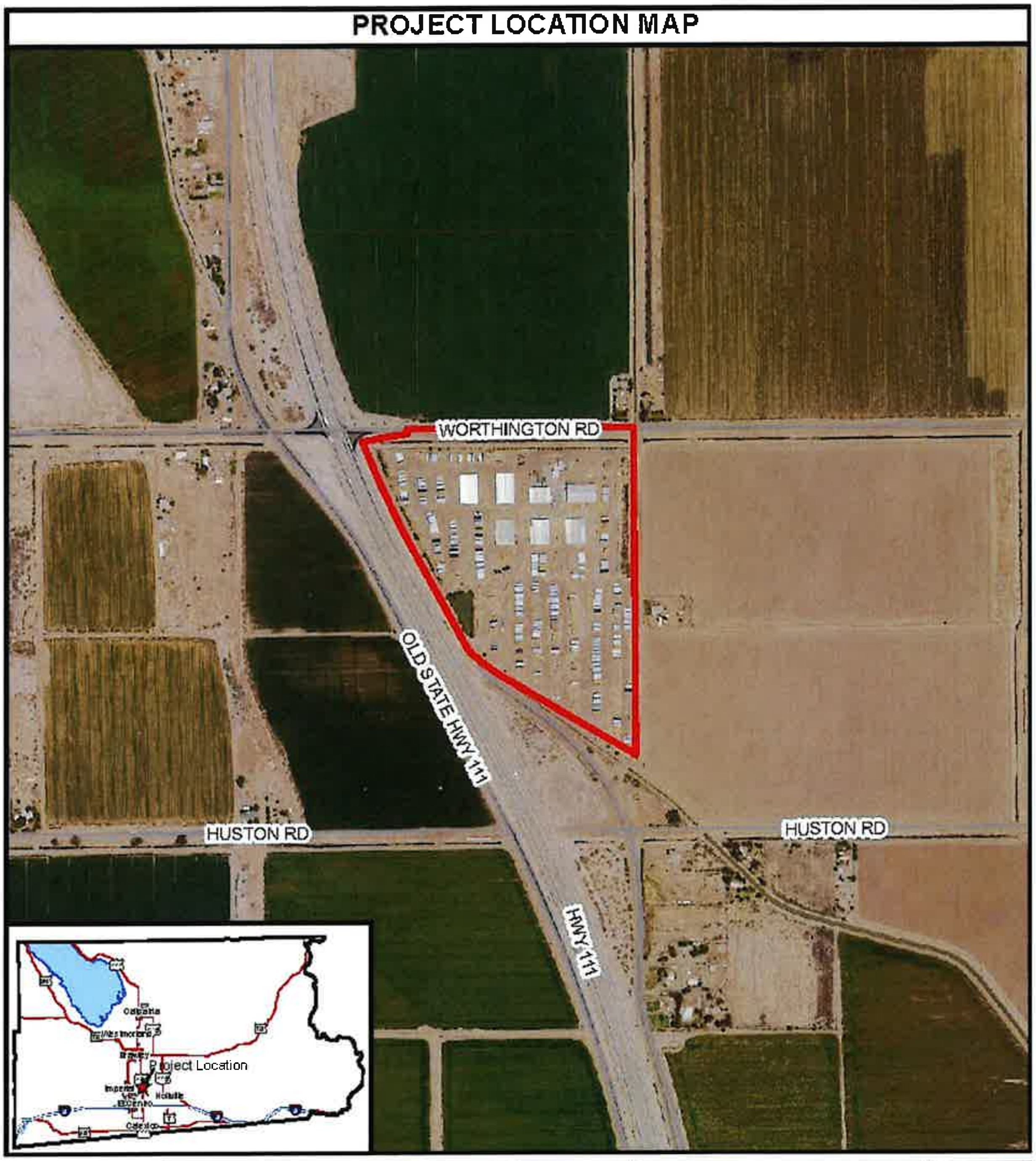
D. Analysis:

The proposed project is request to increase the tonnage of hay currently processed under current Conditional Use Permit #04-0003. Under the Imperial County Land Ordinance, Title 9, the project site is zoned A-2 (General Agriculture). Hay processing and hay storage are an allowed use with an approved conditional use permit pursuant to the Imperial County Land Use Ordinance, Title 9, Section 90508.02(mm). Therefore, the adoption of the CEQA Initial Study (#20-0016) for the above-mentioned project would be consistent with existing County and State Ordinances and regulations.

E. General Plan Consistency:

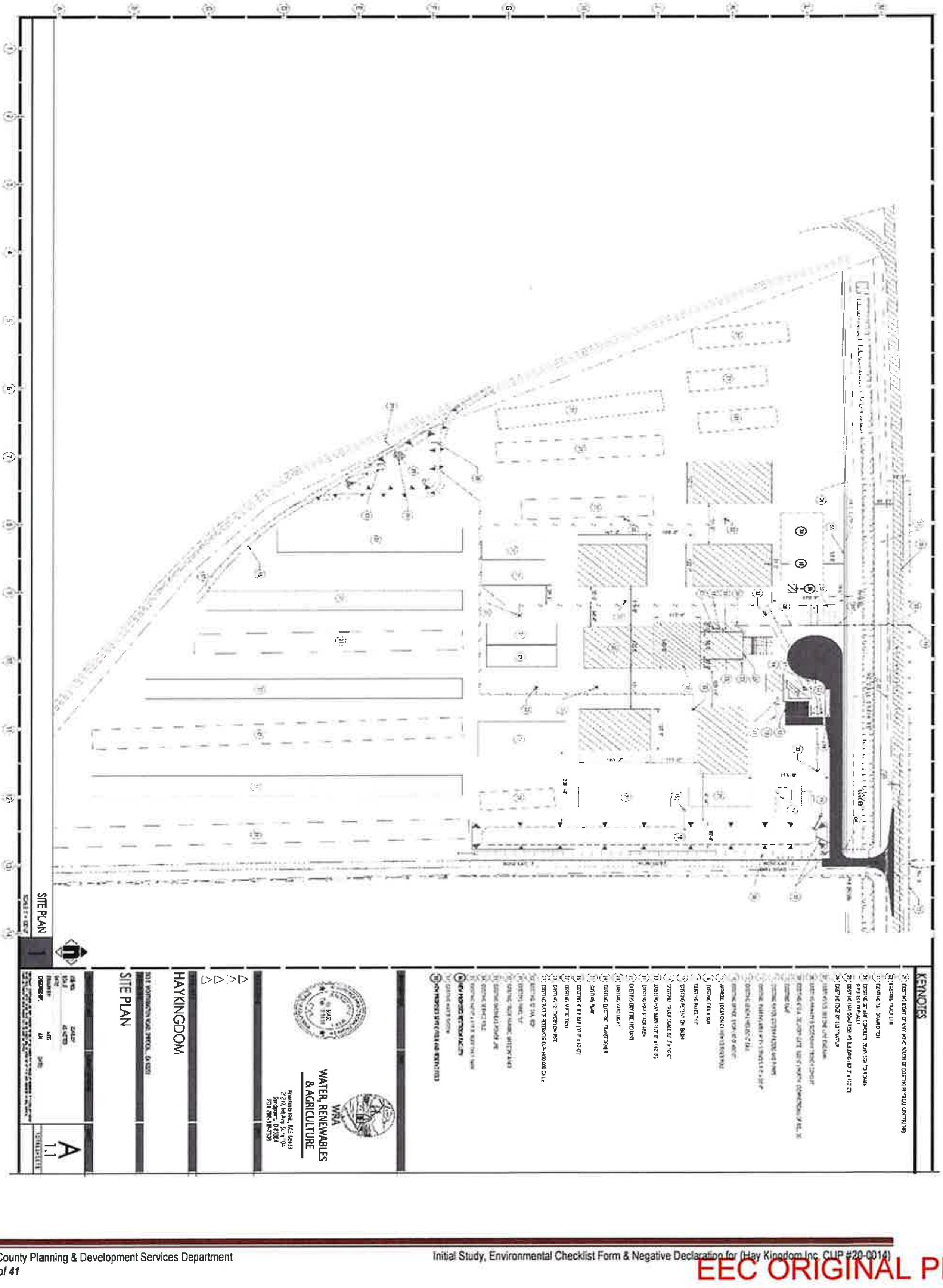
The Imperial County General Plan designates the project site as "Agriculture" land use, which allows for agricultural uses such as a hay processing and storage facility. The zoning for this site is A-2, which allows hay processing and storage facilities; thus, the proposed project would be with the Imperial County General Plan with the adoption of the CEQA Initial Study (#20-0016) for the above-mentioned project.

Exhibit "A"
Vicinity Map



HAY KINGDOM, INC
CUP #20-0014 / IS #20-0016
APN #044-500-079-000

Exhibit "B"
Site Plan/Tract Map/etc.



EEC ORIGINAL PKG

EVALUATION OF ENVIRONMENTAL IMPACTS:

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

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

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

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

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

   a) Earlier Analysis Used. Identify and state where they are available for review.
   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

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

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

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

9) The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and
   b) the mitigation measure identified, if any, to reduce the impact to less than significance

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**

I. ***AESTHETICS***

Except as provided in Public Resources Code Section 21099, would the project:

	PSI	PSUMI	LTSI	NI
a) Have a substantial adverse effect on a scenic vista or scenic highway?	☐	☐	☐	☒

a) A scenic vista is the view of an area that is visual or aesthetically pleasing. Aesthetic components include (1) scenic quality, 2) sensitivity levels, and 3) view access. This existing hay processing and storage facility can be seen from State Route (SR) 111; however, SR 111 is not considered a scenic highway nor is the proposed facility within the vicinity of a scenic highway according to the Circulation and Scenic Highway Element of the Imperial County General Plan (pages 101 thru 105). Therefore, no impacts are expected.

	PSI	PSUMI	LTSI	NI
b) Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒

b) The existing hay processing and storage facility is not in proximity of a state scenic highway, therefore, will not substantially damage any scenic resources (e.g. trees, rock outcroppings, and historic buildings) within a state scenic highway. Therefore, no impacts are expected.

	PSI	PSUMI	LTSI	NI
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surrounding? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒

c) This existing hay processing and storage facility is for agricultural use, which is consistent with the current surrounding land uses; thus it is not expected to substantially degrade, the existing visual character of the area. Therefore, no impacts are expected.

	PSI	PSUMI	LTSI	NI
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

d) The existing hay processing and storage facility will not create any new sources of substantial light, as no major improvements are being proposed which would create substantial light or glare; however, any new lighting shall be shielded and contained within the property boundary pursuant to Title 9, Section 90301.01(k). As such, less than significant impact would be expected.

II. ***AGRICULTURE AND FOREST RESOURCES***

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. --Would the project:

	PSI	PSUMI	LTSI	NI
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

a) The proposed project site consist of an existing hay processing and storage facility, which is an agriculture use. It will not convert any type of farmland to non-agricultural use; therefore, no impacts are expected.

	PSI	PSUMI	LTSI	NI
b) Conflict with existing zoning for agricultural use, or a Williamson Act Contract?	☐	☐	☐	☒

b) The project site consists of an existing hay processing and storage facility which is an agriculture use permitted within the A-2 zoning district with a Conditional Use Permit; thus, it would not conflict with the existing zoning. The project site is not under a Willamson Act Contract. Therefore, no impacts are expected.

	PSI	PSUMI	LTSI	NI
c) Conflict with existing zoning for, or cause rezoning of, forest	☐	☐	☐	☒

land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

c) The project site is not zoned for forest land, per Zoning Map #16; the General Plan Land Use Map designates this site as "Agriculture". Hence, the proposed project will not conflict with existing zoning, or cause rezoning of forest land, timberland or timberland zoned Timberland Production; therefore, no impacts are expected.

		PSI	PSUMI	LTSI	NI
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

d) The project site is not zoned for forest land, per Zoning Map #16; the General Plan Land Use Map designate this site as "Agriculture", In fact the proposed project is for an agricultural use and would not result in the loss or conversion of forest land to non-forest use. Therefore, no impacts are expected.

		PSI	PSUMI	LTSI	NI
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

e) The proposed project is for an agricultural use and consist of an existing hay processing and storage facility; therefore, it does not involve any changes in the existing environment that may cause a conversion of farmland to non-agricultural use and the project site is not located near forest land. Therefore, no impacts are expected.

III. *AIR QUALITY*

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

		PSI	PSUMI	LTSI	NI
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☒	☐	☐

a) Per the proposed project's Air Quality Impact Assessment (OB-1 August 2020), CEQA requires that project s be consistent with the applicable Air Quality Management Plan (AQMP). A consistency determination plays an important role in local agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision makers of the environment efforts of the project under consideration at the site early enough to ensure that air quality concerns are fully addressed. The Imperial County Air Pollution Control District's (ICAPCD's) CEQA Handbook states that a Comprehensive Air Quality Analysis Report (CAQAR) of a propose project should demonstrate compliance with the most recent ozone ACMP and PM10 SIP. It also states the CAQAR should demonstrate compliance with the Imperial County Rules and Regulations as well as State and federal regulations (OB-1 June 2020).

<u>Ozone Air Quality Management Plan (AQMP)</u>

A control strategy for meeting State and federal requirements is required for any AQMP. The ICAPCD control strategy included an interactive process of technology and strategy review supported by ambient air quality modeling. The air quality modeling assists in identifying current and remaining emission targets that would help to achieve the ambient air quality standards. The AQMP control measures consist of three general components: 1) the ICAPCD's Stationary Source Control Measures; 2) Regional Transportation Strategy and Control Measures; and 3) State Strategy. These measures primarily rely on the traditional command and control approach and as such provide the framework for ICAPCD Rules that reduce ROG and NOX emissions.

<u>PM10 State Implementation Plan (PM10 SIP)</u>

The PM10 SIP was required to address and meet the following elements, required under the FCAA of areas classified as serious nonattainment of the PM10 NAAQS:

- Best available emission inventories.
- A plan that enables attainment of the PM10 federal air quality standards.
- Annual reductions in PM10 or PM10 precursor emissions that are of not less than 5 percent from the date of SIP submission until attainment.
- Best available control measures and best available control technologies for significant sources and major stationary sources of PM10, to be implemented no later than 4 years after reclassification of the area as serious.

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

- Transportation conformity and motor vehicle emission budgets in accord with the attainment plan.
- Reasonable further progress and quantitative milestones.
- Contingency measures to be implemented (without the need for additional rulemaking actions) if the control measure regulations incorporated in the plan cannot be successfully implemented or fail to give the expected emission reductions.

Revised Regulation VIII fugitive dust control measures were adopted, which from the cord of the Imperial County PM10 control strategy. The project is required to comply with all applicable Regulation VIII measure. Therefore, the project would not conflict with, or obstruct implementation of, the applicable air quality plan (OB-1 June 2020). This impact is less than significant.

The U.S. EPA approved 2017 8-Hr State Implementation Plan (SIP) for Ozone and the 2018 Annual PM2.5 SIP both include Transportation conformity analysis and budgets for mobile emissions in Imperial County. Projects that exceed the budget of either SIP are considered not to conform to the SIP. These budgets take into consideration existing and emerging regulations that target reductions in emissions. Therefore, any analysis should include a conformity analysis that takes the project level emissions and compares them to the established budgets.

Mitigation Measure #1:

For fugitive emissions, such as road dust, the project is considered less than significant. However, project level mobile emissions for NOx are slightly above the IC CEQA Air Quality thresholds. The only available mitigation to assure that emissions remain on target with SIP budgets is the application of Policy 5. Policy 5 provides for the mitigation of emissions that exceed established IC CEQA Air Quality thresholds when all mitigation on site has been exhausted. With the application of Policy 5, NOx emissions are less than significant.

	PSI	PSUMI	LTSI	NI
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐

b) In accordance with CEQA Guidelines 15130(b), this analysis of cumulative impacts incorporates a summary of projections. The following three-tiered approach is to assess cumulative air quality impacts.

- Consistency with the ICAPCD project specific thresholds for construction and operation.
- Project consistency with existing air quality plans.
- Assessment of the cumulative health effects of the pollutants.

Project Specific Thresholds

As mentioned above, the Project will not exceed the ICAPCD regional significance thresholds for fugitive dust. It is assumed that emissions that do not exceed the project specific thresholds will not result in a cumulative impact. However, NOx emissions from mobile sources have the potential to affect the SIP budgets as the project evel emissions are above the IC CEQA Air Quality threshold.

Air Quality Plans

The area in which the Project is located is in nonattainment for ozone and PM10 and PM2.5. As such, the ICAPCD is required to prepare and maintain an AQMP to document the strategies and measures to be undertaken to reach attainment of ambient air quality standards. As discussed above in Impact 1, the Project is compliant with the fugitive dust regulations; however, NOx emissions are above the IC CEQA Air Quality threshold and may impact the transportation budgets of the AQMP's.

Cumulative Health Impacts

The area is in nonattainment for ozone and PM10 and PM2.5, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect the health of sensitive individuals (i.e., elderly, children, and the sick). Therefore, when the concentration of those pollutants exceeds the standard, it is likely that some of the sensitive individuals of the population experience adverse health effects.

The localized significance analysis in Impact 3 showed that during construction no localized adverse exposure was expected; therefore, the emissions of particulate matter and NOX would not result in a significant cumulative health impact. However, for operational emissions project level NOx emissions are above the IC CEQA Air Quality threshold and when combined with regional level mobile emissions, transportation budgets may cause an increase in emissions.

Emission Sources	Criteria Emissions (lbs/d)				
	ROG	CO	NO_X	PM_{10}	$PM_{2.5}$
On-road sources	1.78	10.20	65.40	2.24	1.79
Off-road equipment	3.32	26.76	31.89	1.86	1.49
Entrained road dust	—	—	—	85.90	9.30
Total	**5.10**	**36.96**	**97.29**	**90.00**	**12.58**
ICAPCD Regional Thresholds	*137*	*550*	*137*	*150*	*550*
Exceed Thresholds?	No	No	No	No	No

With the application of Policy 5, the project would not result in cumulatively considerable net increase in any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard, therefore would result in less than significant impact.

		PSI	PSUMI	LTSI	NI
c)	Expose sensitive receptors to substantial pollutants concentrations?	☐	☐	☒	☐

c) Sensitive receptors are defined as land uses where sensitive population groups are likely to be located (e.g., children, the elderly, the acutely ill, and the chronically ill). These land uses include residences, schools, childcare centers, retirement homes, convalescent homes, medical care facilities, and recreational facilities. Sensitive receptors that may be adversely affected by the Project include the surrounding residential land uses.

The nearest sensitive receptor to the Project site consist of a farmhouse located approximately 250 feet east of the Project site and 2 farmhouses located as near as 500 feet northeast of the Project site's northeast corner and across East Worthington Road.

Toxic Air Contaminants

Due to the Project's ongoing reliance on heavy duty diesel trucks and diesel off-road equipment, an assessment of the potential health risk from TAC emissions resulting from the operation of the Project was conducted and the Health Risk Assessment (HRA)46 is presented in full in Appendix B. The HRA was conducted, in part, to determine the potential cancer and non-cancer (acute and chronic) risks associated with the operation of the Project. Health risks from TACs are twofold; 1) TACs are carcinogens according to the State and 2) short-term acute and long-term chronic exposure to TACs can cause chronic and/or acute health effects to the respiratory system. The HRA concluded:

- All DPM emissions concentrations at the nearby sensitive receptors were found to be below the 10.0 in a million cancer risk threshold. Therefore, a less than significant cancer risk would occur from DPM emissions created from the operation of the Project.
- The on-going operations of the Project would result in a less than significant impact due to the noncancer chronic and acute health risks from TAC emissions created by the Project.

CO Hot spots

Another way a project can establish significance with this impact is the potential to create a CO hotspot. CO hotspots can occur when vehicles are idling at highly congested intersections. According to the Draft TIA, the Project would not create an increase in congestion of the magnitude required to generate a CO hotspot.

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

The project would not expose the public to substantial pollutant concentration. Impacts would be less than significant.

	PSI	PSUMI	LTSI	NI
d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?	☐	☐	☒	☐

d) The CEQA Guidelines indicate that a significant impact would occur if a project would create objectionable odors affecting a substantial number of people. While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the ICAPCD. Because offensive odors rarely cause any physical harm and no requirements for their control are included in State or federal air quality regulations, the ICAPCD has no rules or standards related to odor emissions, other than its nuisance rule.

The construction and operation of a hay processing facility is not an odor producer nor located near an odor producer; therefore, the Project would not result in a significant odor impact.

Therefore, impacts would be less than significant.

IV. *BIOLOGICAL RESOURCES*

	PSI	PSUMI	LTSI	NI
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒

a) The proposed project site is located within existing disturbed land, which contains an existing hay processing and storage facility. Aside from a new hay press to be located within an existing building, proposed restroom and potable water plant, only in increase to the operation production; therefore, no adverse impact on any species or their habitat is expected.

	PSI	PSUMI	LTSI	NI
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒

b) As explained above, the project site is within disturbed land, which contains an existing hay processing and storage facility. Aside from a proposed hay press to be located within an existing building and proposed restroom and potable water plant, only an increase to the existing operation production; therefore, no adverse impact on any on riparian habitat or other sensitive natural community is expected.

	PSI	PSUMI	LTSI	NI
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒

c) As explained in item b) above, the project site is located within disturbed land, which contains an existing hay processing and storage facility. Aside for a proposed new press within an existing building, proposed restroom and potable water plant, only an increase to the existing operation production are being proposed; therefore, no impact to protected wetlands are anticipated.

	PSI	PSUMI	LTSI	NI
d) Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒

d) The proposed project site consist of an existing hay processing and storage facility and does not appear to interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife, corridors or impede the use of native wildlife nursery sites. Aside for a proposed new press to be located within an existing building and proposed restroom and potable water treatment plant, only an increase to the existing operation production are being proposed; therefore, no impacts are anticipated.

	PSI	PSUMI	LTSI	NI
e) Conflict with any local policies or ordinance protecting biological resource, such as a tree preservation policy or	☐	☐	☐	☒

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

ordinance?

e) The proposed project site consist of an existing hay processing and storage facility and odes not conflict with any local policy or ordinance protecting biological resources, such as a tree preservation policy or ordinance. Therefore, no impacts are expected.

		PSI	PSUMI	LTSI	NI
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

f) The proposed project site consist of an existing hay processing and storage facility. Aside for a proposed new hay press to be located within an existing building and proposed restroom, only an increase to the existing operation production is being proposed. Therefore, it does not appear to conflict with any provision of an adopted Habitat Conservation Plan, Natural Community conservation Plan or other approved local, regional, or State habitat conservation plan. No impacts are anticipated.

V. *CULTURAL RESOURCES*

		PSI	PSUMI	LTSI	NI
a)	Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒

a) The proposed project site consist of an existing hay processing and storage facility and would not appear to cause a substantial adverse change in the significance of a historical resource; therefore, no impacts are expected.

		PSI	PSUMI	LTSI	NI
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒

b) As mentioned under item a) above, the project site consist of an existing hay processing and storage facility and would not appear to cause a substantial adverse change in the significance of an archaeological resource; therefore no impacts are expected.

		PSI	PSUMI	LTSI	NI
c)	Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☐	☒

c) The proposed project site is an existing hay processing and storage facility. Aside from a proposed new hay press to be located within an existing building and a proposed restroom, the project does not anticipate to disturb any human remains, including those interred outside of formal cemeteries. Therefore, no impacts are expected.

VI. *ENERGY*

		PSI	PSUMI	LTSI	NI
a)	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐

a) The proposed project is to expand its operation and include the construction of a deceleration lane, restroom and water treatment plant. A limited amount of energy would be used in association with the construction of the 20-foot by 24-foot restroom, septic system, potable water treatment plant and off-site deceleration lane. The energy used would consist mostly of petroleum-based fuel (diesel and gasoline) to fuel heavy equipment, material delivery trucks and construction worker vehicles. Energy is currently used to operate the hay press and other on-site facilities. Diesel and gasoline are used for haul trucks and pick-up trucks. Energy needs would continue to be limited to diesel fuel and gasoline for trucks and equipment and electricity for the hay press. Diesel and gasoline are currently available in adequate supply with no shortage and are used to operation the facility; however, a circuit study may be required as electrical capacity is limited in area which may require the relocation, modification or reconstruction of IID facilities for project, (as per Imperial Irrigation District (IID) letter dated 06/24/2020). The project produces pressed hay that would be shipping to foreign markets, thus, energy use associated with pressing and shipping hay (i.e. diesel fuel to haul material, electricity to operate presses) is not considered wasteful, inefficient, or unnecessary use of energy resources. Any impact would appear to be less than significant.

		PSI	PSUMI	LTSI	NI
b)	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

b) The proposed project site is not located within a Renewable Energy Overlay Zone as depicted on the Imperial County's Renewable Energy Map. The proposed project would not convert land identified for development as a renewal energy project. The project would conflict with any state or local plan regarding energy efficiency. Therefore, no impacts are

	Potentially Significant Impact **(PSI)**	Potentially Significant Unless Mitigation Incorporated **(PSUMI)**	Less Than Significant Impact **(LTSI)**	No Impact **(NI)**

expected.

VII. ***GEOLOGY AND SOILS Would the project:***

	PSI	PSUMI	LTSI	NI
a) Directly or indirectly cause potential substantial adverse effects, including risk of loss, injury, or death involving:	☐	☐	☒	☐

a) According to the Special Study Map – El Centro Quadrant of the California Alquiest-Priolo Earthquake Fault Zone Map, Revised January 1, 1990), the project site is located near but outside of a known fault zone located to the west of SR-111. The project consist of an existing hay processing and storage facility, with minor improvement (i.e. restroom, septic system & potable water plant); however, these improvements will need to comply with the California Building Code (CBC). Compliance with the CBC would maintain the risk of loss, injury or death at level less than significant.

	PSI	PSUMI	LTSI	NI
1) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☐	☐	☒	☐

1) As explained above under item a), the proposed project site is located near, but outside of a known fault zone located on the west side of SR-111. The project site consist of an existing hay processing and storage facility, with minor improvements (i.e. restroom, septic system & potable water system); however, these improvements will need to comply with the California Building Code (CBC). Compliance with the CBC would maintain the risk of loss, injury or death to a level of less than significant..

	PSI	PSUMI	LTSI	NI
2) Strong Seismic ground shaking?	☐	☐	☒	☐

2) Based on location in the seismically active Imperial Valle region, the site is susceptible to ground shaking events. However, potential impacts to the project site would not be higher than elsewhere in the region. The main concern of ground shaking is the corresponding structure damage and the related hazards to life and safety. To ensure the structural integrity of all buildings and structures, the project must conform to the Seismic Requirements as outlined in the California Building Code (CBC). Compliance with the CBC does not eliminate the risk associated with ground shaking; however, it would reduce the risk to a level less than significant.

	PSI	PSUMI	LTSI	NI
3) Seismic-related ground failure, including liquefaction and seiche/tsunami?	☐	☐	☐	☒

3) The project site is on relatively flat terrain and is not within a "Landslide Susceptibility Area" as identified by the CGC Seismic Hazard Zonation Program (SHZP) Data Access Page and the Imperial County General Plan, Seismic and Public Safety Element, Figure 2,) Landslide Activities). Additionally, the proposed project site is not adjacent to any shoreline and; therefore, is not subject to a seiche or tsunami. Therefore, no impacts are expected.

	PSI	PSUMI	LTSI	NI
4) Landslides?	☐	☐	☐	☒

4) The project site lies within generally flat topography and would not be directly or indirectly affected by landslides. Therefore, no impacts are anticipated.

	PSI	PSUMI	LTSI	NI
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

b) The project site is not located within an erosion-susceptible area according to the imperial County General Plan, Seismic and Public Safety Element, Figure 3, Erosion Activity Map. The impact would appear to be less than significant.

	PSI	PSUMI	LTSI	NI
c) Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒

c) The project site consist of the existing hay processing and storage facility and is not and is not located on soil that is unstable and will not result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse; therefore, no impacts are expected.

	PSI	PSUMI	LTSI	NI
d) Be located on expansive soil, as defined in the latest Uniform Building Code, creating substantial direct or indirect risk to life	☐	☐	☐	☒

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

or property?

d) The project site is not characterized by any expansive soils that would be considered environmentally significant. Potential impacts deriving from expansive sols are considered negligible. Therefore, no impacts are anticipated.

	PSI	PSUMI	LTSI	NI
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

e) The project site consist of an existing hay processing and storage facility with an existing septic system, so the soils are capable of supporting a septic system. Therefore, no impacted are anticipated.

	PSI	PSUMI	LTSI	NI
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

f) The project site consist of an existing hay process and storage facility and would not directly or indirectly destroy a unique paleontological resource or site or unique geological feature. Therefore, no impacts are expected.

VIII. ***GREENHOUSE GAS EMISSION*** ***Would the project:***

	PSI	PSUMI	LTSI	NI
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

a) The Project would generate GHG emissions operational activities at the site and off the site. On-site activities' GHG emissions would be generated primarily by on-site diesel equipment, e.g. forklifts, loaders, and water truck. Off-site GHG emissions would primarily come from HDD trucks, with the majority from the haulers from the fields to the Project site. GHG emissions were estimated using all the methodologies listed above for criteria emissions. **Table 8** shows that the annual operation emissions for the Project and detailed calculations are presented in Appendix A.

Table 8 – Project Operational GHG Emissions

Emission Sources	GHG Emissions (tonnes/year)			
	CO_2	CH_4	N_2O	CO_2e
Off-site sources	6,733.00	0.028	1.012	7,035.30
On-site sources	516.90	0.167	N/A	521.00
Total	**7,249.9**	**0.195**	**1.012**	**7,556.3**

The project would generate GHG emission that may have a significant impact on the environment.

The ICAPCD has determined that compliance with applicable State GHG emission reduction strategies would constitute feasible mitigation. **Table 9** presents Project's design and/or mitigation that demonstrates compliance with applicable State GHG strategies presented in the CAT report.

Table 9 – California Greenhouse Gas Emission-Reduction Strategies

	Project Design/Mitigation to Comply with Strategy
Vehicle Climate Change Standards: AB 1493 (Pavley) required the State to develop and adopt regulations to achieve the most feasible and cost-effective reduction in climate change emissions emitted by passenger vehicles and light-duty trucks. Regulations were adopted by CARB in September 2004.	These are CARB-enforced standards; vehicles subject to these standards/measures that would access the proposed project would be complying.
Other Light-duty Vehicle Technology: New standards would be adopted and phased in beginning in the 2017 model year.	
Heavy-duty Vehicle Emission Reduction Measures: Increased efficiency in the design of heavy-duty vehicles and an educational program for the heavy-duty vehicle sector.	

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

Diesel Anti-Idling: In July 2004, CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	This is a CARB-enforced measure; vehicles subject to this measure that would access the proposed project would be complying.
Hydrofluorocarbon Reduction: 1) ban retail sale of HFC in small cans, 2) require that only low-GWP refrigerants be used in new vehicular systems, 3) adopt specifications for new commercial refrigeration, 4) add refrigerant leak-tightness to the pass criteria for vehicular inspection and maintenance programs, 5) enforce Federal ban on releasing HFCs.	Not applicable.
Transportation Refrigeration Units (TRUs), Off-road Electrification, Port Electrification: Strategies to reduce emissions from TRUs, increase off-road electrification, and increase use of shore-side/port electrification.	Not applicable.
Manure Management: The proposed San Joaquin Valley Rule 4570 would reduce volatile organic compounds from confined animal facilities through implementation of control options.	Not applicable.
Alternative Fuels – Biodiesel Blends: CARB would develop regulations to require the use of 1% to 4% biodiesel displacement in California diesel fuel.	Not applicable.
Alternative Fuels – Ethanol: Increased use of ethanol fuel.	Not applicable.
Achieve 50% Statewide Recycling Goal: Achieving the State's 50% waste diversion mandate, as established by the Integrated Waste Management Act of 1989 (AB 939 [Sher]), Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy-intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48% has been achieved on a statewide basis. Therefore, a 2% additional reduction is needed.	Not applicable.
Zero Waste – High Recycling: Additional recycling beyond the State's 50% recycling goal.	Not applicable.
Landfill Methane Capture: Implement direct gas use or electricity projects at landfills to capture and use emitted methane.	Not applicable. The proposed project does not include landfill operations.
Urban Forestry: A new statewide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.	Not applicable. The proposed project is not in an urban area.

Strategy	Project Design/Mitigation to Comply with Strategy
Afforestation/Reforestation Projects: Reforestation projects focus on restoring native tree cover on lands that were previously forested and are now covered with other vegetative types.	Not applicable. The proposed project area has not been forested in recent times.
Water Use Efficiency: 19% of all electricity, 30% of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute, and use water and wastewater. Increasing the efficiency of water transport and reducing water usage would reduce GHG emissions.	Not applicable. The project is not a water supply entity.
Building Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes the California Energy Commission (CEC) to adopt and periodically update its building energy efficiency standards, which apply to newly constructed buildings and additions and alterations to existing buildings.	Not applicable. The project does not include any construction activity.
Appliance Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes CEC to adopt and periodically update its appliance energy efficiency standards, which apply to equipment and devices that use energy and are sold or offered for sale in California.	Not applicable. The project does not include new appliance acquisition.
Cement Manufacturing: Cost-effective actions to reduce energy consumption and lower carbon dioxide emissions in the cement industry.	Not applicable. The proposed project does not include cement manufacturing operations.
Smart Land Use and Intelligent Transportation Systems (ITS): Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. It is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and the movement of people, goods, and services. Governor's office is finalizing a comprehensive 10-year strategic growth plan with the intent of developing ways to promote, through State investments, incentives, and technical assistance, land use and technology strategies that provide for a prosperous economy, social equity, and a quality environment. Smart land use, demand management, ITS, and value pricing are critical elements for improving mobility and transportation efficiency. Specific strategies include promoting jobs/housing proximity and transit-oriented development, encouraging high-density residential/commercial development along transit/rail corridors, value and congestion pricing, ITS, traveler information/traffic control, incident management, accelerating the development of broadband infrastructure, and comprehensive, integrated, multimodal/intermodal transportation planning.	Not applicable. The project is not in a metropolitan or urban area.

Source: State of California, Environmental Protection

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

Enteric Fermentation: Cattle emit methane from digestion processes. Changes in diet could result in a reduction in emissions.	Not applicable. The project does not include any cattle operations.
Green Buildings Initiative: Green Building Executive Order S-20-04 sets a goal of reducing energy use in public and private buildings by 20% by 2015 compared with 2003 levels. Consistent with mitigation.	Not applicable. The project does not include any construction activity.
California Solar Initiative: Installation of 1 million solar roofs on homes and businesses, or an equivalent 3,000 megawatts, by 2017; increased use of solar thermal systems to offset the increasing demand for natural gas; use of advanced metering in solar applications; and the creation of a funding source that can provide rebates over 10 years through a declining incentive schedule.	Not applicable. The project does not include any construction activity.

Agency, Climate Action Team, 2006

		PSI	PSUMI	LTSI	NI
b)	Conflict with an applicable plan or policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

b) Neither the County of Imperial nor ICAPCD have any specific plans, policies, nor regulations adopted for reducing the emissions of GHGs by CARB's First Update to their Scoping Plan include a table presenting the recommended actions the state should take in each of the sectors to meet our climate change goals. The project does not conflict with any of these recommended actions. Since the operational and construction emissions associaged with the Project would not conflict with any applicable ploan, policy or regulation adopted for recucing the emissions of GHGs, this impact is considered less than significant.

IX. *HAZARDS AND HAZARDOUS MATERIALS* ***Would the project:***

		PSI	PSUMI	LTSI	NI
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒

a) The project does not proposed to routinely transport, use, or dispose of any hazardous materials. In addition, Imperial County is required to regulate hazardous material and wastes at business location for emergency response purposes. All facilities that use or store hazardous material in any quantity are required by California Health and Safety Code to report such use or storage to the State's Certified Unified Program Agency (CUPA); therefore, no impacts are expected.

		PSI	PSUMI	LTSI	NI
b)	Create a significant hazard to the public or the environment through reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒

b) The project will not create a significant hazard to the public or environment, or have any reasonable foreseeable upset and accident conditions involving the release of hazardous materials into the environment; therefore, no impacts are expected.

		PSI	PSUMI	LTSI	NI
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐

c) The project site consist of an existing hay processing and storage facility and is not expected to emit hazardous emission or handle hazardous or acutely hazardous material, substances or waste with one-quarter mile of an existing school. Imperial Valley College is located approximately .65 miles southeast of the project site; however, any impact would appear to be less than significant.

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

d) The project site is not located on or near a State of California listed hazardous material site as identified in Government

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

Code Section 65962.5; therefore, no impacts are expected.

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

e) The project site is not located within an airport land use plan or a public use airport, nor would it result in a safety hazard for people residing or working in the project area. Therefore, no impacts are expected.

		PSI	PSUMI	LTSI	NI
f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

f) The proposed project will not physically interfere with an adopted emergency plan or emergency evacuation plan. Therefore, no impacts are expected.

		PSI	PSUMI	LTSI	NI
g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

g) The project site is not located within a wildland fire hazard; as such, it does not create a risk of loss, injury or death involving wildlands fire. Therefore no Impacts are expected.

X. ***HYDROLOGY AND WATER QUALITY*** ***Would the project:***

		PSI	PSUMI	LTSI	NI
a)	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐

a) The proposed project lies with the existing hay processing and storage facility and will not violate any water quality standards or waste discharge requirements. The project includes a potable water system and septic system, which will require securing a Safe Drinking Water Permit and a Septic System Permit from the County of Imperial Public Health Department, Division of Environmental Health (DEH). No discharge of any industrial or process wastewater is proposed, but if the applicant commences to discharge any industrial or processed wastewater, the applicant will need to work with the Regional Water Quality Control Board for permitting of said discharge. Less than significant impacts are expected.

		PSI	PSUMI	LTSI	NI
b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒

b) The proposed project will not substantially deplete groundwater; therefore, no impacts are expected.

		PSI	PSUMI	LTSI	NI
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐

c) The proposed project will include minor improvement which will not substantially alter the existing drainage patterns or increase the rate or amount of surface runoff, resulting in flooding on- or off-site; however, less than significant impacts are expected. Additionally, Imperial County Public Works will require that a drainage and grading plan/study to address any drainage concerns.

		PSI	PSUMI	LTSI	NI
(i)	result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐

(I) As mentioned under Geology and Soils, item b) above, the project site is not located within an erosion susceptible area, however, there will be some minor improvement (i.e. restroom, septic system and public water system); therefore, less then significant impacts would be expected.

		PSI	PSUMI	LTSI	NI
(ii)	substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐

(II) The proposed project is not expected to create or contribute runoff water, which would exceed the capacity of

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

existing or planned stormwater drainage system. Imperial County Public Works will require a grading and drainage plan/study to address drainage concerns. Therefore, less than significant impacts would be expected.

	PSI	PSUMI	LTSI	NI
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐

(III) The proposed project is not expected to create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage system. Imperial County Public Works will require a grading and drainage plan/study to address drainage concerns. Therefore, less than significant impacts would be expected.

	PSI	PSUMI	LTSI	NI
(iv) impede or redirect flood flows?	☐	☐	☐	☒

(VI) The proposed project is not expect to impede or redirect flood flow. The project site is located within Zone X per Flood Insurance Rate Map, Panel #06025C1725C. Therefore, no impacts are expected.

	PSI	PSUMI	LTSI	NI
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒

d) The proposed project would not expose people or structures to a significant risk or lost, injury or death involving inundation in flood hazard, tsunami or seiche zone; therefore no impacts are expected.

	PSI	PSUMI	LTSI	NI
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

e) The proposed project does not appear to conflict or obstruct implementation of a water quality control plan or a sustainable groundwater management plan. No impacts are expected.

XI. *LAND USE AND PLANNING* *Would the project:*

	PSI	PSUMI	LTSI	NI
a) Physically divide an established community?	☐	☐	☐	☒

a) The proposed project will not physically divide an established community; therefore, no impact is expected.

	PSI	PSUMI	LTSI	NI
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

b) Under the Land Use Element of the Imperial County General Plan, the project site is designated "Agriculture". It is zoned A2 (General Agriculture). The proposed project consist of an existing hay processing and storage facility which is permitted within the A2 with an approved Conditional Use Permit. It will not conflict with an applicable land-use plan, policy or regulation; therefore, no impacts are expected.

XII. *MINERAL RESOURCES* *Would the project:*

	PSI	PSUMI	LTSI	NI
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

a) The proposed project is for an existing hay processing and storage facility and would not result in the loss of availability of a known mineral resource or value to the region. Therefore, no impacts are expected.

	PSI	PSUMI	LTSI	NI
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

b) The proposed project will not result in the loss of availability of a locally-important mineral resource recovery site. Therefore, no impact are expected.

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

XIII. ***NOISE Would the project result:***

	PSI	PSUMI	LTSI	NI
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐

a) Short-term noise generated by construction of the restroom, septic system, potable water system and off-site deceleration lane would occur for a few days. The majority of construction would occur internal to the Hay Kingdom site where noise levels are already elevated. The deceleration lane would be constructed along East Worthington Road and may temporarily expose nearby residents to elevated noise levels which would cease when construction is completed. Long-term operational noise levels would increase on the Hay Kingdom site and along the truck routes when the maximum number of trucks allowed (i.e. 200 trips) are traveling to and from the site. Hay Kingdom is surrounded by agriculture land. However, two homes are located on the north side of East Worthington Road, opposite the entrance to the site (approximately 150 feet to the north). Another residence is approximately 150 feet to the east of the easterly boundary The increase in trips (i.e. 114 trips) would increase traffic noise along these routes by would be spread out over the course of the day and over more days rather than having more trucks on-site at any given time. Therefore, impacts associated with a substantial temporary or permanent increase in ambient noise levels are considered less than significant.

	PSI	PSUMI	LTSI	NI
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐

b) The noise from the existing hay processing facility will not expose persons to excessive groundborrne vibration or noise levels for a indefinate amount of time; also, the surrounding area is mostly agriculture and uses, with minimal amounts of people in the vicinity of the proposed facility. Therefore, less than significant impacts are expected.

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

c) The project is not located within an airport land use plan or within 2 miles of a public airport or public us airport. Hence, people working in the facility would not be exposed to excessive noise levels; therefore, no impact are expected.

XIV. ***POPULATION AND HOUSING Would the project:***

	PSI	PSUMI	LTSI	NI
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and business) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐

a) The propose project is non-residential, proposed on non-residential lands and will no substantially alter the local population or infrastructure; therefore less than significant impacts are expected.

	PSI	PSUMI	LTSI	NI
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

b) The proposed project does not proposed to displace any substantial existing housing necessitating the construction of replacement housing elsewhere. Therefore, no impacts are anticipated.

XV. ***PUBLIC SERVICES***

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

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

a) The proposed project is an existing hay process facility, minimal potential impacts are foreseen on public services. Therefore, less than significant impacts are expected.

	PSI	PSUMI	LTSI	NI
1) Fire Protection?	☐	☐	☒	☐

1) The project site is within the jurisdiction of the Imperial County Fire Department. A .95–acre fire water reservoir is on the east side of the site. Fire prevention on-site is available through nine dry fire hydrants located throughout the facility. The water to feed these hydrants is held in the fire water reservoir located on the west side of the site. Therefore, impact to fire protection are considered less than significant.

	PSI	PSUMI	LTSI	NI
2) Police Protection?	☐	☐	☒	☐

2) The project site is under the jurisdiction of the Imperial County Sheriff's Department. The entire Hay Kingdom facility is surrounded with a 6-foot chain-link fence topped with on-foot 3-strand barbed wire. An on-site employee regularly patrols the site during non-work hours. Both the main access gate just south of Worthington Road as well as the secondary access further to the south on the east side of the site have a Knox Box. Based on the nature of the facility and the surrounding security fence, impacts to police protection is anticipated to be less than significant.

	PSI	PSUMI	LTSI	NI
3) Schools?	☐	☐	☐	☒

3) The proposed project would have no impact on schools as no new residential development is proposed.

	PSI	PSUMI	LTSI	NI
4) Parks?	☐	☐	☐	☒

4) The proposed project will not result in impacts to parks.

	PSI	PSUMI	LTSI	NI
5) Other Public Facilities?	☐	☐	☐	☒

5) No impacts to other public facilities are expected.

XVI. ***RECREATION***

	PSI	PSUMI	LTSI	NI
a) Would the project increase the use of the existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒

a) The proposed project will not impact local or regional recreational facilities; therefore, no impacts are expected.

	PSI	PSUMI	LTSI	NI
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse effect on the environment?	☐	☐	☐	☒

b) The proposed project will not require or be required to construct recreational facilities; therefore, no impact is expected.

XVII. ***TRANSPORTATION*** ***Would the project:***

	PSI	PSUMI	LTSI	NI
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐

a) To assess potential impacts to the surrounding roadway network and intersections, a Traffic Impact Assessment (LOS Engineering, Inc. April 3, 2020) was prepared for the new CUP. This report is included in Attachment 4 to this document. Based on the project site's rural location, there are no transit, bicycle or pedestrian facilities. The analysis of all study area intersection and segment under all analysis scenario results in LOS B or better operating with the addition of Project traffic. Additionally, a Worthington Eastbound Right Turn Lane Analysis at Hay Kingdom Driveway was also prepared and concluded that an eastbound to southbound right-turn lane be installed at the driveway. The current driveway has a small eastbound right-turn taper of approximately 125 feet. Therefore, less than significant impacts are expected.

	PSI	PSUMI	LTSI	NI
b) Would the project conflict or be inconsistent with the CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐

b) The County of Imperial has not yet adopted vehicle miles traveled (VMT) as the metric for assessing transportation impacts. In the interim, the County continues to uses Level of Services. However, the project site is not located within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor and would

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

appear to have a less than significant impact.

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

c) The proposed project is not expected to substantially increase hazards due to a geometric design feature or incompatible uses since there are no change to the existing use (hay processing and storage facility). The proposed right-turn lane at the existing driveway would be installed under an encroachment permit secured from the County Public Works Department. Therefore, no impacts would be expected.

d) Result in inadequate emergency access?	☐	☐	☐	☒

d) The proposed project site consist of an existing facility and would not appear to result in adequate emergency access. Therefore, no impacts are anticipated.

XVIII. *TRIBAL CULTURAL RESOURCES*

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place or object with cultural value to a California Native American tribe, and that is:	☐	☐	☒	☐

a) The proposed project does not anticipate any major construction and it would not appear to cause a substantial adverse change in the significance of a tribal culture resource; any impact would appear to be less than significant. Additionally, a letter was went to the Quechan Indian Tribe and on July 2, 2020, an email was received stating that they have no comment.

(i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as define in Public Resources Code Section 5020.1(k), or	☐	☐	☐	☒

(i) The proposed project site consist of an existing hay processing and storage facility. This site is not listed or may not be eligible for listing in the California register of Historical Resources, or in a local register or historical resources. Therefore, no impacts are expected.

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

(ii) As mentioned in a) above, a letter was sent to the Quechan Indian Tribe and on July 2, 2020 they replied stating they have no comment. However, less than significant impact would be expected.

XIX. *UTILITIES AND SERVICE SYSTEMS* ***Would the project:***

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐

a) Pursuant to Imperial County Public Health Department (ICPHD) comment letter, applicant must undergo a public water system process and requirement from their department. Additionally, an engineer certified wastewater septic system to be in compliance to the increase of capacity to their proposed amount of personnel and visitors. Compliance with ICPHD requirements would bring any impacts related to the construction of service systems to a level less than significant.

	PSI	PSUMI	LTSI	NI
b) Have sufficient water supplies available to serve the project from existing and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒

b) The existing facility receives its water from the Imperial Irrigation District (IID) Rose Canal via an existing delivery gate. Water from the Rose Canal is stored in a reservoir located along the western boundary of the site. Water from the existing point of entry (POE) system is used for the employee's bathrooms and kitchen. A 5-gallon per minute potable water treatment plant is currently being planned for the facility. A new monitored potable water treatment system is needed because this facility has exceeded he State's threshold of 25 employees. The existing water cisterns, sand filters and pumps comprising of the existing POE are located on the north end of the facility. The proposed project would not request or require any additional water. Therefore, no impacts are anticipated.

	PSI	PSUMI	LTSI	NI
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐

c) As mentioned under item a) above, compliance with ICHD requirements would bring any impact to a level less than significant.

	PSI	PSUMI	LTSI	NI
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐

d) The proposed project would increase the amount of from 38 employees up to 80 employees. The increase in employees would result in a commensurate increase in solid waste. The facility currently contracts with Allied Waste for solid waste pick up. Recycling bins are available on the site to reduce the quality of solid waste generated. Some additional chaff would also be generated in association with the increase of 35,000 standard tons of raw hay. The maximum amount of chaff store on site at any one time is 32 tons. The chaff is sold to Cameiro Heifer Ranch. The increase in solid waste resulting from the additional employees is considered less than significant.

	PSI	PSUMI	LTSI	NI
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

e) As mentioned under item d) above, less than significant impacts are expected with regulation related to solid waste.

XX. ***WILDFIRE***

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:

	PSI	PSUMI	LTSI	NI
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

a) The project site is located in a rural agriculture area. The closest city is the City of Imperial which is approximately two and one-half mile to the west of the project site. The site is bordered by SR 111 on the west and would not impair an adopted emergency response plan or emergency plan. No impact are expected.

	PSI	PSUMI	LTSI	NI
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐

b) The project site is surrounded by agriculture land. According to the Draft Fire Hazard Severity Zones in the Local Responsibility Area Map prepared by the California Department of Forestry and Fire Protection in 2007, the project site is designated as a Local Responsibility Area Unzoned (CDF 2007). The site is surrounded by agricultural fields and irrigation infrastructure. Potential for uncontrolled wildfire is unlikely given the flat topography and irrigated agriculture as well as the irrigation canals and drains surrounding the site. In addition, Hay Kingdom has on-site fire-fighting features. A .95-acre fire water reservoir is located on the west side of the site. Fire prevention on-site is available through nine dry fire hydrants located throughout the facility. The nearest population center is the City of Imperial approximately two and one-half miles to the west. There is a caretaker residence present near the entrance of the site However, the proposed project is not likely to expose occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

Less than significant impacts are expected.

	PSI	PSUMI	LTSI	NI
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐

c) The proposed project is not expected to require installation or maintenance of infrastructure that may exacerbate fire risk or result in temporary or ongoing impacts to the environment. Therefore, any impacts would appear to be less than significant.

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

d) The proposed project site is located on flat land. No impact would occur that would result in exposing people or structure to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080(c), 21080.1, 21080.3, 21083, 21083.05, 21083.3, 21093, 21094, 21095, and 21151, Public Resources Code; Sundstrom v. County of Mendocino,(1988) 202 Cal.App.3d 296; Leonoff v. Monterey Board of Supervisors, (1990) 222 Cal.App.3d 1337; Eureka Citizens for Responsible Govt. v. City of Eureka (2007) 147 Cal.App.4th 357; Protect the Historic Amador Waterways v. Amador Water Agency (2004) 116 Cal.App.4th at 1109; San Franciscans Upholding the Downtown Plan v. City and County of San Francisco (2002) 102 Cal.App.4th 656.

Revised 2009- CEQA
Revised 2011- ICPDS
Revised 2016 – ICPDS
Revised 2017 – ICPDS
Revised 2019 – ICPDS

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

SECTION 3
III. MANDATORY FINDINGS OF SIGNIFICANCE

The following are Mandatory Findings of Significance in accordance with Section 15065 of the CEQA Guidelines.

	PSI	PSUMI	LTSI	NI
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, eliminate tribal cultural resources or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☑	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☑	☐
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☑	☐	☐

IV. PERSONS AND ORGANIZATIONS CONSULTED

This section identifies those persons who prepared or contributed to preparation of this document. This section is prepared in accordance with Section 15129 of the CEQA Guidelines.

A. COUNTY OF IMPERIAL

- Jim Minnick, Director of Planning & Development Services
- Michael Abraham, AICP, Assistant Director of Planning & Development Services
- Joe Hernandez, Project Planner
- Imperial County Air Pollution Control District
- Department of Public Works
- Fire Department
- Ag Commissioner
- Environmental Health Services
- Sheriff's Office

B. OTHER AGENCIES/ORGANIZATIONS

- Imperial Irrigation District

(Written or oral comments received on the checklist prior to circulation)

V. REFERENCES

1. "County of Imperial General Plan EIR", prepared by Brian F. Mooney & Associates in 1993; and as Amended by County in 1996, 1998, 2001, 2003, 2006 & 2008, 2015, 2016.
2. "County of Imperial Title 9 Land Use Ordinance" originally Enacted in 1998 and Revised in 2003 and 2004, and as Amended by the County in 2006, 2008, 2013, 2014, 2017 and 2019
3. Williamson ?Act map created in 2012 by the Imperial County Planning & Development Services Department for the Imperial County Board of Supervisor Order #10a
4. Imperial County Air Pollution Control District CEQA Air Quality Handbook
5. State of California's Alquist-Priolo Earthquake Fault Zone Maps, Revised January 1, 1980, Specials Studies map
6. U.S. Department of homeland Security, Federal Emergency Management Agency's Flood Insurance Rate Maps, effective September 26, 2008
7. Traffic Impact Analysis, Hay Kingdom, by LOS Engineering, Inc. (April 3, 2020)
8. Air Quality Impact Assessment, Hay Kingdom Project by OB01 (June 2020)
9. Health Risk Assessment, Hay Kingdom by Vista Environmental (June 1, 2020)
10. Hay Kingdom Right Turn Lane Memo (08/28/2019)

VI. NEGATIVE DECLARATION – County of Imperial

The following Negative Declaration is being circulated for public review in accordance with the California Environmental Quality Act Section 21091 and 21092 of the Public Resources Code.

Project Name: Hay Kingdom

Project Applicant: Michael Lin and James Lin

Project Location: 393 E. Worthington Road, Imperial, CA

Description of Project: Applicant is requesting to replace existing Conditional Use Permit #04-0003 to expand its operation to include an increase tonnage to 1,100 tons of hay pressed per day, increase the number of presses to 4 presses, increase the annual raw hay processed to 250,000 tons, increase the double trailer truck round trip to site to 100 peak/24 low, increase container trips out to 60, increase employee to 80 and operate the facility 24 hours per day, 7 days a week (when necessary due to equipment maintenance issues).

VII. FINDINGS

This is to advise that the County of Imperial, acting as the lead agency, has conducted an Initial Study to determine if the project may have a significant effect on the environmental and is proposing this Negative Declaration based upon the following findings:

☐ The Initial Study shows that there is no substantial evidence that the project may have a significant effect on the environment and a NEGATIVE DECLARATION will be prepared.

☑ The Initial Study identifies potentially significant effects but:

(1) Proposals made or agreed to by the applicant before this proposed Mitigated Negative Declaration was released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur.

(2) There is no substantial evidence before the agency that the project may have a significant effect on the environment.

(3) Mitigation measures are required to ensure all potentially significant impacts are reduced to levels of insignificance.

A NEGATIVE DECLARATION will be prepared.

If adopted, the Negative Declaration means that an Environmental Impact Report will not be required. Reasons to support this finding are included in the attached Initial Study. The project file and all related documents are available for review at the County of Imperial, Planning & Development Services Department, 801 Main Street, El Centro, CA 92243 (442) 265-1736.

NOTICE

The public is invited to comment on the proposed Negative Declaration during the review period.

11-20-2020 for [signature]

Date of Determination Jim Minnick, Director of Planning & Development Services

The Applicant hereby acknowledges and accepts the results of the Environmental Evaluation Committee (EEC) and hereby agrees to implement all Mitigation Measures, if applicable, as outlined in the MMRP.

[signature] 11/20/20

Applicant Signature Date

SECTION 4

EEC ORIGINAL PKG

VIII. RESPONSE TO COMMENTS

(ATTACH DOCUMENTS, IF ANY, HERE)

IX. MITIGATION MONITORING & REPORTING PROGRAM (MMRP)

(ATTACH DOCUMENTS, IF ANY, HERE)

S:\AllUsers\APN\044\500\079\CUP20-0014\EEC Pkg\CUP 20-0014 (Initial Study) 06232020.docx

VIII. RESPONSE TO COMMENTS

(ATTACH DOCUMENTS, IF ANY, HERE)

Kimberly Noriega

From: John Esquer <jesquer@imperialusd.org>
Sent: Thursday, November 19, 2020 12:52 PM
To: ICPDSCommentLetters
Subject: Hay Kingdom

CAUTION: This email originated outside our organization; please use caution.

Due to the proximity to residential homes, I would like to see how this company will mitigate the excess air pollution (allergens) and dust being caused by commercial vehicles, forklifts and the compress will increase with the increase of production. You will more than quadrupling this effect and impact m7y quality of life as well as our neighbors.

1. TO DATE...I have not witnessed water trucks being used to control dust and other air pollutants.

2. Noise pollution...during the working hours of 5am to 5pm, the commercial vehicles and forklifts noise travels to my property. It is understandable during these working hours...but I do have an issue with excess disturbance in the evening and sleeping hours for my family.

I strongly oppose the plan to increment production at Hay Kingdom.

Sincerely,
Johnny Esquer

RECEIVED
NOV 19 2020
IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

EEC ORIGINAL PKG

Joe Hernandez

From: aretodeto@juno.com
Sent: Wednesday, November 18, 2020 10:58 AM
To: Joe Hernandez
Attachments: HK1.odt; Scan_20201117.jpg

CAUTION: This email originated outside our organization; please use caution.

Greetings Joe,

Here are the documents that we talked about.

The green line on the "Scan" document represents the 2' pipe, the blue line represents the concrete trench and the red line represents Hay Kingdom boundaries.

Thank you
Robert

Robert Miller
395 E. Worthington Rd.
Imperial, CA 92251
760.355.2512
aretodeto@juno.com

Environmental Evaluation Committee
County Administration Center
(Board Room), 940 Main St.
El Centro, CA 92243

Greetings Environmental Evaluation Committee:

There are many objections to the future expansion of Hay Kingdom but I will endeavor to cover that which covers the environment surrounding the residence immediately east of HK.

Our water comes from IID through an open concrete trench about a quarter mile long then into a 2' diameter pipe about 200' long then into an aggregate filter and finally into a storage cistern. When there is a west wind, hay from HK blows into the trench where it is carried into the pipe where it decomposes and causes the water to smell like sewage. It makes sense to assume that a larger operation would cause even more hay to become airborne and end up in our water system. I don't think we have to air the health ramifications here, everybody is well aware.

Ingress/egress is limited a single lane at HK so that if several trucks are leaving at the same time and other trucks wish to enter, the trucks entering may have to wait on Worthington thus causing a traffic jam and Worthington is only a single lane in each direction. And further, there is an elementary school bus stop at that junction.

Then there is the issue of the extra lights (many of the trucks come in with lights on hi beam) and noise at all hours of the night. Part of the reason for moving to the country was to enjoy a quite peaceful retirement.

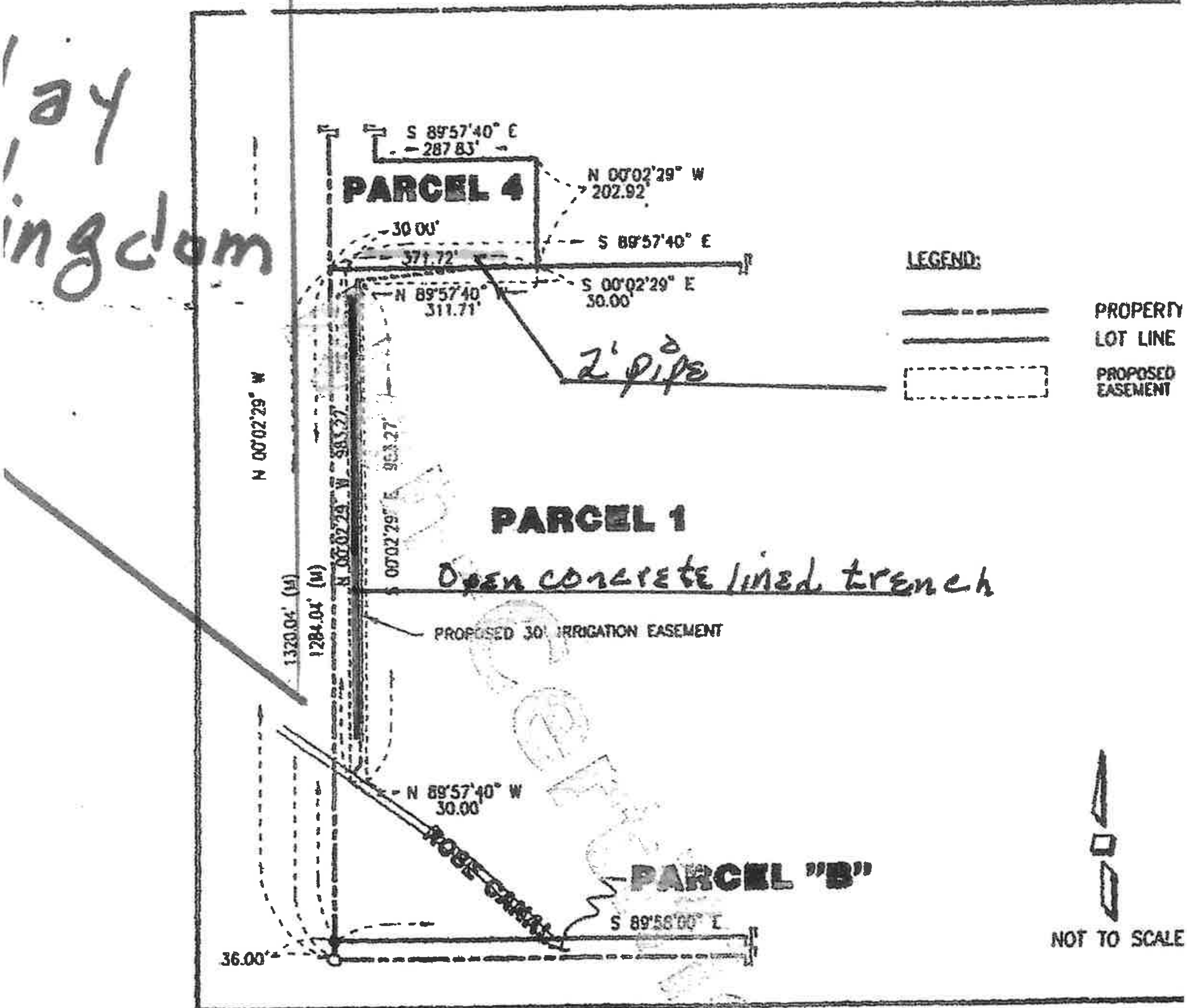
On many occasions trucks and equipment has been parked on the property adjacent to HK raising the question about weather they have enough room to contain their operation now, and if not, how much more difficult would it be to contain a much larger operation?

Thank you

Robert Miller

EEC ORIGINAL PKG

EXHIBIT "A"



BJ ENGINEERING & SURVEYING, INC.
Phone (760) 353-0552
Fax (760) 353-6781
1650 W. MAIN ST., SUITE C
EL CENTRO, CA 92243

PORTION OF PARCEL 1 OF PM NO. 2367

IRRIGATION EASEMENT

IN THE COUNTY OF IMPERIAL, CA

DATE: 12-15-2004

CLIENT: PRINCE & ASSOCIATES

JOB NO

150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

TELEPHONE: (442) 265-1800
FAX: (442) 265-1799

AIR POLLUTION CONTROL DISTRICT

RECEIVED
OCT 09 2020
IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

October 9, 2020

Jim Minnick
Planning & Development Services
801 Main Street
El Centro, CA 92243

SUBJECT: *Addendum to* Revised August 2020 Air Quality/GHG Impact Assessment regarding Proposed Expansion of Hay Kingdom, Conditional Use Permit (CUP) 20-0014, located at 393 E. Worthington Road, Imperial, CA 92251 (Assessor Parcel Number 044-500-079-000)

Dear Mr. Minnick:

In previous communications[1] the Air District identified inconsistencies that prevented the Air District from concurring with Hay Kingdom's *Air Quality/GHG Impact Assessment* ("AQA"). Table 9—Project Operational Unmitigated Emissions of the AQA is such an example. Here, Existing Emissions were subtracted from Projected Emissions when the analysis should have been based on combined emissions.

Further, the Air Quality Management Plan (AQMP) referenced in the AQA should have correctly differentiated between the various designations of Imperial County's Ozone, PM2.5, and PM10 State Implementation Plans (SIPs), all of which have Transportation Conformity inventories that must be individually assessed to determine if the Project will exceed mobile emission budgets.

While emissions of fugitive road dust (PM10) are less than significant, mobile emissions of NOx slightly exceed Imperial County's California Environmental Quality Act (CEQA) Air Quality thresholds. Therefore, the Air District reiterates its earlier request that this Project apply Policy 5 which is the only viable mitigation measure available to assure that emissions do not exceed SIP budgets and that the Project remain less than significant.

[1] Imperial County Air Pollution Control District to Imperial County Planning and Development Services, September 22, 2020

150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

TELEPHONE: (442) 265-1800
FAX: (442) 265-1799

AIR POLLUTION CONTROL DISTRICT

September 22, 2020

Jim Minnick
Planning & Development Services
801 Main Street
El Centro, CA 92243

SUBJECT: Revised August 2020 Air Quality/GHG Impact Assessment regarding Proposed Expansion of Hay Kingdom, Conditional Use Permit (CUP) 20-0014, located at 393 E. Worthington Road, Imperial, CA 92251 (Assessor Parcel Number 044-500-079-000)

Dear Mr. Minnick,

In a previous review[1] of Conditional Use Permit (CUP) 20-0014 the Air District identified inconsistencies that prevented the Air District from concurring with Hay Kingdom's *Air Quality/GHG Impact Assessment* ("AQA"). The Air District pointed out that the proposed modifications to the operations represented a substantial increase over current operations. Since on-road emissions will compose the bulk of that increase, it is critical that the Air District be able to verify those emissions. Appendix A Table 3a—Criteria Emissions shows emissions attributable to each activity, but the Air District could not confirm those values (i.e., the method used for finding the total of CO emissions attributable to Raw Product to Hay Kingdom).

The proposed project may be less than significant, but to make that determination the Air District respectfully requests the application of Policy 5. This would include an analysis of the entire Operational Life of the project, along with Annual Operational emissions. This analysis must be supported by all backup output files, justifications of any applied mitigation and a detailed, step-by-step analysis of current emissions and proposed emissions. A sample analysis is included to assist the applicant.

[1] Imperial County Air Pollution Control District to Imperial County Planning and Development Services, July 15, 2020.

Air District Rules and Regulations are available via the web at https://apcd.imperialcounty.org/. Should you have any questions please feel free to call at (442) 265-1800.

Respectfully submitted,

Curtis Blondell
APC Environmental Coordinator

Monica N. Soucier
APC Division Manager

[redacted]

Memorandum

Date:	February 29, 2012
To:	[redacted]
Cc:	Richard Cabanilla and Sean Moore, Imperial County Monica Soucier, Imperial County Air Pollution Control District
From:	[redacted]
Subject:	**Revised NO_X Offset Fee Payment Calculations** **Lifetime On-Road NO_X Calculations for the Salton City Landfill**

The following memorandum summarizes the methodology and nitrogen oxides (NO_X) emissions calculations associated with on-road vehicle activity from the proposed [redacted]. The objective was to determine how use of new EMFAC2011 emission factors and use of the SCAQMD-approved vehicle fleet assumptions affects the calculated offset fee payment. The analysis summarized herein is in compliance and consistent with the requirements of Imperial County Air Pollution Control District (ICAPCD) Policy Number 5. Emission calculations are presented in Attachment 1.

Methodology

The analysis includes on-road emissions calculations associated with [redacted] trucks, [redacted] trucks, both large and small self-haul trucks, and worker commute vehicles. A summary of the vehicle types, EMFAC vehicles classes, and age distribution used in EMFAC modeling is presented in Table 1.

Table 1. Vehicle Trip Types and EMFAC Vehicle Classes

Vehicle Type	EMFAC2011 Vehicle Class	Description	Age Distribution
Transfer Trucks	T7 Tractor	Heavy-Heavy Duty Diesel Tractor Truck	2010 and Newer, 6-year turnover
Collection Trucks	T7 Tractor	Heavy-Heavy Duty Diesel Tractor Truck	All model years
Large Self Haul	LHD1	Light-Heavy-Duty Trucks (8501-10000 lbs)	All model years
Small Self Haul	MDV	Medium-Duty Trucks (5751-8500 lbs)	All model years
Worker Commute	LDA/LDT1 average	Passenger Cars Light-Duty Trucks (0-3750 lbs)	All model years

Emission rates were generated from the California Air Resources Board's (ARB) new EMFAC2011 web-tool[1]. The variables used in EMFAC2011 modeling for transfer trucks are summarized below:

- Region: Imperial (SS)
- Calendar Years: Run separately for each analysis year (2012, 2017, 2022, 2027, and 2032).
- Season: Annual
- Vehicle Category: T7 Tractor
- Fuel: DSL
- Model Year: 2010 and newer, 6 year turnover rate, model year range varies by analysis year
- Speed: 55 mph
- Query by: EMFAC 2011 Vehicle Categories

The variables used in EMFAC2011 modeling for all other truck trips ([redacted] Trucks, Large Self Haul, Small Self Haul, and Worker Commute) is summarized below:

- Region: Imperial (SS)
- Calendar Years: Separately for each analysis year (2012, 2017, 2022, 2027, and 2032).
- Season: Annual
- Vehicle Category: All
- Fuel: All
- Model Year: Combined
- Speed: Combined (consistent with CalEEMod)
- Query by: EMFAC 2011 Vehicle Categories

Results

Table 2 shows project-related onroad emissions from all vehicle activity within Imperial County. Over the 28-year life of the landfill, increased onroad haul trucks traveling on public roads would generate a total of 315.6 tons of increased NO_X emissions compared to baseline activities. Averaged

[1] Available at: http://www.arb.ca.gov/jpub/webapp//EMFAC2011WebApp/rateSelectionPage_1.jsp

over the 28-year project duration, that is equivalent to an average of 11.3 tons per year of increased NO_X emissions. That forecast is a conservatively high estimate because it assumes truck deliveries to the facility would escalate each year to the maximum permitted values listed in Table 3.10-6 of the Draft EIR. Therefore, based on the current NO_X fee of $23,626 per ton, the one-time fee is calculated to be $266,319 (11.3 net annual tons (x) $23,626/ton).

The Draft EIR (Mitigation Measure MM-AQ-8) used EMFAC2007 emission factors and forecast a required offset fee payment of $593,000 to account for a net NO_X increase of 703 tons. Thus, use of the EMFAC2011 emission data and use of the SCAQMD-approved vehicle fleet assumptions resulted in a substantial reduction of the required fee payment.

Table 2. Summary of Project-Related NO_X Emissions by Analysis Year (Tons Per Year)

	Tons Per Year					Total
Vehicle Type	**2012-2016**	**2017-2021**	**2022-2026**	**2027-2031**	**2032-2040**	**Emissions**
Transfer Trucks	9.2	28.9	55.5	55.5	88.7	237.7
Collection Trucks	31.8	17.9	5.0	4.2	6.7	65.6
Large Self-Haul	5.5	3.3	2.1	1.5	1.8	14.2
Small Self-Haul	1.2	0.7	0.4	0.3	0.4	3.0
Worker Commute	4.1	4.0	3.0	2.8	4.2	18.1
Total	*51.7*	*54.7*	*66.1*	*64.3*	*101.9*	*338.6*
Existing Emissions						23.0
Project Net over Existing - Total						315.6
Project Net over Existing - Annual						11.3

[redacted]

Increasingly stringent future allowable NOx emission rates from vehicles and progressively newer vehicle fleets would result in lower emissions in future years.

Although the analysis above was based on the maximum number of permitted [redacted] vehicles, it is unlikely that the facility, post-expansion, will see this level of vehicle traffic. It is expected that the NOx emissions resulting from the projected future actual vehicle traffic will be significantly less than the maximum level, as the current vehicular count is far below its permitted level. Table 4 presents the estimated future actual vehicle count.

Table 4 – Projected Future Actual Waste Vehicle Traffic[11]

Waste Vehicle	Current Permit Level	2009	2014	2019	2024	2029	2034
[redacted] Trucks	14	16	17	20	23	27	31
[redacted] Trucks	137	162	172	199	231	268	311
Pickups	123	145	154	178	207	240	278
TOTAL	**274**	**323**	**343**	**397**	**461**	**534**	**619**
TOTAL ABOVE CURRENT PERMITTED LEVEL	---	**49**	**69**	**123**	**187**	**260**	**345**

■ In-Lieu Mitigation Fees

The Imperial County Air Pollution Control District (ICAPCD) has an in-lieu mitigation program under which permit applicants may choose to mitigate off-site NOx emissions resulting from their proposed projects by paying an in-lieu mitigation fee. This fee is used by the District to retire or effect a reduction in NOx emissions from various sources identified by the District. The NOx reductions are permanent.

To calculate the in-lieu mitigation fee, we need to consider the nature of the project and the goal of the fee program. The project has a finite life. Off-site NOx emissions resulting from this project have a projected 30 year duration. Emission reductions paid for by the in-lieu fee off-set

---

the NOx total is included in the NOx emissions estimate presented here but the projected increase in vehicles are not included in this table.

[10] The estimated NOx emissions presented here also include the small increment expected in employee vehicles. These contribute an insignificant amount of NOx to the total. The total vehicle count presented here focuses on waste vehicles only and does not include employee vehicles.

[11] This illustrates an operational scenario in which the first operational year (post-expansion) is 2009. The actual year would depend on when all permits are issued.

emission increases resulting from the project and ensure that the county's air quality is not adversely impacted by the project. The emission reductions that would result from the use of the in-lieu mitigation fee are permanent. In this case, they would be in place and effective after the sources they are offsetting have ceased to exist. The total off-site NOx emissions from 2009 to 2038 would be 103 tons[12]. Given a 30-year [redacted] life, this would correspond to an annual offset of 3.4 tons per year, or similar to the 2014 level of emissions (3.6 tons per year). This is illustrated graphically in Figure 1, below. As noted earlier, it is unlikely that the actual emissions will be as high as the permitted emissions. Figure 2 shows the offsets compared to the likely emissions scenario based on the vehicle count presented above in Table 4.

The fee rate is currently set at $23,626/ton NOx[13]. The one-time in-lieu mitigation fee is calculated as follows:

$$\text{In - Lieu Fee (\$)} = \left(\frac{\begin{array}{c}\text{Total Change In NOx Emissions} \\ \text{Over LIfe of Landfill (tons)}\end{array}}{\text{Life of Landfill (years)}} \right) \times \text{District In - Lieu Fee Rate (\$/ton)}$$

$$\text{In - Lieu Fee (\$)} = \left(\frac{\text{103 tons NOx}}{\text{30 years}} \right) \times \text{\$23,626/ton NOx} = \text{\$81,116}$$

[redacted] would pay $81,116, the in-lieu fee, when [redacted] receives the [redacted] permit for the proposed expansion. Payment of this fee will be the alternative to finding off-set emissions, and no other emissions fee would be required.

[12] Sum of the following: 5 years times 8.4 tons/year (2009-2013), 5 times 3.6 tons/year (2014-2018), 5 times 2.4 tons/year (2019-2023), 5 times 2.0 tons/year (2024-2028), 5 times 2.1 tons/year (2029-2033), 5 times 2.2 tons/year (2034-2038)

[13] ICAPCD Policy 5. March 4, 2009

ADMINISTRATION / TRAINING
1078 Dogwood Road
Heber, CA 92249

Administration
Phone: (442) 265-6000
Fax: (760) 482-2427

Training
Phone: (442) 265-6011

OPERATIONS/PREVENTION
2514 La Brucherie Road
Imperial, CA 92251

Operations
Phone: (442) 265-3000
Fax: (760) 355-1482

Prevention
Phone: (442) 265-3020

July 20, 2020

To: County of Imperial Planning and Building Department

RE: Revised Conditional Use Permit CUP #20-0014

Imperial County Fire Department would like to thank you for the opportunity to review and comment on CUP #20-0014 for Hay Kingdom Inc. located at 393 E. Worthington Road, Imperial CA 92251.

Hay kingdom currently utilizes a water storage pond and select placement of draft hydrants throughout the facility. Imperial County Fire Department has found during multiple inspection and emergency incident these draft hydrant connection not being maintained as required. These draft hydrant connections are vital fire suppression equipment in a fire emergency and shall be maintain and kept in working conditions at all times. With the increase in production and current changes on site and in the future Imperial County Fire Department is requiring the follow concerning water supply and draft hydrant connections:

- Water supply shall meet Imperial County Fire Department firefighting water supply specification and requirements for rural applications. The water supply shall also meet applicable codes in the California Fire Code and NFPA 1142 standards. All current on site draft hydrant connections shall be inspected and analysis by Imperial County Fire Department for their location, condition, and compliance with requirements.
- Imperial County Fire Department shall assess current location(s) and new location(s) of draft hydrant connections for operational needs. New location(s) determined by Imperial County Fire Department official(s) shall be installed with a draft hydrant connection in compliance with all codes, standards, and requirements from Imperial County Fire Department.
- Failure to maintain compliance draft hydrant connection(s) and water supply can result in revoking of CUP and Stop Work Order being issue. Corrections must be corrected in a timely matter determined by Imperial County Fire Department official(s)

Site access currently is provided from Worthington road into the property with secondary access being provide along an IID Rose canal on the west side of the property. Roadway within the interior of the property are not indicated or maintained. With the increase in production and current changes on site and in the future Imperial County Fire Department is requiring the following concerning site access:

ADMINISTRATION / TRAINING
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Training
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IMPERIAL COUNTY CRASH RESCUE FIRE

OPERATIONS/PREVENTION
2514 La Brucherie Road
Imperial, CA 92251

Operations
Phone: (442) 265-3000
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Prevention
Phone: (442) 265-3020

- Primary and secondary access shall be provided and maintained as required by the California Fire Code and Imperial County Fire Department code official(s). All access gates shall meet requirements in the California Fire Code and be equipped with an approved "Knox Lock" by the Fire code official(s).
- Additional access and gates shall be review and determined by Imperial County Fire Department fire code official(s) are needed for operational requirements. If additional access points and/or gates are determined they shall be installed as required in the California Fire Code and fire code official(s)
- Interior perimeter emergency access road shall be provided on the property to allow for emergency apparatus to access all portion of the property. This roadway shall consisted of 20 feet wide compacted native soil and shall not be obstructed by any means and accessible from all access points.

Product storage on site shall be kept well organized and uniformed on site to help prevent the spread of fire in an emergency. Imperial County Fire Department has had multiple incidents on site involving poor housekeeping and "chaffed" hay. Annual Fire Inspection(s) has noted multiple housekeeping and violation issues in the past which have been corrected but not maintained. Imperial County Fire Department is requiring the following concerning product storage:

- Product storage yard shall have minimum 100 foot spacing between storage stacks on all sides
- Storing of products in between stacks shall be prohibited if within the 100 foot clear space between stacks
- Chaffed hay shall be contained in a non-combustible storage area. This containment shall not be located within 100 feet of structures, machinery, fire access roads, and product storage. Chaffed hay shall be discarded and or removed in a timely manner and not allowed to spread throughout the property.

Hazardous Materials kept on site shall be maintained in accordance with Federal, State, and local regulations as required. Annual Fire Inspection(s) has noted a number of violations in the past with the storage and handling of hazardous material and waste.

- A Hazardous Waste Material Plan shall be submitted to the Certified Unified Program Agency (CUPA) for their review and approval.
- All hazardous materials and waste shall be handled, stored, and disposed as per the approved Hazardous Waste Materials Plan. All spills shall be documented and reported to Imperial County Fire Department and CUPA as required by the Hazardous Waste Material Plan.

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IMPERIAL COUNTY
CRASH RESCUE
FIRE

OPERATIONS/PREVENTION
2514 La Brucherie Road
Imperial, CA 92251

Operations
Phone: (442) 265-3000
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Prevention
Phone: (442) 265-3020

The facility and operation shall maintain compliance with all applicable life and safety codes including but limited to: California Fire Code, Health and Safety Code, NFPA, Local Ordinances.

Imperial County Fire Department reserves the right to comment and request additional requirements pertaining to this project regarding fire and life safety measures, California Building and Fire Code, and National Fire Protection Association standards at a later time as we see necessary.

If you have any questions, please contact the Imperial County Fire Prevention Bureau at 442-265-3020 or 442-265-3021.

Sincerely
Andrew Loper
Lieutenant/Fire Prevention Specialist
Imperial County Fire Department
Fire Prevention Bureau

CC:
Alfredo Estrada, Imperial County Fire Department Fire Chief
Robert Malek, Imperial County Fire Department Deputy Chief

150 SOUTH NINTH STREET
EL CENTRO, CA 92243-2850

TELEPHONE: (442) 265-1800
FAX: (442) 265-1799

AIR POLLUTION CONTROL DISTRICT

July 15, 2020

Jim Minnick
Planning & Development Services
801 Main Street
El Centro, CA 92243

SUBJECT: Proposed Expansion of Hay Kingdom, Conditional Use Permit (CUP) 20-0014, located at 393 E. Worthington Road, Imperial, CA 92251 (Assessor Parcel Number 044-500-079-000)

Dear Mr. Minnick,

The Imperial County Air Pollution Control District ("Air District") appreciates the opportunity to review Conditional Use Permit (CUP) 20-0014 expressly for the proposed expansion operations at Hay Kingdom (Project). To facilitate an understanding of the proposed expansion the Air District has included Table 2 from page 6 of the "Request for Review and Comments" with some modification.

TABLE 2
EXISTING OPERATIONS

	Existing	Proposed	Change
Hay Pressed (tons/day)	530 tons per day	1,100 tons per day	+ 570 tons per day
Presses	3 presses	4 presses	+ 1 press
Raw hay Stored On-Site and at Stack	70,000 tons	70,000 tons	No Change
Annual Raw Hay Processed	120,000 tons	250,000 tons	+ 130,000 tons
Double Trailer Truck Round Trips to site	15	100/peak/24 low	+ 85 peak/ + 9 low
Container Truck Trips out	15	60	+ 45 trips
Employee, client, vendor, passenger car round trips	86	200	+ 114 trips
Working hours	6 am to 4:30am 6 pm to 4:30am	24 hours	1 additional day
	6 days a week	7 days a week	+ 24-hours per week
Employees	38 employees	80 employees	+ 42 employees
Dust Collector	12,000 cubic feet per minute		No change

The State CEQA Guidelines, section 15002 General Concepts, provides the basic purpose of the California Environmental Quality Act (CEQA), which is to inform governmental decision makers and the public about the potential, significant environmental effects of a proposed project. In order to facilitate this State CEQA Guidelines, section 15003 Policies, does not require technical perfection but does require adequacy, completeness and a good-faith effort at full disclosure. Thus, the Air District took to evaluating the *Air Quality/GHG Impact Assessment* for the Hay Kingdom Project in light of the aforementioned policies. Unfortunately, due to sufficient inconsistencies and insufficiencies the Air District finds the analysis incomplete at best. Provided for your consideration are highlights of some of those inconsistencies the Air District finds significant enough to call into question the whole of the analysis.

Section 5 and Appendix A

Construction Emissions – none identified, however page 6 indicates the applicant will need to pull a building permit from the Imperial County Planning & Development Services. Upon further investigation, the construction of a restroom is required.

Operational Emissions - First, the analysis did **not** provide a breakdown of current existing emissions separated from the proposed emissions. Rather the analysis calculated buildout emissions. This does not allow for the proper evaluation of significance. This is an incomplete analysis.

Second, the analysis indicates that the calculated emissions included the "entire facility" however only emissions from inbound heavy-duty diesel (HDD) hay trucks, outbound HDD hay trucks to the All American Grain (AAG) and employee (including visitor) vehicles emissions were assessed.

Here, disclosure of the current existing permit emissions would have revealed that the current existing facility operates four (4) presses and an addition of a press would make five (5) presses. While the Imperial County CEQA Air Quality Handbook (Handbook) clearly explains that those stationary sources subject to mitigation according to Rule 207, New and Modified Stationary Source Review do not need to compare facility emissions with the thresholds found within the Handbook disclosure is still required. Thus, providing a rounded discussion of current existing emissions would have provided disclosure of the facilities emissions properly.

Further, the calculated emissions for the mobile sources attracted to facility were unverifiable. The description explains that the analysis utilized the Project's Traffic Impact Analysis (TIA) dated April 3, 2020, which utilized a calculated daily trip rate, by ton of processed hay. This resulted in an additional 266 **daily trips** for a potential increase of 570 tons per day of processed hay (**Table 2**).[1]

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[1] Justin Rasas, *Draft Traffic Impact Analysis*, 4.1 Project Trip Generation, pg. 11, April 3, 2020

To estimate emissions the analysis utilized the EMFAC2017 model for on-road emissions and the OFFROAD2017 model for off-road emissions to determine the vehicle emission factors. These vehicle emission factors are used to determine emissions from different types of vehicles.

Unlike the OFFROAD model the EMFAC model provides a "project analysis" model run that requires the selection of region type, region, calendar year, season (including annual), vehicle category (including T7 single, and T7 tractor), model year, speed, fuel, temperature and relative humidity. Appendix A did not provide the excel output file once the scenario is generated. For example, Table 5 of Appendix A provides the Emission Factor of 0.1076 for ROG however, a simple model run according to the information provided in the analysis results in an Emission Factor for ROG of 1.1131 at 55 miles per hour (see attached). The output emissions factors are in grams/mile thus the simplest of calculations are not possible without verifiable emission factors. Similarly, the description of the facility wide emissions is represented as an annual average daily output when in fact it is representative of a single peak production day of 1,100 tons of processed hay. There emissions calculations were inadequately described.

Without the proper information, a proper evaluation of the emission results is nearly impossible. In addition, based on footnoted information in Appendix A, such as in Table 6 a 57% mitigation for speed restrictions is unjustified. Again, without documentary proof that speed restrictions warrant a 57% reduction the mitigation is unjustified.

In the simplest of reasonable inferences, the proposed changes represent a substantial increase over current operations. In order to support the finding of less than significant, the Air District requests the application of Policy 5. The first step of Policy 5 is a proper mobile source analysis supported by all backup output files, justifications of any applied mitigation and a detailed, step-by-step analysis of current emissions and proposed emissions.

Finally, the Air District Rules and Regulations are available via the web at https://apcd.imperialcounty.org/. Should you have any questions please feel free to call at (442) 265-1800.

Respectfully submitted,

Monica N. Soucier
APC Division Manager

calendar_year	season_month	sub_area	vehicle_class	fuel	temperature	relative_humidity	process	speed_time	pollutant	emission_rate
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	5	HC	9.510823619
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	10	HC	7.568402171
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	15	HC	4.403304595
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	20	HC	2.197867446
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	25	HC	1.570776399
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	30	HC	1.345532514
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	35	HC	1.164266771
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	40	HC	1.026979169
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	45	HC	0.933669709
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	50	HC	0.884338391
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	55	HC	0.878985213
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	60	HC	0.892800428
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	65	HC	0.892800428
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	70	HC	0.892800428
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	75	HC	0.892800428
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	80	HC	0.892800428
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	85	HC	0.892800428
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	90	HC	0.892800428
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	5	HC	13.66826225
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	10	HC	10.73819272
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	15	HC	6.0566616
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	20	HC	2.946607761
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	25	HC	2.090746419
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	30	HC	1.757557529
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	35	HC	1.494824143
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	40	HC	1.30254626
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	45	HC	1.18072388
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	50	HC	1.129357005
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	55	HC	1.148445632
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	60	HC	1.18441076
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	65	HC	1.18441076
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	70	HC	1.18441076
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	75	HC	1.18441076
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	80	HC	1.18441076
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	85	HC	1.18441076
2001	Annual	Imperial (SS)	T7 Tractor	Dsl	80	30	RUNEX	90	HC	1.18441076
2001	Annual	Imperial (SS)	T7 Single	Dsl			IDLEX		HC	18.3868486
2001	Annual	Imperial (SS)	T7 Tractor	Dsl			IDLEX		HC	17.43317016
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	5	CO	19.22588453
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	10	CO	17.74534637
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	15	CO	15.04691634
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	20	CO	12.69868138
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	25	CO	10.80989728
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	30	CO	9.212296947
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	35	CO	7.834745906
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	40	CO	6.677244161
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	45	CO	5.739791712
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	50	CO	5.022388559
2001	Annual	Imperial (SS)	T7 Single	Dsl	80	30	RUNEX	55	CO	4.525034702

COUNTY OF IMPERIAL
DEPARTMENT OF PUBLIC WORKS
155 S. 11th Street
El Centro, CA
92243
Tel: (442) 265-1818
Fax: (442) 265-1858
Follow Us:
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https://twitter.com/CountyDpw/

Public Works works for the Public

ICDPW

July 10, 2020

Mr. Jim Minnick, Director
Planning & Development Services Department
801 Main Street
El Centro, CA 92243

Attention: Joe Hernandez, Planner IV

SUBJECT: CUP 20-0014 Hay Kingdom Inc.
393 E. Worthington Road, Imperial, CA.
APN 044-500-079-000

Dear Mr. Minnick:

This revised letter is in response to your submittal received by this department on June 22, 2020 for the above mentioned project. Applicant is requesting to replace CUP 04-0003 to expand its operations to include an increase on tonnage hay press production.

Department staff has reviewed the package information and the following comments shall be Conditions of Approval:

1. Applicant shall be responsible for the installation of a right turn lane for eastbound traffic on Worthington Road for site access, as per the right-turn lane memorandum prepared by LOS Engineering, Inc., dated August 28, 2019, and included with the project documents. Applicant shall prepare right-turn lane improvement plans and submit them to this Department for review and approval.

2. According to the project documents, the site has an emergency only secondary access located on the eastern side of the property midway down the Rose Lateral 2. If the location of access is approved by the Office of Emergency Services, the following shall be required:

    a. An ingress/egress easement along the west side of the Rose Lateral 2 shall be obtained from the Imperial Irrigation District and any other land owners.
    b. No information about the path of travel to said access was provided. Emergency access shall be from a public road.

3. An encroachment permit shall be secured from this Department for any construction and/or construction related activities within County Right-of-Way. Any activity and/or work within Imperial County Right-of-Way shall be completed under a permit issued by this Department (encroachment permit) as per Chapter 12.12 - Excavations on or Near a Public Road of the Imperial County Ordinance.

INFORMATIVE:

The following items are for informational purposes only. Applicant is responsible to determine if such items affect the subject project.

- All solid and hazardous waste shall be disposed of in approved solid waste disposal sites in accordance with existing County, State and Federal regulations (Per Imperial County Code of Ordinances, Chapter 8.72).

- A Transportation Permit may be required from road agency(s) having jurisdiction over the haul route(s) for any hauls of heavy equipment and/or large vehicles which impose greater than legal loads on riding surfaces, including bridges. (Per Imperial County Code of Ordinances, Chapter 10.12 – Overweight Vehicles and Loads).

- As this project proceeds through the planning and the approval process, additional comments and/or requirements may apply as more information is received.

Should you have any questions, please do not hesitate to contact this office. Thank you for the opportunity to review and comment on this project.

Respectfully,

By;

John A. Gay, P.E.
Director of Public Works

FO/ag

COUNTY OF IMPERIAL

PUBLIC HEALTH DEPARTMENT

JANETTE ANGULO, M.P.A.
Director

STEVEN MUNDAY, M.P.H., M.S.
Health Officer

July 2, 2020

Joe Hernandez, Planner IV
IC Planning & Development Services
801 Main Street
El Centro, CA 92243

Subject: Environmental Health Comments for Proposed Conditional Use Permit #20-0014

Dear Mr. Hernandez:

The Imperial County Division of Environmental Health (DEH) is providing the comments below in response to the request for review and comments for Conditional Use Permit #20-0014. The project is described as expanding it's operation to include an increase tonnage to 1,100 tons of hay pressed, increase the number of presses to 4 presses, increase the annual raw hay processed to 250,000 tons, increase the double trailer truck round trip to site to 100 peak/24 low, increase container trips out to 60, increase employees to 80 and operate the facility 24 hours per day, 7 days a week (When necessary due to equipment maintenance issues). This will be located at 393 Worthington Road, Imperial, CA. The property is also described as Assessor's Parcel Number 044-500-079.

Please consider the following comments for the proposed project.

1. The applicant must undergo a public water system process and requirements from our division.
2. The applicant must have an engineer certify the wastewater septic system (if any) to be in compliance to the increase of capacity to their proposed amount of personnel and visitors.

If you have any questions, please do not hesitate to contact me at 442-265-1888.

Sincerely,

Mario Salinas

Mario Salinas
Environmental Compliance Specialist I

June 24, 2020

Mr. Joe Hernandez
Planner IV
Planning & Development Services Department
County of Imperial
801 Main Street
El Centro, CA 92243

SUBJECT: Hay Kingdom, Inc. Hay Press & Storage Facility Expansion; CUP No. 20-0014

Dear Mr. Hernandez:

On June 22, 2020, the Imperial Irrigation District received from the Imperial County Planning & Development Services Dept. a request for agency comments on Conditional Use Permit application no. 20-0014 for the Hay Kingdom, Inc. hay press & storage facility expansion project in Imperial County. The applicant is requesting to replace existing CUP no. 04-0003 to expand its operation by increasing its hay processing, its truck & container trips and the number of its employees to operate the facility 24 hours a day, 7 days a week. The hay press & storage facility is located at 393 E. Worthington Road, Imperial, CA.

The Imperial Irrigation District has reviewed the information and has the following comments:

1. If an increase in the electrical service currently provided by IID to the hay press & storage facility is required for its expansion, the applicant should be advised to contact Ernie Benitez, IID Customer Project Development Planner, at (760) 482-3405 or e-mail Mr. Benitez at eibenitez@iid.com to initiate the customer service application process. In addition to submitting a formal application (available for download at http://www.iid.com/home/showdocument?id=12923), the applicant will be required to submit a complete set of approved plans (including CAD files), project schedule, estimated in-service date, one-line diagram of facility, electrical loads, panel size, voltage, generator specifications, type of disconnect, automatic transfer switch specifications, generator manual, generator operating procedures and the applicable fees, permits, easements and environmental compliance documentation pertaining to the provision of electrical service to the project. The applicant shall be responsible for all costs and mitigation measures related to providing electrical service to the project.

2. Please note that electrical capacity is limited in the area. A circuit study may be required. Any improvements identified in the circuit study shall be the financial responsibility of the applicant.

3. Any construction or operation on IID property or within its existing and proposed right of way or easements including but not limited to: surface improvements such as proposed new streets, driveways, parking lots, landscape; and all water, sewer, storm water, or any other above ground or underground utilities; will require an encroachment permit, or encroachment agreement (depending on the circumstances). A copy of the IID encroachment permit application and instructions are available at http://www.iid.com/departments/real-estate. The IID Real Estate Section should be contacted at (760) 339-9239 for additional information regarding encroachment permits or agreements.

4. Any new, relocated, modified or reconstructed IID facilities required for and by the project (which can include but is not limited to electrical utility substations, electrical transmission and distribution lines, etc.) need to be included as part of the project's CEQA and/or NEPA documentation, environmental impact analysis and mitigation. Failure to do so will result in postponement of any construction and/or modification of IID facilities until such time as the environmental documentation is amended and environmental impacts are fully analyzed. **Any and all mitigation necessary as a result of the construction, relocation and/or upgrade of IID facilities is the responsibility of the project proponent**.

Should you have any questions, please do not hesitate to contact me at 760-482-3609 or at dvargas@iid.com. Thank you for the opportunity to comment on this matter.

Respectfully,

Donald Vargas
Compliance Administrator II

Enrique B. Martinez – General Manager
Mike Pacheco – Manager, Water Dept.
Marilyn Del Bosque Gilbert – Manager, Energy Dept.
Sandra Blain – Deputy Manager, Energy Dept.,
Jesus Martinez – Engineer Principal, Energy Dept., Transmission Planning
Jamie Asbury – Asst. General Counsel
Vance Taylor – Asst. General Counsel
Robert Laurie – Outside Counsel
Michael P. Kemp – Superintendent, Regulatory & Environmental Compliance
Laura Cervantes. – Supervisor, Real Estate
Jessica Humes – Environmental Project Mgr. Sr., Water Dept.

Joe Hernandez

From: Quechan Historic Preservation <historicpreservation@quechantribe.com>
Sent: Thursday, July 2, 2020 12:05 PM
To: Valerie Grijalva
Cc: ICPDSCommentLetters
Subject: RE: Request for Comments CUP#20-0014

CAUTION: This email originated outside our organization; please use caution.

This email is to inform you that we do not wish to comment on this project.

From: Valerie Grijalva [mailto:ValerieGrijalva@co.imperial.ca.us]
Sent: Monday, June 22, 2020 4:36 PM
To: Carlos Ortiz; Sandra Mendivil; Jolene Dessert; Matt Dessert; Monica Soucier; Adam Crook; Esperanza Colio; Jeff Lamoure; Jorge Perez; Mario Salinas; Robert Menvielle; Alfredo Estrada Jr; Robert Malek; Andrew Loper; John Gay; Carlos Yee; fransiscoolmedo@co.imperial.ca.us; Raymond Loera; tgarcia@icso.org; dvargas@iid.com; rzleal@iid.com; smoorhouse@chp.ca.gov; maurice.eaton@dot.ca.gov; beth.landrum@dot.ca.gov; robert.krug@dtsc.ca.gov; historicpreservation@quechantribe.com; tribalsecretary@quechantribe.com; Thomas.tortez@torresmartinez-nsn.gov; joseph.mirelez@torresmartinez-nsn.gov
Cc: Joe Hernandez; Carina Gomez; Gabriela Robb; John Robb; Kimberly Noriega; Maria Scoville; Rosa Soto
Subject: Request for Comments CUP#20-0014

Good Afternoon,

Please see attached Request for Comments for **CUP20-0014** Hay Kingdom Inc, Project. Comments are due by **July 10, 2020 at 5:00 PM.**

In an effort to increase the efficiency at which information is distributed and reduce paper usage, the Request for Comments Packet is being sent to you via this email.

Should you have any questions regarding this project, please feel free to contact Planner Joe Hernandez at (442)265-1736 ext. 1748 or submit your comment letters to icpdscommentletters@co.imperial.ca.us

Thank you,

Valerie Grijalva
Office Assistant II
Planning and Development Services
801 Main Street
El Centro, CA 92243
Office: (442)265-1779
Fax: (442) 265-1735

EEC ORIGINAL PKG

IX. MITIGATION MONITORING & REPORTING PROGRAM (MMRP)

(ATTACH DOCUMENTS, IF ANY, HERE)

S:\AllUsers\APN\044\500\079\CUP20-0014\EEC Pkg\CUP 20-0014 (Initial Study) 06232020.docx

MITIGATION, MONTORING AND REPORTING PROGRAM

DRAFT MITIGATION MEASURES
PURSUANT TO THE ENVIRONMENTAL EVALUATION COMMITTEE
___________, 2020
Hay Kingdom
[CUP #120-0014]

(APN 044-500-079-000)

(CEQA – Mitigated Negative Declaration)

Pursuant to the review and recommendations of the Imperial County Environmental Evaluation Committee (EEC) on ___________, 2020, the following Mitigation Measures are hereby proposed for the project:

AIR QUALITY:

MITIGATION MEASURE #1 (for VIII – a & b):

> **For fugitive emission such as road dust, the project is considered less than significant. However, project level mobile emissions for NOx are slightly above the IC CEQA Air Quality thresholds. The only available mitigation to assure that emissions remain on target with SIP budgets is the application of Policy 5. Policy 5 provides for the mitigation of emissions that exceed established IC CEQA Air Quality thresholds when all mitigation on site has been exhausted. With the application of Policy 5, NOx emissions are less than significant.**

(Monitoring Agency: Planning & Development Services Department and Imperial County Air Pollution Control District)

APPLICATION SUBMITTAL

EEC ORIGINAL PKG

CONDITIONAL USE PERMIT

I.C. PLANNING & DEVELOPMENT SERVICES DEPT.
801 Main Street, El Centro, CA 92243 (760) 482-4236

- APPLICANT MUST COMPLETE ALL NUMBERED (black) SPACES – Please type or print -

1. PROPERTY OWNER'S NAME Hay Kingdom, Inc	EMAIL ADDRESS mike@haykingdom.com	
2. MAILING ADDRESS (Street / P O Box, City, State) 393 E Worthington Road Imperial Ca	ZIP CODE 92251	PHONE NUMBER 1-559-570-4644
3. APPLICANT'S NAME Hay Kingdom, Inc	EMAIL ADDRESS mike@haykingdom.com	
4. MAILING ADDRESS (Street / P O Box, City, State) 393 E Worthington Road Imperial Ca	ZIP CODE 92251	PHONE NUMBER 1-559-570-4644
4. ENGINEER'S NAME WRA Consulting Engineers — CA. LICENSE NO. 68433	EMAIL ADDRESS a.miki@rpeng.net	
5. MAILING ADDRESS (Street / P O Box, City, State) 212 North First Avenue, Ste 104 Sandpoint, ID	ZIP CODE 83864	PHONE NUMBER 208-818-7508

6. ASSESSOR'S PARCEL NO. 044-500-079	SIZE OF PROPERTY (in acres or square foot) 57 acres	ZONING (existing) A2

7. PROPERTY (site) ADDRESS
393 E Worthington Road Imperial Ca 92251

8. GENERAL LOCATION (i.e. city, town, cross street)
1/4 mile east of Hwy 111 on Worthington Road Imperial Ca

9. LEGAL DESCRIPTION see attached

PLEASE PROVIDE CLEAR & CONCISE INFORMATION (ATTACH SEPARATE SHEET IF NEEDED)

10. DESCRIBE PROPOSED USE OF PROPERTY (list and describe in detail) Please see Project Description attached. We are proposing to expand our pressing operations

11. DESCRIBE CURRENT USE OF PROPERTY Hay press and storage

12. DESCRIBE PROPOSED SEWER SYSTEM Septic tank and drainage field

13. DESCRIBE PROPOSED WATER SYSTEM The water is provided by the IID's Magnolia Canal, Gate 18

14. DESCRIBE PROPOSED FIRE PROTECTION SYSTEM We have a fire water pond with a dry hydrants throughout the site

15. IS PROPOSED USE A BUSINESS? ☒ Yes ☐ No — IF YES, HOW MANY EMPLOYEES WILL BE AT THIS SITE? Peak season, 80

I / WE THE LEGAL OWNER (S) OF THE ABOVE PROPERTY CERTIFY THAT THE INFORMATION SHOWN OR STATED HEREIN IS TRUE AND CORRECT.

Michael Lin — 6/14/20
Print Name — Date
[signature]
Signature

Print Name — Date

Signature

REQUIRED SUPPORT DOCUMENTS

A. SITE PLAN
B. FEE 65,500
C. OTHER
D. OTHER

APPLICATION RECEIVED BY:	MM	DATE	6/17/2020	REVIEW / APPROVAL BY OTHER DEPT'S required.
APPLICATION DEEMED COMPLETE BY:		DATE		☐ P. W.
APPLICATION REJECTED BY:		DATE		☐ E. H. S.
TENTATIVE HEARING BY:		DATE		☐ A. P. C. D.
FINAL ACTION: ☐ APPROVED ☐ DENIED		DATE		☐

CUP # 20-0014

EEC ORIGINAL PKG

ATTACHMENT 1

Project Description with Figures

EEC ORIGINAL PKG

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Introduction

Hay Kingdom, Inc., is requesting a new Conditional Use Permit (CUP) that would amend existing CUP #04-0003 that was approved on June 4, 2004. The Hay Kingdom facility is a hay storage and compressing operation located on a single parcel (Assessor's Parcel Number [APN] 044-500-079-000) at 393 East Worthington Road, Imperial, CA in unincorporated Imperial County (**Figure 1**). The parcel is irregular in shape and is bordered on the west by the Rose Canal and State Route (SR) 111. The northern boundary is bordered by a tail drain ditch, the McCall Drain #5 and East Worthington Road and the eastern boundary is bordered by the Rose Lateral 2.

The facility has been operating under consecutive 3-year time extensions to the original CUP. The last three-year extension expired on June 4, 2019. However, Hay Kingdom requested and was granted a one-year time extension based on meeting all the conditions in its compliance report. Hay Kingdom was granted a new CUP to expand its operations in June 2019 based on fulfillment of a requirement to study a deceleration lane, construct the lane if needed, and dedicate the ultimate right-of-way to the County within a year.

Figure 1
Project Location Map

Existing Facilities

Hay Kingdom is owned and managed by Michael and James Lin. The facility is located on approximately 57 acres. The hay press barn (with 3 presses) occupies approximately ±30,280 square feet (less than one acre) while the rest of the site is devoted primarily to hay barns and stacking areas. The site also has a truck scale, septic tank and leach lines, truck dock/shop building, parking areas, 1.5-acre stormwater basin, overhead utilities and a 0.95-acre fire water reservoir (**Figure 2**). A 1,000-gallon aboveground diesel tank is located approximately 60-feet from the hay press and is used for fueling trucks.

Table 1 summarizes existing operations currently taking place at Hay Kingdom.

TABLE 1
EXISTING OPERATIONS

Hay Pressed (tons/day)	530 tons per day
Presses	3
Raw Hay Stored On-Site and at Stack yard	70,000 tons
Annual Raw Hay Processed	120,000 tons
Double trailer Truck Round Trips to site	15
Container Truck Trips out	15
Employee, client, vendor, passenger car round-trips	68
Working hours	6 days*
Employees	38
Dust Collector	12,000 cubic feet per minute

Source: WRA 2020.
*The hours of operation are two shifts and the working hours depend on the overtime needed to meet the production. The regular schedule as follows: Morning shift starts at 6 a.m. and ends at 4:30 p.m. The night shift starts at 6 p.m. and ends at 4:30 a.m.

Existing and Proposed Utilities

Water

Hay Kingdom receives its water from the Imperial Irrigation District (IID) Rose Canal via an existing delivery gate. Water from the Rose Canal is stored in a reservoir located along the western boundary of the site. Water from the point of entry (POE) system is used for the employees bathrooms and kitchen. A 5-gallon per minute potable water treatment plant is currently being planned for Hay Kingdom. A new monitored potable water treatment system is needed because the facility has exceeded the State's threshold of 25 employees (i.e. the facility currently has approximately 38 employees) more than 6 months of the year. The water cisterns, sand filters and pumps comprising the existing POE are located on the north end of the facility.

Fire Prevention

Fire prevention on-site is available through nine dry fire hydrants located throughout the facility. Water to feed the hydrants is held in the reservoir on the west side of the site.

Wastewater

Sanitary wastewater for employees is treated with on-site septic system including several 50-foot long leach lines, reserve area and an existing septic tank located on the northern portion of the facility, to the east of the existing office shop. A new 20-foot x 24-foot restroom facility, septic field and reserve field is proposed west of the existing truck parking and container area.

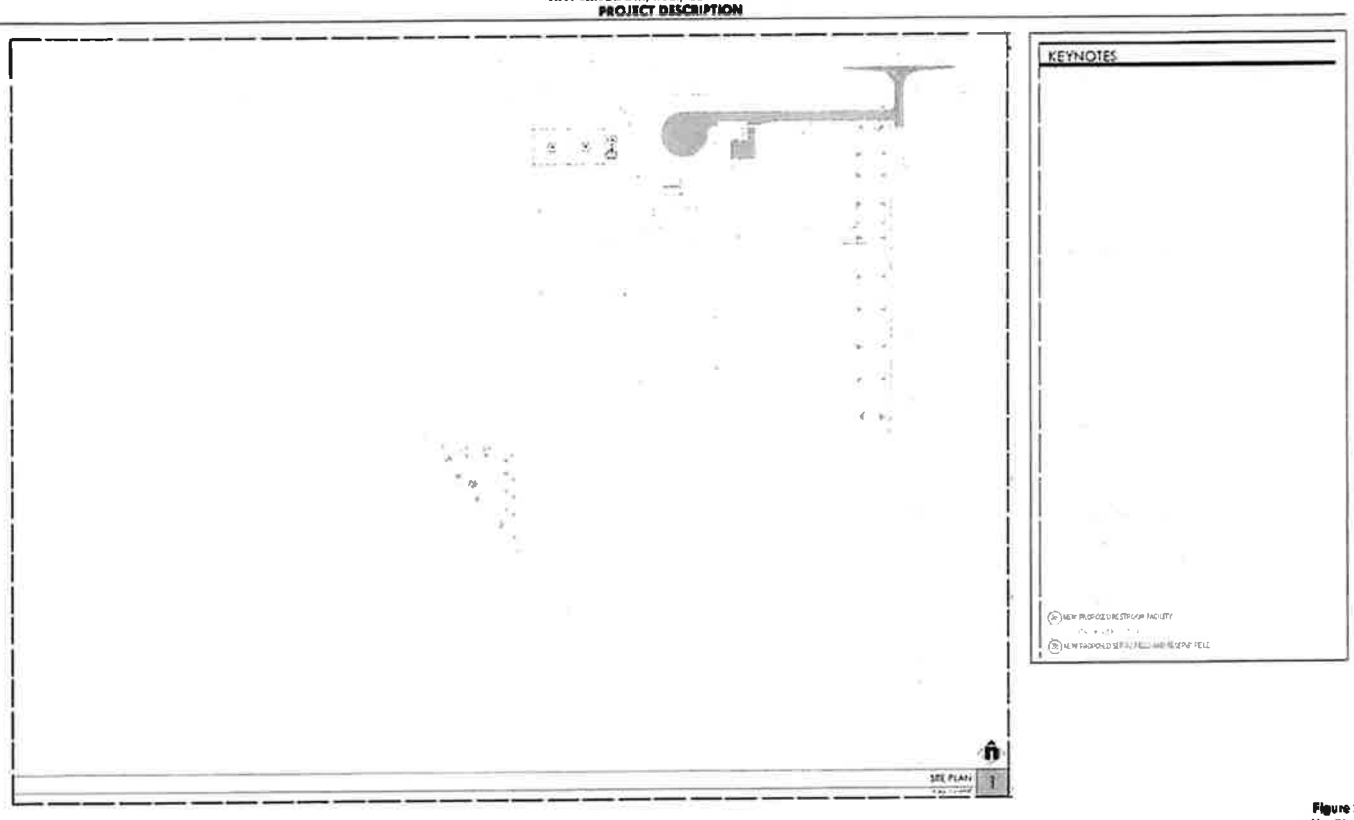

Figure 2
Project Site Plan

EEC ORIGINAL PKG

Electricity

Utilities at the facility include 480-volt electrical service from IID. A transformer is located on the west side of the hay compress building. An overhead power line extends south into the site from the north side of Worthington Road connecting to an existing service pole on the north side of truck parking and container area fed off of an IID distribution overhead line that extends east-west along Worthington Road.

Telephone

The facility has two landlines for phone service.

Production

Hay Kingdom is permitted to press 530 tons of hay per day under its existing CUP. The facility currently operates six days per week, with two shifts: 6:00 a.m. to 4:30 p.m. and 6:00 p.m. to 4:30 a.m. As part of the new CUP, Hay Kingdom is proposing to increase its hay production to 1,100 tons per day (just over a two-fold increase). The amount of raw hay stored on-site and in the stackyard is proposed to remain at existing levels of 70,000 tons per day. The amount of annual raw hay processed is proposed to more than double from the existing 120,000 tons per annum to 250,000 tons per annum. Production would increase to 24-hours per day, 7 days a week, when necessary due to equipment maintenance issues.

Employees

Hay Kingdom currently employs 38 workers. Under the proposed expansion, the facility would increase the number of workers to 79.

Trucking

Trucks bring raw product to the facility from the northern and southern Imperial Valley, Yuma Arizona, and Utah. Finish product is hauled by trucks approximately 20 miles north along SR 111 to the All American Grain Rail Spur at 305 Yocum Road, Calipatria. Alternatively, hay is trucked to the Port of Long Beach via State Route 111 to State Route 86 (**Figure 3**). Trucks enter and exit the site from the main project driveway in the northeast corner of the site along East Worthington Road. An emergency secondary access is located further to the south along the western boundary of the site.

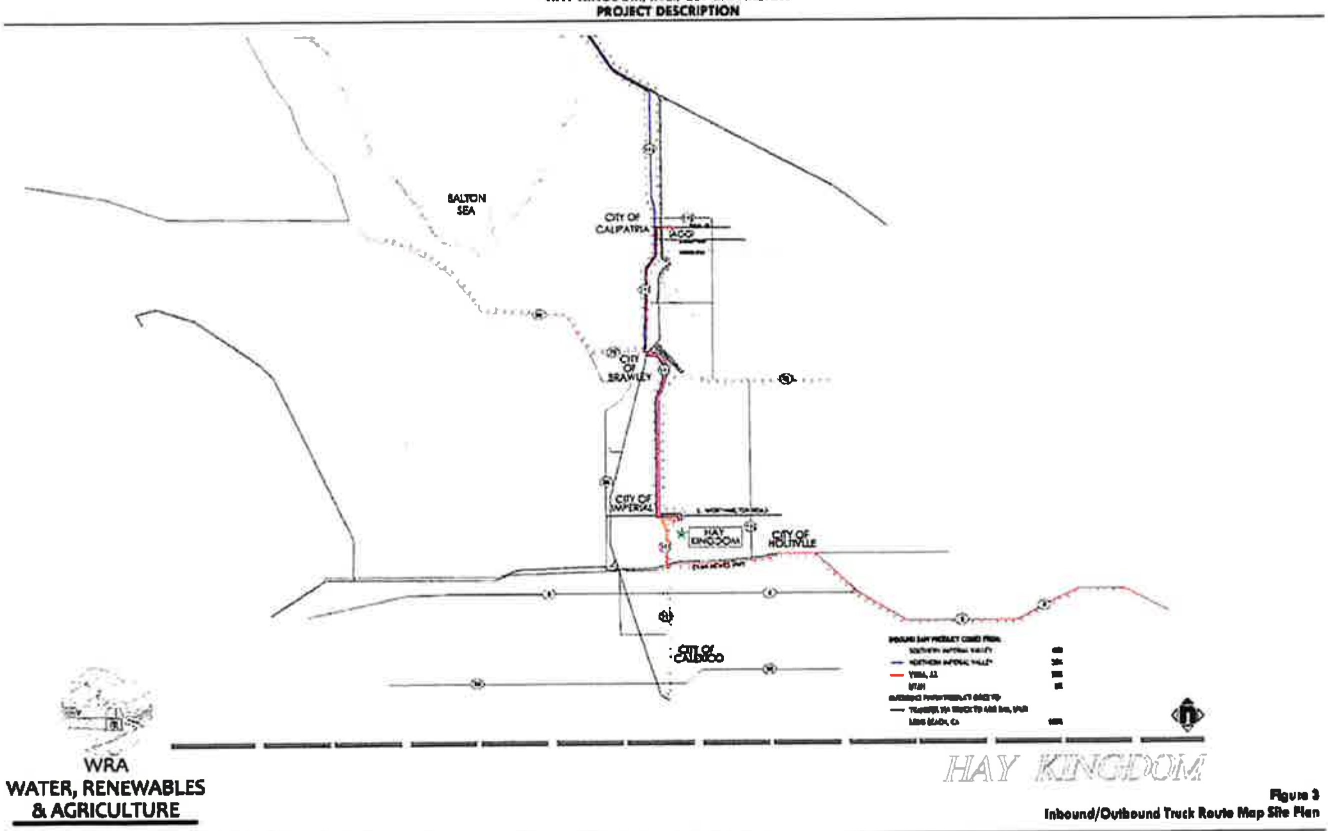

Figure 3
Inbound/Outbound Truck Route Map Site Plan

Overall Increase in Operations

Table 2 summarizes and compares existing and proposed operations that would occur under the new CUP. The change (increase) in each area is shown in the far-right column.

TABLE 2
EXISTING OPERATIONS

	Existing	Proposed	Change
Hay Pressed (tons/day)	530 tons per day	1,100 tons per day	+570 tons per day
Presses	3 presses	4 presses	+ 1 presses
Raw Hay Stored On-Site and at Stack Yard	70,000 tons	70,000 tons	No Change
Annual Raw Hay Processed	120,000 tons	250,000 tons	+130,000 tons
Double Trailer Truck Round Trips to site	15	100 peak/24 low	+85 peak/+9 low
Container Truck Trips out	15	60	+45 trips
Employee, client, vendor, passenger car round trips	86	200	+114 trips
Working hours	6 a.m. - 4:30 p.m. & 6 p.m. to 4:30 a.m./ 6 days a week	24 hours/ 7 days a week	1 additional day/ +24-hours per week
Employees	38 employees	80 employees	+42 employees
Dust Collector	12,000 cubic feet per minute		No change

Source: WRA 2020.

Permits

Hay Kingdom currently has an Authority to Construct/Permit to Operate (ATC/PTO) from the Imperial County Air Pollution Control District. A new ATC/PTO would be issued for the new CUP. A Building Permit would also be issued from the Imperial County Planning & Development Services Department and a Septic Permit would be issued from Imperial County Environmental Health Services.

ATTACHMENT 2

Air Quality/Greenhouse Gas Impact Assessment

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Air Quality/GHG Impact Assessment

Hay Kingdom Project

Imperial County

Prepared for:

Ericsson-Grant, Inc.

418 Parkwood Lane, Suite 200
Encinitas, CA 92024

Prepared by:

OB-1
AIR ANALYSES

June 2020

EEC ORIGINAL PKG

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Acronyms and Abbreviations

μg/m³	micrograms per cubic meter
AAG	All American Grain
AAQS	ambient air quality standard
AB	Assembly Bill
ADAM	CARB's Aerometric Data Analysis and Management System
APS	auxiliary power systems
AQMP	Imperial County Air Quality Management Plan
AQIA	Air Quality Impact Assessment
AR4	IPCC's 4th assessment report
BACT	Best Available Control Technology
Basin	Salton Sea Air Basin
BAU	business as usual
CAA	Federal Clean Air Act Amendments
CAAQS	California Ambient Air Quality Standards
CalEEMod™	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CAQAR	Comprehensive Air Quality Analysis Report
CARB	California Air Resources Board
CAT	Climate Action Team
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFC	chlorofluorocarbon
CH_4	methane
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CTI	California Toxic Inventory
CUP	Conditional Use Permit
DPM	diesel particulate matter
EIR	Environmental Impact Report
EMFAC	CARB's emission factors model for on-road mobile sources

Acronyms and Abbreviations

EPA	United States Environmental Protection Agency
ESRL	Earth System Research Laboratory
FCAA	Federal Clean Air Act
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutant
HDD	heavy-duty diesel
HFC	hydrofluorocarbon
HRA	Health Risk Assessment
ICAPCD	Imperial County Air Pollution Control District
IPCC	International Panel on Climate Change
ITS	Intelligent Transportation Systems
M	million
MEI	Maximum Exposed Individual
MSAT	Mobile Source Air Toxics
$MtCO_2e$	million tonnes of carbon dioxide equivalents
NAAQS	National Ambient Air Quality Standards
NO	nitric oxide
N_2O	nitrous oxide
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NO_X	nitrogen oxides
OFFROAD	CARB's emission factors model for off-road mobile sources
PFC	perfluorocarbon
PM	particulate matter
PM_{10}	respirable particulate matter of 10 micrometers or less in size
$PM_{2.5}$	fine particulate matter of 2.5 micrometers or less in size
ppb	parts per billion
ppm	parts per million
RFP	reasonable further progress
ROG	reactive organic gases
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SO_2	sulfur dioxide
SR	State Route

Acronyms and Abbreviations

SSAB	Salton Sea Air Basin
t	abbreviation for tonne (or metric ton)
TAC	toxic air contaminants
tCO_2e	tonne of carbon dioxide equivalents
TIA	Traffic Impact Analysis
TRU	Transportation Refrigeration Unit
UNFCCC	United Nations Framework Convention on Climate Change
VMT	Vehicle miles travelled
VOC	volatile organic compounds
WRI	World Resources Institute

Section 1.0 – INTRODUCTION

1.1. Report Purpose

The purpose of this Air Quality Impact Assessment (AQIA) is to estimate air quality impacts from the request of a new Conditional Use Permit (CUP) that would amend an existing CUP (#04-003) for The Hay Kingdom facility, a hay storage and compressing facility located about 3.8 miles east of the City of Imperial in Imperial County, California (see Figure 1). This AQIA was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000 *et seq.*). The methodology follows the CEQA Air Quality Handbook[1] prepared by the Imperial County Air Pollution Control District (ICAPCD) for quantification of emissions and evaluation of potential impacts to air resources.

Figure 1 - Project Vicinity

1.2. Project Location

Hay Kingdom (or Project) as proposed is a request for a new CUP for its hay storage and compressing facility located at 393 East Worthington Road, Imperial in unincorporated Imperial County (APN# 044-500-079). The Project is bordered on the north by a tail drain ditch, the McCall Drain #5, and East Worthington Road; bordered on the west by Rose Canal and State Route (SR) 111; and on the east it is bordered by the Rose Lateral 2 (see Figure 2).

[1] *CEQA Air Quality Handbook: Guidelines for the Implementation of the California Air Quality Act of 1970 as amended.* Imperial County Air Pollution Control District. Final, December 12, 2017.

Figure 2 - Project Location

1.3. Project Purpose

The facility has been operating under consecutive 3-year time extensions to the original CUP. The last three-year extension expired on June 4, 2019. However, Hay Kingdom requested and was granted a one-year time extension based on meeting all the conditions in its compliance report. The Project is the amendment of existing CUP #04-0003 to expand operations.

1.4. Existing Operations

The existing hay press occupies approximately ±30,280 square feet (0.695 acres) of the 57-acre parcel. The remainder of the parcel is devoted primarily to hay barns and stacking areas. The site also has a truck scale, septic tank and leach lines, truck dock/shop building, parking areas, 1.5-acre stormwater basin, overhead utilities and a 0.95-acre fire water reservoir.

1.5. Proposed Amendments

Under the existing CUP, the Hay Kingdom is permitted to press 530 tons of hay per day, which is accomplished by operating 6 days per week, with two shifts. As part of the new CUP, Hay Kingdom is proposing to increase its hay production to 1,100 tons per day, accomplished by operating 7 days per week, 24 hours per day. Whereas the amount of raw hay stored on-site and in the stackyard is proposed to remain at existing levels of 70,000 tons per day, the amount of annual raw hay processed is proposed to more than double from the existing 120,000 tons per annum to 250,000 tons per annum. One new hay press is proposed.

Hay Kingdom also currently employs 38 workers, and, under the proposed expansion, the facility would increase the number of workers to 80.

Currently, trucks bring raw product to the facility from the northern and southern Imperial Valley; Wilcox, Arizona; and Beaverton, Utah. Finish product is hauled by trucks approximately 20 miles north along SR 111 to the All American Grain (AAG) rail spur at 305 Yocum Road, Calipatria. No changes are proposed for source and destination locations.

The Hay Kingdom facility is currently entitled for 15 inbound and 15 outbound truck trips per day. Hay Kingdom is proposing increasing inbound trucks to 100 per day during peak season and 24 per day during off season. Hay Kingdom also proposes an increase to 60 outbound trips per day during the peak season.

Section 2.0 – EXISTING CONDITIONS

2.1. Climate/Meteorology

Meteorology is the study of weather and climate. Weather refers to the state of the atmosphere at a given time and place regarding temperature, air pressure, humidity, cloudiness, and precipitation. The term "weather" refers to conditions over short periods; conditions over long periods, generally at least 30 to 50 years, are referred to as climate. Climate, in a narrow sense, is usually defined as the "average weather," or more rigorously as the statistical description in terms of the mean and variability of relevant quantities over a period ranging from months to thousands or millions of years. These quantities are most often surface variables such as temperature, precipitation, and wind.

Climatic conditions in Imperial County are governed by the large-scale sinking and warming of air in the semi-permanent tropical high-pressure center of the Pacific Ocean. The high-pressure ridge blocks out most mid-latitude storms except in winter when the high is weakest and farthest south. The coastal mountains prevent the intrusion of any cool, damp air found in California coastal environs. Because of the weakened storms and barrier, Imperial County experiences clear skies, extremely hot summers, mild winters, and little rainfall. The flat terrain of the valley and the strong temperature differentials created by intense solar heating, produce moderate winds and deep thermal convection.

The combination of subsiding air, protective mountains, and distance from the ocean all combine to limit precipitation severely. Rainfall is highly variable with precipitation from a single heavy storm sometimes exceeding the entire annual total during a later drought condition.

Imperial County enjoys a year-round climate characterized by a temperate fall, winter, and spring and a harsh summer. Humidity often combines with the valley's normal high temperatures to produce a moist, tropical atmosphere that frequently seems hotter than the thermometer suggests. The sun shines, on the average, more in the Imperial County that anywhere else in the United States.

2.1.1 Temperature and Precipitation

The nearest National Weather Service Cooperative Observer Program weather station to the Project is the station in El Centro, located approximately 13 miles south-southwest of the Project. At the El Centro[2] station, average recorded rainfall during the Period of Record (1932 to 2016) measured 2.64 inches, with 71 percent of precipitation occurring between October and March and 45 percent in just December, January, and February. Monthly average maximum temperatures at this station vary annually by 38.1 degrees Fahrenheit (°F); 108.0 °F at the hottest to 69.9 °F at the coldest and monthly average minimum temperatures vary by 36.2 °F annually, i.e. from 40.1 °F to 76.3 °F. In fact, this station shows that the months of June, July, August, and September have monthly maximum temperatures greater than 100 °F

2.1.2 Humidity

Humidity in Imperial County is typically low throughout the year, ranging from 28 percent in summer to 52 percent in winter. The large daily oscillation of temperature produces a corresponding large variation in the relative humidity. Nocturnal humidity rises to 50-60 percent but drop to about 10 percent during the day.

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2 Western U.S. Climate Historical Summaries. Western Regional Climate Center. http://www.wrcc.dri.edu/Climsum.html. Accessed May 2020.

Summer weather patterns are dominated by intense heat induced low-pressure areas that form over the interior desert.

2.1.3 Wind

The wind direction follows two general patterns. The first pattern occurs seasonally from fall through spring, where prevailing winds are from the west and northwest. Most of these winds originate in the Los Angeles Basins. The Imperial County area occasionally experiences periods of high winds. Wind speeds exceeding 31 mph occur most frequently in April and May. On an annual basis, strong winds, those exceeding 31 mph, are observed 0.6% of the time, where speeds of less than 6.8 mph account for more than one-half of the observed winds. Wind statistics indicate prevailing winds are from the west-northwest through southwest; however, a secondary flow pattern from the southeast is also evident.

2.1.4 Inversions

Air pollutant concentrations are primarily determined by the amount of pollutant emissions in an area and the degree to which these pollutants are dispersed in the atmosphere. The stability of the atmosphere is one of the key factors affecting pollutant dispersion. Atmospheric stability regulates the amount of vertical and horizontal air exchange, or mixing, that can occur within a given air basin. Horizontal mixing is a result of winds, as discussed above, but vertical mixing also affects the degree of stability in the atmosphere. An interruption of vertical mixing is called inversions.

In the atmosphere, air temperatures normally decrease as altitude increases. At varying distances above the earth's surface, however, a reversal of this gradient can occur. This condition, termed an inversion, is simply a warm layer of air above a layer of cooler air, and it has the effect of limiting the vertical dispersion of pollutants. The height of the inversion determines the size of the vertical mixing volume trapped below. Inversion strength or intensity is measured by the thickness of the layer and the difference in temperature between the base and the top of the inversion. The strength of the inversion determines how easily it can be broken by winds or solar heating.

Imperial County experiences surface inversions almost every day of the year. Due to strong surface heating, these inversions are usually broken allowing pollutants to disperse more easily. Weak, surface inversions are caused by radiational cooling of air in contact with the cold surface of the earth at night. In valleys and low-lying areas, this condition is intensified by the addition of cold air flowing down slope from the hills and pooling on the valley floor.

The presence of the Pacific high-pressure cell can cause the air to warm to a temperature higher than the air below. This highly stable atmospheric condition, termed a subsidence inversion can act as a nearly impenetrable lid to the vertical mixing of pollutants. The strength of these inversions makes them difficult to disrupt. Consequently, they can persist for one or more days, causing air stagnation and the buildup of pollutants. Highest or worst-case ozone levels are often associated with the presence of this type of inversion.

2.2. Local Air Quality Conditions

2.2.1 Criteria Air Pollutants

As required by the Federal Clean Air Act (FCAA), the U. S. Environmental Protection Agency (EPA) has identified criteria pollutants and established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide, suspended particulate matter (PM), and lead. Suspended PM has standards for both PM with an aerodynamic diameter of 10 microns or less (respirable PM, or PM_{10}) and PM with an aerodynamic diameter of 2.5 microns or less (fine PM, or $PM_{2.5}$). The California Air Resources Board (CARB) has established separate standards for the State, i.e. the California Ambient Air Quality Standards (CAAQS). CARB established CAAQS for all the federal pollutants and sulfates, hydrogen sulfide, and visibility-reducing particles.

For some of the pollutants, the identified air quality standards are expressed in more than one averaging time in order to address the typical exposures found in the environment. For example, CO is expressed as a one-hour averaging time and an eight-hour averaging time. Regulations have set NAAQS and CAAQS limits in parts per million (ppm) or micrograms per cubic meter (µg/m³). **Table 1** summarizes the State and federal ambient air quality standards for all criteria pollutants.

Table 1 – National and State Ambient Air Quality Standards[3]

Air Pollutant	Averaging Time	California Standard	National Standard
Ozone (O_3)	1-hour 8-hour	0.09 ppm 0.070 ppm	— 0.070 ppm
Respirable particulate matter (PM_{10})	24-hour Mean	50 µg/m³ 20 µg/m³	150 µg/m³ —
Fine particulate matter ($PM_{2.5}$)	24-hour Mean	— 12 µg/m³	35 µg/m³ 12.0 µg/m³
Carbon monoxide (CO)	1-hour 8-hour	20 ppm 9.0 ppm	35 ppm 9 ppm
Nitrogen dioxide (NO_2)	1-hour Mean	0.18 ppm 0.030 ppm	100 ppb 0.053 ppm
Sulfur dioxide (SO_2)	1-hour 24-hour	0.25 ppm 0.04 ppm	75 ppb —
Lead	30-day Rolling 3-month	1.5 µg/m³ —	— 0.15 µg/m³
Sulfates	24-hour	25 µg/m³	**No Federal Standard**
Hydrogen sulfide	1-hour	0.03 ppm	
Vinyl chloride	24-hour	0.01 ppm	
Visibility-reducing particles	8-hour	Extinction coefficient of 0.23 per kilometer, visibility of ten miles or more due to particles when relative humidity is less than 70%.	

Abbreviations:
ppm = parts per million *ppb = parts per billion* *30-day = 30-day average*
µg/m³ = micrograms per cubic meter *Mean = Annual Arithmetic Mean*

3 Ambient Air Quality Standards. California Air Quality Board. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed November 2019.

2.2.1.1 Pollutants of Concern

Ozone

Ozone is not emitted directly to the atmosphere but is formed by photochemical reactions between reactive organic gases (ROG), or volatile organic compounds[4] (VOC), and oxides of nitrogen (NO_X) in the presence of sunlight. The long, hot, humid days of summer are particularly contributing to ozone formation; thus, ozone levels are of concern primarily during the months of May through September.

- Reactive organic gases (ROG) are defined as any compound of carbon, excluding CO, carbon dioxide (CO_2), carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participate in atmospheric photochemical reactions. It should be noted that there are no State or national ambient air quality standard for ROG because ROGs are not classified as criteria pollutants. They are regulated, however, because a reduction in ROG emissions reduces certain chemical reactions that contribute to the formulation of ozone. ROGs are also transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} and lower visibility.
- Nitrogen oxides (NO_X) serve as integral participants in the process of photochemical smog production. The two major forms of NO_X are nitric oxide (NO) and NO_2. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown irritating gas formed by the combination of NO and oxygen. NO_X is an ozone precursor. A precursor is a directly emitted air contaminant that, when released into the atmosphere, forms, causes to be formed, or contributes to the formation of a secondary air contaminant for which an Ambient Air Quality Standard (AAQS) has been adopted, or whose presence in the atmosphere will contribute to the violation of one or more AAQSs. When NO_X and ROG are released in the atmosphere, they can chemically react with one another in the presence of sunlight to form ozone.

Ozone is a strong chemical oxidant that adversely impacts human health through effects on respiratory function. Ozone can also damage forests and crops. Ozone is not emitted directly by industrial sources or motor vehicles but instead, is formed in atmosphere. Tropospheric[5] ozone is formed by a complex series of chemical reactions involving NO_X, the result of combustion processes and evaporative ROGs such as industrial solvents, toluene, xylene, and hexane as well as the various hydrocarbons that are evaporated from the gasoline used by motor vehicles or emitted through the tailpipe following combustion. Additionally, ROGs are emitted by natural sources such as trees and crops. Ozone formation is promoted by strong sunlight, warm temperatures, and winds. High concentrations tend to be a problem in the Imperial County only during the hot summer months when these conditions frequently occur.

Particulate matter (PM)

PM is a general term used to describe a complex group of airborne solid, liquid, or semi-volatile materials of various size and composition. Primary PM is emitted directly into the atmosphere from both human activities (including agricultural operations, industrial processes, construction and demolition activities, and entrainment of road dust into the air) and non-anthropogenic activities (such as windblown dust and ash resulting from

[4] Emissions of organic gases are typically reported only as aggregate organics, either as VOC or as ROG. These terms are meant to reflect what specific compounds have been included or excluded from the aggregate estimate. Although EPA defines VOC to exclude both methane and ethane, and CARB defines ROG to exclude only methane, in practice it is assumed that VOC and ROG are essentially synonymous.

[5] The troposphere is the atmospheric layer closest to the Earth's surface. Ozone produced here is an air pollutant that is harmful to breathe, and it damages crops, trees and other vegetation.

forest fires). Secondary PM is formed in the atmosphere from predominantly gaseous combustion by-product precursors, such as sulfur oxides and NO_X, and ROGs. The overwhelming majority of airborne PM in Imperial County is primary PM. The major source of primary PM is fugitive windblown dust, with other contributions from entrained road dust, farming, and construction activities.

Particle size is a critical characteristic of PM that primarily determines the location of PM deposition along the respiratory system (and associated health effects) as well as the degradation of visibility through light scattering. In the United States, federal and state agencies have established two types of PM air quality standards as shown in **Table 1**. PM_{10} corresponds to the fraction of PM no greater than 10 microns in aerodynamic diameter and is commonly called respirable particulate matter, while $PM_{2.5}$ refers to the subset of PM_{10} of aerodynamic diameter smaller than 2.5 microns, which is commonly called fine particulate matter.

PM air pollution has undesirable and detrimental environmental effects. PM affects vegetation, both directly (e.g. deposition of nitrates and sulfates may cause direct foliar damage) and indirectly (e.g. coating of plants upon gravitational settling reduces light absorption). PM also accumulates to form regional haze, which reduces visibility due to scattering of light.

PM_{10} is respirable, with fine and ultrafine particles[6] reaching the alveoli deep in the lungs, and larger particles depositing principally in the nose and throat area. PM_{10} deposition in the lungs results in irritation that triggers a range of inflammation responses, such as mucus secretion and bronchoconstriction, and exacerbates pulmonary dysfunctions, such as asthma, emphysema, and chronic bronchitis. Sufficiently small particles ($PM_{2.5}$ and ultrafines) may penetrate the bloodstream and impact functions such as blood coagulation, cardiac autonomic control, and mobilization of inflammatory cells from the bone marrow. Individuals susceptible to higher health risks from exposure to PM_{10} airborne pollution include children, the elderly, smokers, and people of all ages with low pulmonary/cardiovascular function. For these individuals, adverse health effects of PM_{10} pollution include coughing, wheezing, shortness of breath, phlegm, bronchitis, and aggravation of lung or heart disease, leading for example to increased risks of hospitalization and mortality from asthma attacks and heart attacks.

2.2.1.2 Other Criteria Pollutants

The standards for other criteria pollutants are either being met or are unclassified in the Salton Sea Air Basin (Basin or SSAB), and the latest pollutant trends suggest that these standards will not be exceeded in the foreseeable future.

2.2.2 Pollutant Transport

As stated above, ozone is a "secondary" pollutant, formed in the atmosphere by reactions between NO_X and ROG. These reactions are driven by sunlight and proceed at varying rates. Transport is the movement of ozone or the pollutants that form ozone from one area (known as the upwind area) to another area (known as the downwind area). Pollutant transport is a very complex phenomenon. Sometimes transport is a straightforward matter of wind blowing from one area to another at ground level, carrying ozone with it, but usually it is not that simple. Transport is three-dimensional; it can take place at the surface, or high above the ground. Meteorologists use the terms "surface" and "aloft" to distinguish these two cases. Often, winds can blow in different directions at different heights above the ground. To complicate matters further, winds can shift during the day, pushing a polluted air mass first one way, then another. Finally, because ozone and ozone forming

6 Ultrafine particles are nanoscale, less than 100 nanometers. Regulations do not currently exist for this size class of ambient air pollution particles, which are far smaller than the regulated PM_{10} and $PM_{2.5}$ particle classes and are believed to have several more aggressive health implications than those classes of larger particulates.

emissions from an upwind area can mix with locally generated ozone and locally generated emissions, it is often difficult to determine the origin of the emission causing high pollution levels. Political boundaries do not prevent transport of pollutants. Transport over distances of several hundred miles has often been documented in California.

The accurate determination of the impacts of transport requires detailed technical analyses in conjunction with modeling studies. The Imperial County 2017 State Implementation Plan for Ozone[7] (2017 Plan) identifies how the transport of emissions and pollutants from Mexico and the coastal areas of Southern California influences ozone violations within Imperial County. Although the Imperial County is currently in attainment of the 1997 8-hour ozone NAAQS, it is important to note that any future analysis of air emissions impacting Imperial County must take into consideration the influence of transport from three distinct sources, that of the South Coast Air Basin via the Coachella Valley to the north, the San Diego Air Basin to the west and the international city of Mexicali, Mexico to the south.

2.2.3 Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. California defines a TAC as an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. Assembly Bill (AB) 1807[8] sets forth a procedure for the identification and control of TAC in the State. There are almost 200 compounds that have been designated as TACs in California. The ten TACs posing the greatest known health risk in California, based primarily on ambient air quality data, are acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, formaldehyde, methylene chloride, para-dichlorobenzene, perchloroethylene, and diesel particulate matter (DPM).

Since no safe levels of TACs can be determined, there are no ambient standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure.

Since 2004, CARB has maintained the California Toxic Inventory (CTI), which provides emissions estimates by stationary point and aggregated point; areawide; on-road gasoline and on road diesel; off-road mobile gasoline; off-road mobile diesel; and off-road mobile other; and natural sources. Stationary sources include point sources provided by facility operators and/or districts pursuant to the Air Toxics "Hot Spots" Program (AB 2588), and aggregated point sources estimated by CARB and/or districts. Areawide sources are those that do not have specific locations and are spread out over large areas such as consumer products and unpaved roads. Mobile sources consist of on road vehicles such as passenger cars and trucks, motorcycles, busses, and heavy-duty trucks. Off-road sources include trains, ships, and boats. Natural sources like wildfires are also included.

The top three contributors of the potential cancer risk come primarily from motor vehicles - DPM, 1,3 butadiene, and benzene. Cleaner motor vehicles and fuels are reducing the risks from these priority toxic air pollutants. The remaining toxic air pollutants, such as hexavalent chromium and perchloroethylene, while not appearing to contribute as much to the overall risks, can present high risks to people living close to a source. CARB has control measures that are either already on the books, in development, or under evaluation for most

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7 *Imperial County 2017 State Implementation Plan for the 2008 8-hour Ozone Standard.* Imperial County Air Pollution Control District. September 12, 2017.

8 Enacted in September 1983. Health and Safety Code section 39650 et seq., Food and Agriculture Code Section 14021 et seq.

of the remaining top ten, where actions are suitable through our motor vehicle, consumer products, or industrial source programs. Of these top ten, carbon tetrachloride is unique in that most of the health risk from this toxic air pollutant is not attributable to specific sources, but rather to background concentrations. Emissions from the top ten TACs in Imperial County in 2010 are presented in **Table 2.**

Table 2 – 2010 TAC Emissions[9] in Imperial County (tons per year)

Toxic Air Contaminant	SP	AP	A	OD	OG	OMG	OMD	OMO	N	Total
Diesel particulate matter (DPM)	7.608	3.906	0.000	136.542			17.299			165.356
1,3-Butadiene	0.000	0.022	7.835	0.322	6.523	5.025	0.760	1.423	0.137	22.048
Benzene	52.548	2.779	0.134	3.393	31.156	21.806	8.002	1.502		121.319
Acetaldehyde	0.183	0.861	1.203	12.468	4.678	5.933	29.406	3.570	856.92	915.219
Hexavalent Chromium	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.004
para-Dichlorobenzene	0.000		5.883							5.883
Formaldehyde	0.795	5.512	1.559	24.952	17.192	18.162	58.851	10.277		137.302
Methylene Chloride	0.096	1.786	7.905							9.787
Perchloroethylene	0.000	11.522	6.697							18.220
Carbon Tetrachloride									>0.001	>0.001

Note: *SP = stationary point* *OD = on-road diesel* *OMD = off-road mobile gasoline*
AP = aggregated point *OG = on-road gasoline* *OMO = off-road mobile other*
A = areawide *OMO = off-road mobile diesel* *N = natural*

<u>Diesel Particulate matter (DPM)</u>

According to The California Almanac of Emissions and Air Quality 2013 Edition, most of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is DPM, which is typically considered a subset of $PM_{2.5}$ because the size of diesel particles are typically 2.5 microns and smaller. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources. For more detail on DPM and toxics, see Appendix B.

2.2.4 Sensitive Receptors

Some members of the population are especially sensitive to air pollutant emissions and should be given special consideration when evaluating air quality impacts from projects. These people include children, the elderly, and persons with preexisting respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather are defined as sensitive receptors by ICAPCD.

9 *California Toxics Inventory – Draft 2010 CTI Summary Table.* California Air Resources Board. (November 2013. http://www.arb.ca.gov/toxics/cti/cti.htm. Accessed June 2016.

Residential areas are considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods, resulting in sustained exposure to any pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as most of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

A single residential farmhouse is adjacent to the Project site to the east and two residential farmhouses are just across East Worthington form the northeast corner of the property. The Imperial Valley College (308 East Aten Road, Imperial) is approximately 2.3 miles south.

2.3. Greenhouse Gases

Constituent gases that trap heat in the Earth's atmosphere are called greenhouse gases (GHGs), analogous to the way a greenhouse retains heat. GHGs play a critical role in the Earth's radiation budget by trapping infrared radiation emitted from the Earth's surface, which would otherwise have escaped into space. Prominent GHGs contributing to this process include CO_2, methane (CH_4), nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). Without the natural heat-trapping effect of GHG, the earth's surface would be about 34 °F cooler[10]. This is a natural phenomenon, known as the "Greenhouse Effect," is responsible for maintaining a habitable climate. However, anthropogenic emissions of these GHGs in excess of natural ambient concentrations are responsible for the enhancement of the "Greenhouse Effect", and have led to a trend of unnatural warming of the Earth's natural climate known as global warming or climate change, or more accurately Global Climate Disruption. Emissions of these gases that induce global climate disruption are attributable to human activities associated with industrial/manufacturing, utilities, transportation, residential, and agricultural sectors.

The global warming potential (GWP) is the potential of a gas or aerosol to trap heat in the atmosphere. Individual GHG compounds have varying GWP and atmospheric lifetimes. The reference gas for the GWP is CO_2; CO_2 has a GWP of one. The calculation of the CO_2 equivalent (CO_2e) is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent metric. CH_4's warming potential of 25 indicates that CH_4 has a 25 times greater warming affect than CO_2 on a molecular basis. The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period. The time period usually used for GWPs is 100 years. GWPs for the three GHGs produced by the Project are presented in **Table 3**. A CO_2e is the mass emissions of an individual GHG multiplied by its GWP. GHGs are often presented in units called tonnes (t) (i.e. metric tons) of CO_2e (tCO_2e).

Carbon Dioxide (CO_2) is a colorless, odorless gas consisting of molecules made up of two oxygen atoms and one carbon atom. CO_2 is produced when an organic carbon compound (such as wood) or fossilized organic matter, (such as coal, oil, or natural gas) is burned in the presence of oxygen. CO_2 is removed from the atmosphere by CO_2 "sinks", such as absorption by seawater and photosynthesis by ocean-dwelling plankton and land plants, including forests and grasslands. However, seawater is also a source of CO_2 to the atmosphere, along with land plants, animals, and soils, when CO_2 is released during respiration. Whereas the natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean, humankind has altered the natural carbon cycle by burning coal, oil, natural gas,

10 *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*. California Environmental Protection Agency, Climate Action Team. March 2006.

and wood. Since the industrial revolution began in the mid-1700s, each of these activities has increased in scale and distribution. Prior to the industrial revolution, concentrations CO_2 were stable at a range of 275 to 285 ppm[11]. The National Oceanic and Atmospheric Administration (NOAA's) Earth System Research Laboratory (ESRL)[12] indicates that global concentration of CO_2 were 413.22 ppm in February 2020. This concentration of CO_2 exceeds by far the natural range over the last 650,000 years (180 to 300 ppm) as determined from ice cores.

Table 3 – Global Warming Potentials[13]

Pollutant	GWP for 100-year time horizon	
	Second assessment report[14]	4th assessment report (AR4)[15]
Carbon dioxide (CO_2)	1	1
Methane (CH_4)	21	25
Nitrous oxide (N_2O)	310	298

Note: Current protocol is to use the 4th assessment values, however, the second assessment report values are also provided since they are the values used by many inventories and public documents.

Methane (CH_4) is a colorless, odorless non-toxic gas consisting of molecules made up of four hydrogen atoms and one carbon atom. CH_4 is combustible, and it is the main constituent of natural gas-a fossil fuel. CH_4 is released when organic matter decomposes in low oxygen environments. Natural sources include wetlands, swamps and marshes, termites, and oceans. Human sources include the mining of fossil fuels and transportation of natural gas, digestive processes in ruminant animals such as cattle, rice paddies and the buried waste in landfills. Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH_4. Other anthropogenic sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide (N_2O) is a colorless, non-flammable gas with a sweetish odor, commonly known as "laughing gas", and sometimes used as an anesthetic. N_2O is naturally produced in the oceans and in rainforests. Man-made sources of N_2O include the use of fertilizers in agriculture, nylon and nitric acid production, cars with catalytic converters and the burning of organic matter. Concentrations of N_2O also began to rise at the beginning of the industrial revolution.

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11 *Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007.* Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

12 *Trends in Atmospheric Carbon Dioxide. Earth System Research Laboratory.* National Oceanic and Atmospheric Administration. http://www.esrl.noaa.gov/gmd/ccgg/trends/global.html. Accessed June 2020.

13 *Global Warming Potentials. Greenhouse Gas Protocol.* World Resources Institute and World Business Council on Sustainable Development. http://www.ghgprotocol.org/files/ghgp/tools/Global-Warming-Potential-Values.pdf. Accessed May 2015.

14 *Second Assessment Report. Climate Change 1995: WG I - The Science of Climate Change.* Intergovernmental Panel on Climate Change. 1996

15 *Climate Change 2007: The Physical Science Basis.* Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. 2007

Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically un-reactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source but were first synthesized in 1928. It was used for refrigerants, aerosol propellants, and cleaning solvents. Because of the discovery that they can destroy stratospheric ozone, an ongoing global effort to halt their production was undertaken and has been extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years. The Project is not expected to emit any CFCs.

Hydrofluorocarbons (HFCs) are synthesized chemicals that are used as a substitute for CFCs. Out of all the GHGs, HFCs are one of three groups with the highest GWP. HFCs are synthesized for applications such as automobile air conditioners and refrigerants. The Project is not expected to emit any HFCs.

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface can destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. The two main sources of PFCs are primary aluminum production and semiconductor manufacture. The Project is not expected to emit any PFCs.

Sulfur Hexafluoride (SF_6) is an extremely potent greenhouse gas. SF_6 is very persistent, with an atmospheric lifetime of more than a thousand years. Thus, a relatively small amount of SF_6 can have a significant long-term impact on global climate change. SF_6 is human-made, and the primary user of SF_6 is the electric power industry. Because of its inertness and dielectric properties, it is the industry's preferred gas for electrical insulation, current interruption, and arc quenching (to prevent fires) in the transmission and distribution of electricity. SF_6 is used extensively in high voltage circuit breakers and switchgear, and in the magnesium metal casting industry. The Project is not expected to emit SF_6.

2.3.1 GHG Emission Levels

Per the World Resources Institute[16] (WRI) in 2014, total worldwide GHG emissions were estimated to be 44,204 million (M) t of CO_2e ($MtCO_2e$) and GHG emissions per capita worldwide was 6.13 tCO_2e. These emissions exclude GHG emissions associated with the land use, land-use change, and forestry sector, and bunker fuels. The WRI reports that in 2014, total GHG emissions in the U.S. were 6,371 $MtCO_2e$, with average GHG emissions per capita of 20.00 tCO_2e and total GHG emissions in California were 454.5 $MtCO_2e$ in 2014, with average GHG emissions per capita of 11.75 tCO_2e.

California has a larger percentage of its total GHG emissions coming from the transportation sector (56%) than the U.S. emissions (31%) and a smaller percentage of its total GHG emissions from the electricity generation sector, i.e. California has 13 percent, but the U.S. has 43 percent.

2.3.2 Potential Environmental Effects

Worldwide, average temperatures are likely to increase by 3 °F to 7 °F by the end of the 21st century[17]. However, a global temperature increase does not directly translate to a uniform increase in temperature in all locations on the earth. Regional climate changes are dependent on multiple variables, such as topography. One

16 CAIT Climate Data Explorer. Historical Emissions. World Resources Institute. http:// http://cait2.wri.org/historical/. Accessed May 2019.

17 *Climate Change 2007: Impacts, Adaptation, and Vulnerability.* Website http://www.ipcc.ch/ipccreports/ar4-wg2.htm. Accessed March 2013.

region of the Earth may experience increased temperature, increased incidents of drought, and similar warming effects, whereas another region may experience a relative cooling. According to the International Panel on Climate Change's (IPCC's) Working Group II Report[18], climate change impacts to North America may include diminishing snowpack, increasing evaporation, exacerbated shoreline erosion, exacerbated inundation from sea level rising, increased risk and frequency of wildfire, increased risk of insect outbreaks, increased experiences of heat waves, and rearrangement of ecosystems, as species and ecosystem zones shift northward and to higher elevations.

2.3.3 California Implications

Even though climate change is a global problem and GHGs are global pollutants, the specific potential effects of climate change on California have been studied. The third assessment produced by the California Natural Resources Agency (CNRA)[19] explores local and statewide vulnerabilities to climate change, highlighting opportunities for taking concrete actions to reduce climate-change impacts. Projected changes for the remainder of this century in California include:

- **Temperatures** – By 2050, California is projected to warm by approximately 2.7 °F above 2000 averages, a threefold increase in the rate of warming over the last century and springtime warming — a critical influence on snowmelt — will be particularly pronounced.
- **Rainfall** – Even though model projections continue to show the Mediterranean pattern of wet winters and dry summers with seasonal, year-to-year, and decade-to-decade variability, improved climate models shift towards drier conditions by the mid-to-late 21st century in Central, and most notably, Southern California.
- **Wildfire** - Earlier snowmelt, higher temperatures, and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning, with human activities continuing to be the biggest factor in ignition risk. Models are showing that estimated property damage from wildfire risk could be as much as 35 percent lower if smart growth policies were adopted and followed than if there is no change in growth policies and patterns.

The third assessment by CNRA not only defines projected vulnerabilities to climatic changes but analyzes potential impacts from adaptation measures used to minimize harm and take advantage of beneficial opportunities that may arise from climate change.

The report highlights important new insights and data, using probabilistic and detailed climate projections and refined topographic, demographic, and land use information. The findings include:

- The State's electricity system is more vulnerable than was previously understood.
- The Sacramento-San Joaquin Delta is sinking, putting levees at growing risk.
- Wind and waves, in addition to faster rising seas, will worsen coastal flooding.
- Animals and plants need connected "migration corridors" to allow them to move to habitats that are more suitable to avoid serious impacts.
- Native freshwater fish are particularly threatened by climate change.
- Minority and low-income communities face the greatest risks from climate change.

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18 ibid

19 *Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California.* California Natural Resources Agency. July 2012 / CEC-500-2012-007

2.4. Baseline Conditions

2.4.1 Local Ambient Air Quality

Existing levels of ambient air concentrations and historical trends and projections in the project area are best documented by measurements made by the ICAPCD and CARB. Imperial County began its ambient air monitoring in 1976; however, monitoring of ozone began in 1986 at the El Centro monitoring station. Since that time, monitoring has been performed by the ICAPCD, CARB, and private industry. There are six monitoring sites in Imperial County from Niland to Calexico.

The nearest monitoring station to the Project site is in El Centro, approximately 5 miles southwest of the Project. The El Centro station is located on 9th Street. The El Centro station monitors ozone, PM_{10}, $PM_{2.5}$, and NO_2. **Table 4** summarizes 2013 through 2018 published monitoring data from the CARB's Aerometric Data Analysis and Management System (ADAM).

The monitoring data shows that the El Centro station exceeded the State PM_{10} standard in all six years except 2017 but only exceeded the federal PM_{10} standard once in the six years and exceeded the federal PM_{10} standard the last four years. The station exceeded the State and federal 8-hour ozone standards and the State 1-hour ozone standard in all six years. The station did not exceed the NO_2 standard in any of the six years.

Table 4 – Ambient Air Quality Monitoring Summary for El Centro - 9th Street Station[20]

Air Pollutant	Monitoring Year					
Ozone (O_3)	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Max 1 Hour (ppm)	**0.110**	**0.110**	**0.099**	**0.108**	**0.110**	**0.102**
Days > CAAQS (0.09 ppm)	7	2	2	4	4	2
Max 8 Hour (ppm)	**0.088**	**0.080**	**0.079**	**0.082**	**0.092**	**0.090**
Days > NAAQS (0.070 ppm)	23	12	11	11	17	14
Days > CAAQS (0.070 ppm)	23	13	12	11	17	15
Inhalable Particulate Matter (PM_{10})	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Max Daily California Measurement	**147.9**	**120.4**	**165.9**	**284.9**	**268.5**	**253.0**
Days > NAAQS (150 µg/m³)	0	0	1	10	4	5
Days > CAAQS (50 µg/m³)	10	15	7	N/A	N/A	N/A
Fine Particulate Matter ($PM_{2.5}$)	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Max Daily National Measurement	30.0	27.5	31.2	31.3	23.2	22.4
Days > NAAQS (35 µg/m³)	0	0	0	0	0	0
Nitrogen Dioxide (NO_2)	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Max Daily National Measurement	53.0	59.3	59.1	50.9	48.8	34.1
Days > NAAQS (100 ppb)	0	0	0	0	0	0
Days > CAAQS (180 ppb)	0	0	0	0	0	0

Abbreviations:

> = exceed | ***Bold** = exceedance* | *N/A = not available*

ppm = parts per million | *ppb = parts per billion* | *µg/m³ = micrograms per cubic meter*

CAAQS = California Ambient Air Quality Standard | *NAAQS = National Ambient Air Quality Standard*

20 ADAM Air Quality Data Statistics. California Air Resources Board. http://www.arb.ca.gov/adam/welcome.html. Accessed May 2020.

Section 3.0 – REGULATORY CONTEXT

Air pollutants are regulated at the national, State, and air basin level; each agency has a different degree of control. EPA regulates at the national level; CARB regulates at the State level; and ICAPCD regulates at the air basin level in the Project area.

3.1. Regulatory Agencies

3.1.1 Environmental Protection Agency (EPA)

EPA is the federal agency responsible for overseeing state air programs as they relate to the FCAA, approving State Implementation Plans (SIPs), establishing NAAQS and setting emission standards for mobile sources under federal jurisdiction. EPA also regulates Hazardous Air Pollutants (HAPs) under the FCAA. EPA has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented.

3.1.2 California Air Resources Board (CARB)

CARB is the State agency responsible for establishing CAAQS, adopting and enforcing emission standards for various sources including mobile sources (except where federal law preempts their authority), fuels, consumer products, and toxic air contaminants. CARB is also responsible for providing technical support to California's 35 local air districts, which are organized at the county or regional level, overseeing local air district compliance with State and federal law, approving local air plans and submitting the SIP to the EPA. CARB also regulates mobile emission sources in California, such as construction equipment, trucks, and automobiles. CARB also maintains a comprehensive air toxics program.

For the purposes of managing air quality in California, the California Health & Safety Codes Section 39606(a)(2) gave CARB the responsibility to, "based upon similar meteorological and geographic conditions and consideration for political boundary lines whenever practicable, divide the State into air basins to fulfill the purposes of this division". Imperial County is located within the SSAB.

3.1.3 Imperial County Air Pollution Control District (ICAPCD)

The ICAPCD shares responsibility with CARB for ensuring that all State and federal ambient air quality standards are achieved and maintained within the County. State law assigns to local air pollution control districts the primary responsibility for control of air pollution from stationary sources, while reserving an oversight role for CARB. Generally, the air pollution control districts must meet minimum State and EPA program requirements. The air pollution control district is also responsible for the inspection of stationary sources, monitoring of ambient air quality, and planning activities such as modeling and maintenance of the emission inventory. Air pollution control districts in State nonattainment areas are also responsible for developing and implementing transportation control measures necessary to achieve the state ambient air quality. Regarding the SIP, air pollution control districts will implement the following activities:

1. Development of emission inventories, modeling process, trend analysis and quantification and comparison of emission reduction strategies.
2. Necessary information on all federal and State adopted emission reduction measures which affect the area.
3. Review of emissions inventory, modeling, and self-evaluation work.
4. Technical and strategic assistance, as appropriate, in the selection and implementation of emission reduction strategies.

5. Technical and planning assistance in developing and implementing processes to address the impact of emissions growth beyond the attainment date.
6. Maintenance of monitors and reporting and analysis of monitoring data.
7. Support for public education efforts by providing information to the community for means of outreach.
8. Coordinate communication between local areas and EPA to facilitate continuing EPA review of local work.
9. Expeditious review of the locally developed plan, and if deemed adequate, propose modification of the Air Quality Management Plan (AQMP) to adopt the early progress plan.
10. Adoption of emission reduction strategies into the AQMP as expeditiously as possible.

3.2. Attainment Status

3.2.1 Designations/Classifications

EPA has identified nonattainment and attainment areas for each NAAQS. Under amendments to the FCAA, EPA has designated air basins or portions thereof as attainment, nonattainment, or unclassifiable, based on whether the national standards have been achieved. The State designates air basins or portions thereof for all CAAQS. The State designation criteria specify four categories: nonattainment, nonattainment-transitional, attainment, and unclassified.

In addition, the FCAA uses a classification system to design clean-up requirements appropriate for the severity of the pollution and set realistic deadlines for reaching clean-up goals. If an air basin is not in federal attainment for a pollutant, the Basin is classified as a marginal, moderate, serious, severe, or extreme nonattainment area, based on the estimated time it would take to reach attainment. Nonattainment areas must take steps towards attainment by a specific timeline. Table 5 shows the federal and State attainment designations and federal classifications for the Basin.

3.2.2 Federal Clean Air Act Requirements

The FCAA requires plans to provide for the implementation of all reasonably available control measures including the adoption of reasonably available control technology for reducing emissions from existing sources. The FCAA encourages market-based approaches to emission control innovations.

On April 30, 2004, Imperial County was classified as a "marginal" nonattainment area for 8-Hour Ozone NAAQS under the FCAA. On March 13, 2008, the EPA found that Imperial County failed to meet attainment for the 8-Hour Ozone NAAQS by June 15, 2007 and was reclassified as "moderate" nonattainment. However, on November 17, 2009, EPA announced that Imperial County has met the 1997 federal 8-hour ozone standard—demonstrating improved air quality in the area. The announcement is based on three years of certified clean air monitoring data for the years 2006-2008. **Table 5** shows the designations and classifications for the Basin.

In response to the opinion of the US Court of Appeals for the Ninth Circuit in *Sierra Club v. United States Environmental Protection Agency, et al.*, in August 2004 the EPA found that the Imperial Valley PM_{10} nonattainment area had failed to attain by the moderate area attainment date of December 31, 1994, and as a result reclassified under the FCAA the Imperial Valley from a moderate to a serious PM_{10} nonattainment area. Also, in August 2004, the EPA proposed a rule to find that the Imperial area had failed to attain the annual and 24-hour PM_{10} standards by the serious area deadline of December 31, 2001. The EPA finalized the rule on December 11, 2007, citing as the basis for the rule that six Imperial County monitoring stations were in violation of the 24-hour standard during 1999-2001. The EPA's final rule action requires the State to submit to the EPA by December 11, 2008 (within one year of the rule's publication in the Federal Register) an air quality plan that demonstrates that the County will attain the PM_{10} standard as expeditiously as practicable.

Table 5 – Designations/Classifications for the Basin[21]

Pollutant	State Designation	Federal Designation (Classification)
Ozone	Nonattainment	Nonattainment (Marginal)
Respirable PM (PM_{10})	Nonattainment	Nonattainment (Serious) *
Fine PM ($PM_{2.5}$)	Attainment***	Attainment **
Carbon Monoxide (CO)	Attainment	Unclassifiable/Attainment
Nitrogen Dioxide (NO_2)	Attainment	Unclassifiable/Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Unclassifiable/Attainment
Sulfates	Attainment	**No Federal Standard**
Hydrogen Sulfide	Unclassified	
Visibility reducing Particles	Unclassified	

* Designation for Imperial Valley Planning Area only, which is most of Imperial County save for a small stretch of land on the County's eastern end.
** A Determination of Attainment for the 2006 24-hour $PM_{2.5}$ standard was made by EPA in June 2017.
*** Designation for the whole of Imperial County except the Calexico area.

On November 13, 2009, EPA published Air Quality Designations for the 2006 24-Hour Fine Particle ($PM_{2.5}$) National Ambient Air Quality Standards[22] wherein Imperial County was listed as designated nonattainment for the 2006 24-hour $PM_{2.5}$ NAAQS. On April 10, 2014, CARB Board gave final approval to the 2013 Amendments to Area Designations for CAAQSs. For the State $PM_{2.5}$ standard, effective July 1, 2014, the Calexico area was designated nonattainment, while the rest of the SSAB was designated attainment. The Project lies outside the Calexico nonattainment area.

Besides the "criteria" air pollutants, there is another group of substances found in ambient air referred as HAPs under the FCAA and TACs under the California Clean Air Act (CCAA). These contaminants tend to be localized to their sources and are found in relatively low concentrations in ambient air. They are regulated at the federal, state, and regional levels, due to their potential of causing adverse health effects from exposure to low concentrations for long periods of time.

HAPs are the air contaminants identified by the EPA as known or suspected to cause cancer, serious illness, birth defects, or death. Many of the contaminants originate from human activities, such as fuel combustion and solvent use. Mobile Source Air Toxics (MSATs) are a subset of the 188 identified HAPs. Of the 21 different HAPs that constitute the MSATs, there are six primary HAPs identified that include diesel exhaust, benzene, formaldehyde, acetaldehyde, acrolein, and 1, 3-butadiene. While vehicle miles traveled in the United States is anticipated to increase by 64 percent between 2000 and 2020, emissions of MSATs are anticipated to decrease between 57 and 67 percent because of efforts to control mobile source emissions.

21 Area Designations and Maps – 2018. California Air Resources Board. December 31, 2018.

22 Air Quality Designations for the 2006 24-Hour Fine Particle ($PM_{2.5}$) National Ambient Air Quality Standards. United States Environmental Protection Agency. Federal Register. Vol. 74, No. 218. November 13, 2009.

3.3. Regulatory Framework

This section contains a discussion of the federal, State, and local air quality regulations, plans, and policies applicable to the Project. Federal, State, and local authorities have adopted rules and regulations that govern the emissions of air pollutants from any facility. The local and federal authorities each have specific criteria for the evaluation of a source and its emissions and the authority to issue permit conditions and specify recordkeeping and reporting requirements that must be met in order to operate a source of air pollutants.

3.3.1 Federal Regulations and Standards

The FCAA was enacted in 1970 and last amended in 1990 (42 USC 7401, et seq.) with the purpose of controlling air pollution and providing a framework for national, state, and local air pollution control efforts. Basic components of the FCAA and its amendments include NAAQS for major air pollutants, hazardous air pollutants standards, SIP requirements, motor vehicle emissions standards, and enforcement provisions. The FCAA was enacted for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity.

3.3.2 State Regulations and Standards

CARB is responsible for responding to the FCAA, regulating emissions from motor vehicles and consumer products, and implementing the CCAA. The CCAA outlines a program to attain the CAAQSs for ozone, sulfur dioxide, and CO by the earliest practical date. Since CAAQSs are more stringent than NAAQSs in most cases, attainment of the CAAQS will require more emissions reductions than what would be required to show attainment of the NAAQS. Like the federal system, the state requirements and compliance dates are based upon the severity of the ambient air quality standard violation within a region.

3.3.3 Local Regulations and Standards

The ICAPCD also has the authority to adopt and enforce regulations dealing with controls for specific types of sources, emissions of hazardous air pollutants, and New Source Review. The ICAPCD Rules and Regulations are part of the SIP and are separately enforceable by the EPA. The following ICAPCD rules potentially apply to the Project:

- **Rules 800** (General Requirements for Control of Fine Particulate Matter), **801** (Construction and Earthmoving Activities), **802** (Bulk Materials, **803** (Carry-out and Track-out), **804** (Open Areas), and **805** (Paved and Unpaved Roads) are intended to reduce the amount of PM_{10} entrained in the ambient air as a result of emissions generated by anthropogenic fugitive dust sources by requiring actions to prevent, reduce, or mitigate PM_{10} emissions. These rules include opacity limits, control measure requirements, and dust control plan requirements that apply to activities at the Facility.

3.3.4 Air Quality Management Plans (AQMP)

3.3.4.1 Ozone Plan

On December 3, 2009, the EPA issued a final ruling determining that the Imperial County "moderate" 8-hour ozone non-attainment area attained the 1997 8-hour NAAQS for ozone. The determination by EPA was based upon complete, quality-assured, and certified ambient air monitoring data for the years 2006 thru 2008. This determination effectively suspended the requirement for the state to submit an attainment demonstration, a Reasonable Further Progress (RFP) plan, contingency measures and other planning requirements for so long as Imperial County continues to attain the 1997 8-hour ozone NAAQS. However, this determination did not constitute a re-designation to attainment; therefore, the classification and designation status for Imperial County remain as a "moderate" non-attainment area of the 1997 8-hour ozone NAAQS. As such, Imperial

County was required to submit for EPA approval a 2009 8-Hour Ozone "Modified" Air Quality Management Plan (Modified AQMP), which was approved July 13, 2010.

The Modified AQMP serves as a comprehensive planning document intended to provide guidance to the ICAPCD, the County, and other local agencies on how to continue maintaining the 1997 8-hour ozone NAAQS. The Modified AQMP includes control measures consisting of three components: 1) the ICAPCD's Stationary Source Control Measures; 2) Regional Transportation Control Measures; and 3) the State Strategy. These measures primarily rely on the traditional command and control approach and as such provide the framework for ICAPCD rules that reduce ROG and NO_X emissions.

The current designation for the PM_{10} standard remains nonattainment as of February 28, 2019.[23] The ICAPCD is in the process of requesting an attainment redesignation and maintenance plan.[24] However, Imperial County's 2017 Ozone SIP[25], demonstrates that Imperial County is in attainment of the 2008 8-hour ozone standard but for emissions emanating across the international border. In addition, a weight-of-evidence analysis has been included to show that Imperial County will maintain this status of attainment through the July 2018 attainment date.

As of November 2017, after consideration of CARB's recommendations, the EPA "is designating Imperial County, CA as nonattainment for the 2015 ozone NAAQS".[26]

3.3.4.2 PM_{10} Plan

The ICAPCD District Board of Directors adopted the PM_{10} SIP for Imperial County on August 11, 2009[27]. The PM_{10} SIP meets EPA requirements to demonstrate that the County will attain the PM_{10} standard as expeditiously as practicable. The PM_{10} SIP was required to address and meet the following elements, required under the FCAA of areas classified to be in serious nonattainment of the NAAQS:

- Best available emission inventories.
- A plan that enables attainment of the PM_{10} federal air quality standards.
- Annual reductions in PM_{10} or PM_{10} precursor emissions that are of not less than 5 percent from the date of SIP submission until attainment.
- Best available control measures and best available control technologies for significant sources and major stationary sources of PM_{10}, to be implemented no later than 4 years after reclassification of the area as serious.
- Transportation conformity and motor vehicle emission budgets in accord with the attainment plan.
- Reasonable further progress and quantitative milestones; and
- Contingency measures to be implemented (without the need for additional rulemaking actions) if the control measure regulations incorporated in the plan cannot be successfully implemented or fail to give the expected emission reductions.

23 *Green Book PM-10 (1987) Area Information*. United States Environmental Protection Agency. https://www.epa.gov/green-book/green-book-pm-10-1987-area-information. Accessed March 2019.

24 *Draft Imperial County 2018 Redesignation Request and Maintenance Plan for Particulate Matter less than 10 Microns in Diameter*. Imperial County Air Pollution Control District. September 2018.

25 *2017 Imperial County State Implementation Plan for the 2008 8-Hour Ozone Standard*. Imperial County Air Pollution Control District, September 12, 2017.

26 *California - Final Area Designations for the 2015 Ozone National Ambient Air Quality Standards, Technical Support Document*. United States Environmental Protection Agency. November 16, 2017.

27 *2009 Imperial County State Implementation Plan for Particulate Matter Less Than 10 Microns in Aerodynamic Diameter*. Imperial County Air Pollution Control District. July 10, 2009.

The PM_{10} SIP updated the emission inventory to incorporate revised cattle emissions, revised windblown dust model results, revised South Coast Association of Governments activity data, and updated entrained and windblown unpaved road dust estimates. The adjustments made to the emission inventory fell in two categories: (i) adjustments to incorporate new methodology and updated information (e.g., throughputs, activity data, etc.), and (ii) adjustments to incorporate emission reductions arising from the implementation of new control measures.

Additionally, the PM_{10} SIP demonstrates that Imperial County attained the Federal PM_{10} NAAQS, but-for international emissions from Mexico, based on 2006-2008 monitoring data. Attainment was due, in part, to ICAPCD's November 2005 adoption and subsequent implementation of Regulation VIII fugitive dust rules; those rules were based on the related 2005 Best Available Control Measure analysis.

Since the reclassification of Imperial County to serious nonattainment for PM_{10} occurred on August 2004 and control of fugitive PM_{10} emissions from the significant source categories that meets best available control measure (BACM) stringency identified in the PM_{10} SIP began in January 2006.

Major stationary sources are required to implement Best Available Control Technology to control PM_{10} emissions (Rule 207) and they are required to comply with the 20 percent opacity (Rule 403). In addition, stationary sources will be required to mitigate fugitive dust emissions from access roads, construction activities, handling and transferring of bulk materials, and track-out/carry-out according to the requirements of Regulation VIII.

Because the Imperial County is shown in the PM_{10} SIP to have attained the 24-hour PM_{10} NAAQS but-for international transport of Mexicali emissions in 2006-2008, reasonable further progress and milestone requirements are unnecessary, and specifically the 5 percent yearly emission reductions requirement does not apply to future years. As documented in the PM_{10} SIP, all remaining SIP requirements applicable to the 2009 Imperial County PM_{10} Plan have been successfully addressed.

3.3.4.3 $PM_{2.5}$ Plan

The ICAPCD District Board of Directors adopted the $PM_{2.5}$ SIP for Imperial County on December 2, 2014 [28]. The $PM_{2.5}$ SIP fulfills the requirements of the Clean Air Act Amendments (CAA) for those areas classified as "moderate" nonattainment for $PM_{2.5}$. The $PM_{2.5}$ SIP incorporates updated emission inventories, and analysis of Reasonable Available Control Measures, an assessment of RFP, and a discussion of contingency measures. Analyses in the $PM_{2.5}$ SIP included assessing emission inventories from Imperial County and Mexicali; evaluating the composition and elemental makeup of samples collected on Calexico violation days; reviewing the meteorology associated with high concentration measurements; and performing directional analysis of the sources potentially impacting the Calexico $PM_{2.5}$ monitor. As is demonstrated in the $PM_{2.5}$ SIP, the primary reason for elevated $PM_{2.5}$ levels in Imperial County is transport from Mexico. Essentially, the $PM_{2.5}$ SIP demonstrated attainment of the 2006 $PM_{2.5}$ NAAQS "but-for" transport of international emissions from Mexicali, Mexico.

3.4. Toxic Air Contaminants (TACs)/Hazardous Air Pollutants (HAPs)

3.4.1 Federal Toxics Legislation

Another group of substances found in ambient air are referred to as HAPs under the FCAA and TACs under the CCAA. HAPs are the air contaminants identified by the EPA as known or suspected to cause cancer,

[28] *Imperial County 2013 SIP for the 2006 24-hr PM2.5 Moderate Nonattainment Area.* Imperial County Air Pollution Control District. December 2, 2014.

serious illness, birth defects, or death. These contaminants tend to be localized to their sources and are found in relatively low concentrations in ambient air.

Many of the contaminants originate from human activities, such as fuel combustion and solvent use. MSATs are a subset of the 188 identified HAPs. Of the 21 different HAPs that constitute the MSATs, there are six primary HAPs identified that include diesel exhaust, benzene, formaldehyde, acetaldehyde, acrolein, and 1, 3-butadiene. While vehicle miles traveled in the United States is anticipated to increase by 64 percent between 2000 and 2020, emissions of MSATs are anticipated to decrease between 57 and 67 percent because of efforts to control mobile source emissions.

3.4.2 State Toxics Legislation

The CARB Statewide comprehensive air toxics program was established in the early 1980s. In 1983, the TAC Identification and Control Act (AB 1807) created California's program to reduce exposure to air toxics and in 1987, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled engines and vehicles. The goal of the Plan is to reduce PM emissions and the associated health risks by 75 percent by 2010 and 85 percent by 2020. The Plan provides a roadmap that identifies steps CARB has and will be taking to develop specific regulations to reduce DPM emissions.

As a result of controls on motor vehicles, fuels, stationary sources, and consumer products, the public's exposure to air toxics has decreased dramatically. Between the early 1990's and today, the decrease in statewide average health risk ranged from approximately 20 percent from formaldehyde to approximately 90 for perchloroethylene. 1,3-butadiene and benzene have also seen significant decreases of 80 to 85 percent because of CARB's mobile source control program. In addition, dioxins have been reduced by 99 percent in that period, however that is primarily due to CARB's restrictions on medical waste incinerators.

3.4.2.1 On-Road Diesel Truck Fleets

California Code of Regulations (CCR) Title 14, Section 2025 is the codified regulation that limits NO_X, PM_{10}, and $PM_{2.5}$ emissions from on-road diesel truck fleets that operate in California. By January 1, 2017, 80 percent of a truck fleet is required to have installed Best Available Control Technology (BACT) for NOx emissions and 100 percent of a truck fleet installed BACT for PM_{10} emissions. All diesel trucks that utilize public roads in California are required to comply with CCR Title 13, Section 2025.

3.4.2.2 Commercial Vehicle Idling and Auxiliary Power Systems

CCR Title 13, Section 2485 is the codified regulation that regulates idling activities and auxiliary power systems (APS) in commercial vehicle vehicles with a vehicle weight rating of greater than 10,000 pounds. In addition to requiring phased compliance with emission standards, Section 2485 also restricts vehicle idling to no more than five minutes at any one location and restricts the operation of an APS to no more than five minutes in any location within 100 feet of a sensitive receptor.

3.5. Climate Change

3.5.1 Federal Climate Change Legislation

The federal government is taking several common-sense steps to address the challenge of climate change. EPA collects various types of GHG emissions data. This data helps policy makers, businesses, and EPA track GHG emissions trends and identify opportunities for reducing emissions and increasing efficiency. EPA has been collecting a national inventory of GHG emissions since 1990 and in 2009 established mandatory reporting of GHG emissions from large GHG emissions sources.

EPA is also getting GHG reductions through partnerships and initiatives; evaluating policy options, costs, and benefits; advancing the science; partnering internationally and with states, localities, and tribes; and helping communities adapt.

3.5.2 State Climate Change Legislation

3.5.2.1 Executive Order S 3-05

On June 1, 2005, the Governor issued Executive Order S 3-05 which set the following GHG emission reduction targets:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

To meet these targets, the Climate Action Team (CAT) prepared a report to the Governor in 2006 that contains recommendations and strategies to help ensure the targets in Executive Order S-3-05 are met.

3.5.2.2 Assembly Bill 32 (AB 32)

In 2006, the California State Legislature enacted the California Global Warming Solutions Act of 2006, also known as AB 32. AB 32 focuses on reducing GHG emissions in California. GHGs, as defined under AB 32, include CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. CARB is the State agency charged with monitoring and regulating sources of emissions of GHGs in California that cause global warming in order to reduce emissions of GHGs. AB 32 also requires that by January 1, 2008, the CARB must determine what the statewide GHG emissions level was in 1990, and it must approve a statewide GHG emissions limit so it may be applied to the 2020 benchmark. CARB approved a 1990 GHG emissions level of 427 $MtCO_2e$, on December 6, 2007 in its Staff Report. Therefore, in 2020, emissions in California are required to be at or below 427 $MtCO_2e$.

Under the "business as usual or (BAU)" scenario established in 2008, Statewide emissions were increasing at a rate of approximately 1 percent per year as noted below. It was estimated that the 2020 estimated BAU of 596 $MtCO_2e$ would have required a 28 percent reduction to reach the 1990 level of 427 $MtCO_2e$.

3.5.2.3 Climate Change Scoping Plan

The Scoping Plan[29] released by CARB in 2008 outlined the state's strategy to achieve the AB-32 goals. This Scoping Plan, developed by CARB in coordination with the CAT, proposed a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health. It was adopted by CARB at its meeting in December 2008. According to the Scoping Plan, the 2020 target of 427 $MtCO_2e$ requires the reduction of 169 $MtCO_2e$, or approximately 28.3 percent, from the State's projected 2020 BAU emissions level of 596 $MtCO_2e$.

29 *Climate Change Scoping Plan: a framework for change.* California Air Resources Board. December 2008.

However, in May 2014, CARB developed; in collaboration with the CAT, the First Update to California's Climate Change Scoping Plan[30] (Update), which shows that California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB-32. In accordance with the United Nations Framework Convention on Climate Change (UNFCCC), CARB is beginning to transition to the use of IPCC's Fourth Assessment Report (AR4's) 100-year GWPs in its climate change programs. CARB has recalculated the 1990 GHG emissions level with the AR4 GWPs to be 431 $MtCO_2e$, therefore the 2020 GHG emissions limit established in response to AB-32 is now slightly higher than the 427 $MtCO_2e$ in the initial Scoping Plan.

However, in May 2014, CARB developed; in collaboration with the CAT, the First Update to California's Climate Change Scoping Plan[31] (Update), which shows that California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB-32. In accordance with the UNFCCC, CARB is beginning to transition to the use of the IPCC's AR4's[32] 100-year GWPs in its climate change programs. CARB has recalculated the 1990 GHG emissions level with the AR4 GWPs to be 431 $MtCO_2e$, therefore the 2020 GHG emissions limit established in response to AB-32 is now slightly higher than the 427 $MtCO_2e$ in the initial Scoping Plan.

A Proposed Scoping Plan[33] builds upon the former Scoping Plan and Update by outlining priorities and recommendations for the State to achieve its long-term climate objectives. The Proposed Scoping Plan establishes a proposed framework of action for California to meet the climate target of a 40 percent reduction in GHGs by 2030, compared to 1990 levels. The major elements of the framework proposed are enhancement of the Renewables Portfolio Standard and the Low Carbon Fuel Standard; a Mobile Source Strategy, Sustainable Freight Action Plan, Short-Lived Climate Pollutant Reduction Strategy, Sustainable Communities Strategies, and a Post-2020 Cap-and-Trade Program; a 20 percent reduction in GHG emissions from the refinery sector and an Integrated Natural and Working Lands Action Plan.

30 First Update to the Climate Change Scoping Plan, Building on the Framework. California Air Resources Board. May 2014.

31 *First Update to the Climate Change Scoping Plan, Building on the Framework*. California Air Resources Board. May 2014.

32 *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Intergovernmental Panel on Climate Change. Core Writing Team; Pachauri, R.K; Reisinger, A., eds., 2007. ISBN 92-9169-122-4.

33 *The 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target*. California Air Resources Board. January 20, 2017. URL: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf

Section 4.0 – THRESHOLDS OF SIGNIFICANCE

The ICAPCD CEQA Air Quality Handbook[34] outlines significance determination thresholds. The significance criteria described in this section have been derived from this guidance document. In addition, significance criteria for stationary sources, which are permitted by the ICAPCD, are also cited in this section of the document.

4.1. CEQA Significance Determination Thresholds

In accordance with State 2020 CEQA Guidelines Appendix G, implementation of the project would result in a potentially significant impact if it were to:

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

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

c) Expose sensitive receptors to substantial pollutant concentrations.

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

4.2. ICAPCD Regional Thresholds of Significance

Under the ICAPCD guidelines, an air quality evaluation must address the following:

- Comparison of calculated project emissions with ICAPCD emission thresholds.
- Consistency with the most recent Clean Air Plan for Imperial County.
- Comparison of predicted ambient pollutant concentrations resulting from the project to state and federal health standards, when applicable.
- The evaluation of special conditions that apply to certain projects.

4.2.1 Operational Thresholds

The ICAPCD has determined in their Guidelines that because the operational phase of a proposed project has the potential of creating lasting or long-term impacts on air quality, it is important that a proposed development evaluate the potential impacts carefully. Therefore, air quality analyses should compare all operational emissions of a project, including motor vehicle, area source, and stationary or point sources to the thresholds in **Table 6**, which provides general guidelines for determining the significance of impacts and the recommended type of environmental analysis required based on the total emissions that are expected from the operational phase of a project.

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34 *CEQA Air Quality Handbook: Guidelines for the Implementation of the California Air Quality Act of 1970 as amended.* Imperial County Air Pollution Control District. Final December 12, 2017.

Table 6 – Regional Operational Thresholds of Significance[35]

Pollutant	Emissions (lbs/day)	
	Tier I	Tier II
Carbon Monoxide (CO)	< 550	≥ 550
Reactive Organic Gases (ROG)	< 137	≥ 137
Nitrogen Oxides (NO_X)	< 137	≥ 137
Sulfur Oxides (SO_X)	< 150	≥ 150
Particulate Matter (PM_{10})	< 150	≥ 150
Particulate Matter ($PM_{2.5}$)	< 550	≥ 550

From the ICAPCD's perspective residential, commercial, and industrial developments with a potential to emit below Tier I level will not be required to develop a Comprehensive Air Quality Analysis Report (CAQAR) or an Environmental impact report (EIR). However, an Initial Study would be required to help the Lead Agency determine whether the project would have a less than significant impact. The Lead Agency is required by CEQA to disclose the identified environmental effects and the ways in which the environmental effects will be mitigated to achieve a level of less than significant. To achieve a level of insignificance the Lead Agency should require the implementation of all feasible standard mitigation measures listed in Section 7.2 of the ICAPCD Guidelines.

4.2.2 Construction Thresholds

In general, projects whose operational emissions qualify them as Tier I do not need to quantify their construction emissions; instead, they adopt the standard mitigation measures for construction. The CEQA Guidelines states the "approach of the CEQA analyses for construction particulate matter impacts should be qualitative as opposed to quantitative."

4.2.3 Local Concentrations of Criteria Pollutant Thresholds

Even though the ICAPCD's CEQA Guidelines does not specifically address localized impacts from criteria pollutants, this AQIA analyzes the potential criteria pollutant health risks pursuant to the published opinion of *Sierra Club v. County of Fresno*[36] that a project with potential significance should provide an analysis of potential correlation that would be generated by the Project to adverse human health impacts that could be expected to result from the increase in criteria emissions for pollutants that exceed air quality standards.

4.2.4 Toxics or Hazardous Air Pollutant Thresholds

The ICAPCD has also determined that any project with the potential to expose sensitive receptors or the general public to substantial levels of TACs would be deemed to have a potentially significant impact. A health risk is the probability that exposure to a TAC under a given set of conditions will result in an adverse health effect. The term "risk" usually refers to the chance of contracting cancer because of an exposure, and it is expressed as a probability: chances-in-a-million. The values expressed for cancer risk do not predict actual

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35 *ibid*

36 *Sierra Club v. County of Fresno*, Fifth District Court of Appeal. May 27, 2014.

cases that will result from exposure to toxic air contaminants. Rather, they state a probability of contracting cancer over and above the background level and over a given exposure to toxic air contaminants.

Since the ICAPCD has not adopted a quantitative health risk significance threshold for TAC emissions, the thresholds provided in the California Air Pollution Control Officers Association (CAPCOA) Guidelines have been utilized. According to the CAPCOA Guidelines, any project that has the potential to expose the public to TACs more than the following threshold would be considered to result in a significant impact:

- If the Maximum Exposed Individual (MEI) Cancer Risk from carcinogens equals or exceeds 10 in one million persons.
- If the MEI Acute Hazard Index from non-carcinogens equals or exceeds 1.0, or
- If the MEI Chronic Hazard Index from non-carcinogens equals or exceeds 1.0.

4.2.5 Odor Threshold

While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the District. Any project with the potential to expose members of the public to objectionable odors frequently would be deemed to have a significant impact.

4.3. Greenhouse Gas (GHG) / Climate Change

4.3.1 California Environmental Quality Act (CEQA)

Effective March 18, 2010, CEQA Appendix G states that a project would have potentially significant GHG emission impacts if it would:

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

4.3.2 Local Significance Thresholds

It is widely recognized that no single project could generate enough GHG emissions to change the global climate temperature noticeably. However, the combination of GHG emissions from past, present, and future projects could contribute substantially to global climate change. Thus, project specific GHG emissions should be evaluated in terms of whether they would result in a cumulatively significant impact on global climate change.

Since the County of Imperial has not established a threshold of significance for GHGs, the ICAPCD recommends that the project be evaluated based on strategies developed by the CAT in a 2006 Report[37] that set the framework for the State's emission reduction strategies that could be implemented in California to reduce climate change emissions to ensure that the targets of AB-32 are met.

37 Climate Action Team Report to Governor Schwarzenegger and the Legislature. California Environmental Protection Agency. March 2006.

Section 5.0 – ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

5.1. Analysis Methodology

Regional and local emissions of criteria air pollutants and precursors, and GHGs during project operations were assessed in accordance with the methodologies described below to ascertain impacts from the facility due to amended CUP.

5.1.1 Construction Emissions

Since no new production equipment or facilities are proposed for this expansion of operations, no construction activities are involved. Therefore, no analysis of construction emissions was necessary.

5.1.2 Operational Emissions

To estimate emissions related to the amendment of the CUP, the entire facility was analyzed. Exhaust emissions from the heavy-duty diesel (HDD) trucks bringing hay to the facility and HDD trucks taking the pressed product to All American Grain (AAG) to be shipped out were assessed. Additionally, exhaust emissions from employee commute and visitor vehicles were assessed.

Estimated activity levels of on-road vehicles were obtained from the Project's Traffic Impact Analysis (TIA)[38] and vehicle emission factors based on Imperial County-specific projected vehicle activity in the calendar year 2021 were obtained from the latest EMFAC2017 model[39] by CARB. Estimated activities and engine size for on-site, off-road equipment were provided by the Applicant and emission factors were obtained from the California Emissions Estimator Model (CalEEMod™) Guidelines[40].

A detailed summary of the assumptions and model data used to estimate the Project's operational emissions is provided in Appendix A.

5.1.3 Toxic Air Contaminant Emissions

The proposed project is anticipated to generate DPM emissions from on-road vehicle operations and off-road equipment. All emissions are based on year 2021 emissions rates. To provide a worst-case analysis, this analysis analyzes the impacts from all DPM emissions created from Hay Kingdom.

5.1.3.1 Off-Road Diesel Equipment

The OFFROAD2017 Web Database[41] was utilized to calculate the DPM emissions from each piece of equipment that operates on the project site. The OFFROAD2017 model was run for Imperial County for the year 2021. Since the project applicant has stated that all off-road diesel equipment meets the most current Tier 4 standards, that were not fully implemented until the year 2014, the model year 2014 was analyzed in the OFFROAD2017 model. The OFFROAD2017 model only provides a limited number of types of off-road vehicles, as such the most similar types available to the off-road equipment utilized onsite were selected, which include off-highway trucks, rubber tired loaders, tractors/loaders/backhoes, and forklifts. It should be noted

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38 *Draft Traffic Impact Analysis*. Hay Kingdom Project. County of Imperial, California. LOS Engineering. April 3, 2020.

39 EMFAC2017 Web Database (v1.0.2). California Air Resources Board. http://www.arb.ca.gov/emfac/2017/. Accessed May 2020.

40 Appendix D: Default Data Tables for CalEEMod. South Coast Air Quality Management District. February 2011

41 https://www.arb.ca.gov/orion/

that the DPM emission rates for each type of equipment needs to meet the same Tier 4 standards, so an exact match to the equipment used is not required to provide a reasonable estimate of DPM emissions created from each piece of equipment.

5.1.3.2 On-Road Diesel Trucks

The truck trips generated from the proposed project have been calculated through use of the average annual daily truck trip rate of 60 round trips per day, which was calculated by the project applicant and accounts for the variation of truck trips throughout the year. The truck travel was modeled with line volume sources of Highway 111, Worthington Road, and Rose Lateral Two Road, as well as onsite roads within a 1.5-kilometer area around the project site. According to the TIA[42], the following percentages of daily truck trips will occur on the nearby roadways: 1 percent on Worthington Road west of Highway 111; 98 percent on Worthington Road between Highway 111 and Rose Lateral Two; 2 percent on Worthington Road east of Rose Lateral Two; 39 percent on Highway 111 north of Worthington Road; and 58 percent on Highway 111 south of Worthington Road.

The emission factors used for the roadway line volume sources was obtained from a model run of EMFAC2017 Model Version 1.0.2 for Imperial County for the year 2021. The diesel trucks were based on the T7 Tractor truck classification. The onsite truck travel was analyzed based on a speed of 15 miles per hour and the travel on Worthington Road was analyzed based on a speed of 45 miles per hour and Highway 111 was analyzed based on a speed of 55 miles per hour.

5.1.3.3 On-Site Truck Idling

The onsite diesel truck idling was modeled as one-point source located near the loading docks on the northern portion of the project site. The analysis was based on all 120 daily truck trips to or from the project site idling for five minutes. Per CCR Section 2485 truck idling is restricted to no more than five minutes at any one location.

5.1.4 Other Air Quality Impacts

Other air quality impacts (i.e., local emissions of CO, and odors) were assessed in accordance with methodologies recommended by CARB and ICAPCD.

5.2. Analysis of Environmental Impacts

IMPACT 1: Would the Project conflict with or obstruct implementation of the applicable air quality plan?

CEQA requires that projects be consistent with the applicable AQMP. A consistency determination plays an important role in local agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision-makers of the environmental efforts of the project under consideration at a stage early enough to ensure that air quality concerns are fully addressed.

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42 *Draft Traffic Impact Analysis*. Hay Kingdom Project. County of Imperial, California. LOS Engineering. April 3, 2020.

ICAPCD's CEQA Handbook states that a CAQAR of a proposed project should demonstrate compliance with the most recent ozone AQMP and PM_{10} SIP. It also states the CAQAR should demonstrate compliance with the Imperial County Rules and Regulations as well as the State and federal regulations.

Ozone Air Quality Management Plan (AQMP)

In order to develop the Modified AQMP[43], a control strategy for meeting State and federal requirements is required. The ICAPCD control strategy included an interactive process of technology and strategy review supported by ambient air quality modeling. The air quality modeling assists in identifying current and remaining emission targets that would help to achieve the ambient air quality standards. The Modified AQMP control measures consist of three components: 1) the ICAPCD's Stationary Source Control Measures; 2) Regional Transportation Strategy and Control Measures; and 3) State Strategy. These measures primarily rely on the traditional command and control approach and as such provide the framework for ICAPCD Rules that reduce ROG and NO_X emissions.

The Project does not produce new residential activity, produces only minimal additional traffic activity during project operations; and does not fall outside of the modeling forecast estimations used in determining continued maintenance.

PM_{10} State Implementation Plan (PM_{10} SIP)

The PM_{10} SIP was required to address and meet the following elements, required under the FCAA of areas classified to be in serious nonattainment of the NAAQS:

- Best available emission inventories.
- A plan that enables attainment of the PM_{10} federal air quality standards.
- Annual reductions in PM_{10} or PM_{10} precursor emissions that are of not less than 5 percent from the date of SIP submission until attainment.
- Best available control measures and best available control technologies for significant sources and major stationary sources of PM_{10}, to be implemented no later than 4 years after reclassification of the area as serious.
- Transportation conformity and motor vehicle emission budgets in accord with the attainment plan.
- Reasonable further progress and quantitative milestones.
- Contingency measures to be implemented (without the need for additional rulemaking actions) if the control measure regulations incorporated in the plan cannot be successfully implemented or fail to give the expected emission reductions.

In November 2005, revised Regulation VIII fugitive dust control measures were adopted, which form the core of the Imperial County PM_{10} control strategy. The Project is required to comply with all applicable Regulation VIII measure.

Level of Significance Before Mitigation: The Project would not conflict with, or obstruct implementation of, the applicable air quality plan, therefore would result in a less than significant impact.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: Impacts would be less than significant.

[43] *Final 2009 1997 8-Hour Modified Air Quality Management Plan.* Imperial County Air Pollution Control District. July 13, 2010.

IMPACT 2: Would the Project result in cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?

In accordance with CEQA Guidelines 15130(b), this analysis of cumulative impacts incorporates a summary of projections. The following three-tiered approach is to assess cumulative air quality impacts.

- Consistency with the ICAPCD project specific thresholds for construction and operation.
- Project consistency with existing air quality plans.
- Assessment of the cumulative health effects of the pollutants.

Project Specific Thresholds

As established here in Impact 2, the Project will not exceed the ICAPCD regional significance thresholds. It is assumed that emissions that do not exceed the project specific thresholds will not result in a cumulative impact.

Air Quality Plans

The area in which the Project is located is in nonattainment for ozone and PM_{10}. As such, the ICAPCD is required to prepare and maintain an AQMP to document the strategies and measures to be undertaken to reach attainment of ambient air quality standards. As discussed above in Impact 1, the Project is compliant with the AQMP and would not result in a significant impact.

Cumulative Health Impacts

The area is in nonattainment for ozone and PM_{10}, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect the health of sensitive individuals (i.e., elderly, children, and the sick). Therefore, when the concentration of those pollutants exceeds the standard, it is likely that some of the sensitive individuals of the population experience adverse health effects.

The localized significance analysis in Impact 3 showed that during construction no localized adverse exposure was expected; therefore, the emissions of particulate matter and NO_X would not result in a significant cumulative health impact.

Project Related Construction Emissions

As discussed in Section 5.1.1, no new production equipment or facilities are proposed for this expansion of operations, and no construction activities are involved. Therefore, no analysis of construction emissions was necessary.

Project Related Operational Emissions

Emission factors for vehicular activity related to HDD trucks hauling to and from the Project and commute of employees were estimated using CARB's latest EMFAC2017 model[44] with emission rate data for Imperial County for the 2021 calendar year. For truck trips, this AQIA used aggregate model years, which is an average age of specific vehicle types for Imperial County.

44 *EMFAC2017 Web Database.* California Air Resources Board. https://www.arb.ca.gov/emfac/2017/. Accessed May 2020.

To generate expected exhaust emissions from employee vehicles, this AQIA also used CARB's latest EMFAC2017 model. In order to represent the type of vehicles used by the potential employee work pool more accurately, an activity-weighted average emission factor was generated using light-duty automobiles and light-duty trucks. The weighted averages were derived from the distributions of vehicle miles travelled (VMT) in 2021 in Imperial County from EMFAC2017.

The number of proposed on-road vehicles used was obtained from the Draft TIA[45] and estimated trip lengths were generated by assuming that 50 percent of employees would come from El Centro, with the other half originating in Brawley. The trip lengths for the haulers bringing product to the Project were provided by the Applicant and estimated to be 40 percent from southern Imperial Valley; 35 percent from northern Imperial Valley; 20 percent from the areas around Wilcox Arizona; and 5 percent from the areas around Beaverton Utah.

Emission factors, brake-horsepower, and load factors for off-road equipment used on-site were taken from the Data Tables in the latest CalEEMod Guidance Document. Specific list of equipment provided by the Applicant was assigned an appropriate equipment type categorized in CARB's OFFROAD modeler.

In addition, entrained road dust emissions were assigned to haulers and employees. The ICAPCD usually recommends that 50 percent of vehicular travel in Imperial County is assumed to be on unpaved roads. For this AQIA however, since employees will be using a parking area adjacent to a paved road, all employee commute trips will be on paved roads. This AQIA also assumed that all the hauler fleets travel will be on paved roads. Since vendors may travel some on unpaved roads to deliver materials or provide service, 5 percent of vendor activity is assigned to the potential of off-road activity.

Table 7 summarizes project-related annual operational air emissions. The ICAPCD thresholds of significance are also included in this table as well as information regarding whether annual operational emissions would exceed those thresholds. As shown in **Table 7**, operational emissions would be well below ICAPCD Tier 1 Regional thresholds. Detailed emissions calculations are included in Appendix A.

Table 7 – Project Operational Unmitigated Emissions

Emission Sources	Criteria Emissions (lbs/d)				
	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
On-road sources	1.78	10.20	65.40	2.24	1.79
Off-road equipment	3.32	26.76	31.89	1.86	1.49
Entrained road dust	—	—	—	85.90	9.30
Total	**5.10**	**36.96**	**97.29**	**90.00**	**12.58**
ICAPCD Regional Thresholds	*137*	*550*	*137*	*150*	*550*
Exceed Thresholds?	No	No	No	No	No

Level of Significance Before Mitigation: The Project would not result in cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an

45 *Draft Traffic Impact Analysis*. Hay Kingdom Project. County of Imperial, California. LOS Engineering. April 3, 2020.

applicable federal or state ambient air quality standard, therefore would result in a less than significant impact.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: Impacts would be less than significant.

IMPACT 3: Would the Project expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors are defined as land uses where sensitive population groups are likely to be located (e.g., children, the elderly, the acutely ill, and the chronically ill). These land uses include residences, schools, childcare centers, retirement homes, convalescent homes, medical care facilities, and recreational facilities. Sensitive receptors that may be adversely affected by the Project include the surrounding residential land uses.

The nearest sensitive receptor to the Project site consist of a farmhouse located approximately 250 feet east of the Project site and 2 farmhouses located as near as 500 feet northeast of the Project site's northeast corner and across East Worthington Road.

<u>Toxic Air Contaminants</u>

Due to the Project's ongoing reliance on heavy duty diesel trucks and diesel off-road equipment, an assessment of the potential health risk from TAC emissions resulting from the operation of the Project was conducted and the Health Risk Assessment (HRA)[46] is presented in full in Appendix B. The HRA was conducted, in part, to determine the potential cancer and non-cancer (acute and chronic) risks associated with the operation of the Project. Health risks from TACs are twofold; 1) TACs are carcinogens according to the State and 2) short-term acute and long-term chronic exposure to TACs can cause chronic and/or acute health effects to the respiratory system. The HRA concluded:

- All DPM emissions concentrations at the nearby sensitive receptors were found to be below the 10.0 in a million cancer risk threshold. Therefore, a less than significant cancer risk would occur from DPM emissions created from the operation of the Project.
- The on-going operations of the Project would result in a less than significant impact due to the non-cancer chronic and acute health risks from TAC emissions created by the Project.

<u>CO Hot spots</u>

Another way a project can establish significance with this impact is the potential to create a CO hotspot. CO hotspots can occur when vehicles are idling at highly congested intersections. According to the Draft TIA, the Project would not create an increase in congestion of the magnitude required to generate a CO hotspot.

Level of Significance Before Mitigation: The Project would not expose the public to substantial pollutant concentrations.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: Impacts would be less than significant.

---

46 *Health Risk Assessment: Hay Kingdom Expansion Project, County of Imperial.* Vista Environmental. June 1, 2020.

IMPACT 4: Would the Project result in other emissions (such as odors) adversely affecting a substantial number of people?

The CEQA Guidelines indicate that a significant impact would occur if a project would create objectionable odors affecting a substantial number of people. While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the ICAPCD. Because offensive odors rarely cause any physical harm and no requirements for their control are included in State or federal air quality regulations, the ICAPCD has no rules or standards related to odor emissions, other than its nuisance rule.

The construction and operation of a hay processing facility is not an odor producer nor located near an odor producer; therefore, the Project would not result in a significant odor impact.

Level of Significance Before Mitigation: The Project would not create objectionable odors affecting a substantial number of people.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: Impacts would be less than significant.

IMPACT 5: Would the Project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

The Project would generate GHG emissions operational activities at the site and off the site. On-site activities' GHG emissions would be generated primarily by on-site diesel equipment, e.g. forklifts, loaders, and water truck. Off-site GHG emissions would primarily come from HDD trucks, with the majority from the haulers from the fields to the Project site. GHG emissions were estimated using all the methodologies listed above for criteria emissions. **Table 8** shows that the annual operation emissions for the Project and detailed calculations are presented in Appendix A.

Table 8 – Project Operational GHG Emissions

Emission Sources	GHG Emissions (tonnes/year)			
	CO_2	CH_4	N_2O	CO_2e
Off-site sources	6,733.00	0.028	1.012	7,035.30
On-site sources	516.90	0.167	N/A	521.00
Total	**7,249.9**	**0.195**	**1.012**	**7,556.3**

Level of Significance Before Mitigation: The Project would generate GHG emissions that may have a significant impact on the environment.

Mitigation Measures:

The ICAPCD has determined that compliance with applicable State GHG emission reduction strategies would constitute feasible mitigation. **Table 9** presents Project's design and/or mitigation that demonstrates compliance with applicable State GHG strategies presented in the CAT report.

Table 9 – California Greenhouse Gas Emission-Reduction Strategies

Strategy	Project Design/Mitigation to Comply with Strategy
Vehicle Climate Change Standards: AB 1493 (Pavley) required the State to develop and adopt regulations to achieve the most feasible and cost-effective reduction in climate change emissions emitted by passenger vehicles and light-duty trucks. Regulations were adopted by CARB in September 2004.	These are CARB-enforced standards; vehicles subject to these standards/measures that would access the proposed project would be complying.
Other Light-duty Vehicle Technology: New standards would be adopted and phased in beginning in the 2017 model year.	
Heavy-duty Vehicle Emission Reduction Measures: Increased efficiency in the design of heavy-duty vehicles and an educational program for the heavy-duty vehicle sector.	
Diesel Anti-Idling: In July 2004, CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	This is a CARB-enforced measure; vehicles subject to this measure that would access the proposed project would be complying.
Hydrofluorocarbon Reduction: 1) ban retail sale of HFC in small cans, 2) require that only low-GWP refrigerants be used in new vehicular systems, 3) adopt specifications for new commercial refrigeration, 4) add refrigerant leak-tightness to the pass criteria for vehicular inspection and maintenance programs, 5) enforce Federal ban on releasing HFCs.	Not applicable.
Transportation Refrigeration Units (TRUs), Off-road Electrification, Port Electrification: Strategies to reduce emissions from TRUs, increase off-road electrification, and increase use of shore-side/port electrification.	Not applicable.
Manure Management: The proposed San Joaquin Valley Rule 4570 would reduce volatile organic compounds from confined animal facilities through implementation of control options.	Not applicable.
Alternative Fuels – Biodiesel Blends: CARB would develop regulations to require the use of 1% to 4% biodiesel displacement in California diesel fuel.	Not applicable.
Alternative Fuels – Ethanol: Increased use of ethanol fuel.	Not applicable.
Achieve 50% Statewide Recycling Goal: Achieving the State's 50% waste diversion mandate, as established by the Integrated Waste Management Act of 1989 (AB 939 [Sher]), Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy-intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48% has been achieved on a statewide basis. Therefore, a 2% additional reduction is needed.	Not applicable.
Zero Waste – High Recycling: Additional recycling beyond the State's 50% recycling goal.	Not applicable.
Landfill Methane Capture: Implement direct gas use or electricity projects at landfills to capture and use emitted methane.	Not applicable. The proposed project does not include landfill operations.
Urban Forestry: A new statewide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.	Not applicable. The proposed project is not in an urban area.

Strategy	Project Design/Mitigation to Comply with Strategy
Afforestation/Reforestation Projects: Reforestation projects focus on restoring native tree cover on lands that were previously forested and are now covered with other vegetative types.	Not applicable. The proposed project area has not been forested in recent times.
Water Use Efficiency: 19% of all electricity, 30% of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute, and use water and wastewater. Increasing the efficiency of water transport and reducing water usage would reduce GHG emissions.	Not applicable. The project is not a water supply entity.
Building Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes the California Energy Commission (CEC) to adopt and periodically update its building energy efficiency standards, which apply to newly constructed buildings and additions and alterations to existing buildings.	Not applicable. The project does not include any construction activity.
Appliance Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes CEC to adopt and periodically update its appliance energy efficiency standards, which apply to equipment and devices that use energy and are sold or offered for sale in California.	Not applicable. The project does not include new appliance acquisition.
Cement Manufacturing: Cost-effective actions to reduce energy consumption and lower carbon dioxide emissions in the cement industry.	Not applicable. The proposed project does not include cement manufacturing operations.
Smart Land Use and Intelligent Transportation Systems (ITS): Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. It is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and the movement of people, goods, and services. Governor's office is finalizing a comprehensive 10-year strategic growth plan with the intent of developing ways to promote, through State investments, incentives, and technical assistance, land use and technology strategies that provide for a prosperous economy, social equity, and a quality environment. Smart land use, demand management, ITS, and value pricing are critical elements for improving mobility and transportation efficiency. Specific strategies include promoting jobs/housing proximity and transit-oriented development, encouraging high-density residential/commercial development along transit/rail corridors, value and congestion pricing, ITS, traveler information/traffic control, incident management, accelerating the development of broadband infrastructure, and comprehensive, integrated, multimodal/intermodal transportation planning.	Not applicable. The project is not in a metropolitan or urban area.
Enteric Fermentation: Cattle emit methane from digestion processes. Changes in diet could result in a reduction in emissions.	Not applicable. The project does not include any cattle operations.
Green Buildings Initiative: Green Building Executive Order S-20-04 sets a goal of reducing energy use in public and private buildings by 20% by 2015 compared with 2003 levels. Consistent with mitigation.	Not applicable. The project does not include any construction activity.
California Solar Initiative: Installation of 1 million solar roofs on homes and businesses, or an equivalent 3,000 megawatts, by 2017; increased use of solar thermal systems to offset the increasing demand for natural gas; use of advanced metering in solar applications; and the creation of a funding source that can provide rebates over 10 years through a declining incentive schedule.	Not applicable. The project does not include any construction activity.

Source: State of California, Environmental Protection Agency, Climate Action Team, 2006

Level of Significance After Mitigation: Impacts would be less than significant.

IMPACT 6: Would the Project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Neither the County of Imperial nor ICAPCD have any specific plans, policies, nor regulations adopted for reducing the emissions of GHGs but CARB's First Update to their Scoping Plan[47] included a table presenting the recommended actions the State should take in each of the sectors to meet our climate change goals. The Project does not conflict with any of these recommended actions. Since the operational emissions associated with the Project would not conflict with any applicable plan, policy, or regulation adopted for reducing the emissions of GHGs, impact from the Project is less than significant.

Level of Significance Before Mitigation: The Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: Impacts would be less than significant.

47 *First Update to the Climate Change Scoping Plan: Building on the Framework Pursuant to AB 32, The California Global Warming Solutions Act of 2006.* California Air Resources Board. May 22, 2014.

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OB-1
AIR ANALYSES

APPENDIX A

Air Quality/Greenhouse Gas Calculations

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Table 1 - Summary of Emissions

Operational Criteria Emissions

Sources	Maximum pounds per day				
	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
On-road vehicles	1.78	10.20	65.40	2.24	1.79
Off-road equipment	3.32	26.76	31.89	1.86	1.49
Entrained Road Dust	-----	-----	-----	85.90	9.30
Totals	***5.1***	***37.0***	***97.3***	***90.0***	***12.6***
Operational Thresholds	*137*	*550*	*137*	*150*	*550*

Operational GHG Emissions

Activity	Tonnes per Year			
	CO_2	CH_4	N_2O	CO_2e
On-road vehicles	6,733.0	0.0277	1.0122	7,035.3
Off-road equipment	516.9	0.1670	N/A	521.0
Totals	***7,250***	***0.195***	***1.012***	***7,556***

EEC ORIGINAL PKG

Table 2 - Operational On-road Emissions

Truck Activity

Activity	# Vehicles per Day	Trip Length (one-way)	VMT per day	VMT per year
Raw product to Hay Kingdom	100	18.6	1,860	3,566,571
Processed hay to AAG	60	20.4	2,448	765,874
TOTAL	***160***		***4,308***	***4,332,446***

Note - *VMT for outbound are doubled to reflect round trips*

VMT for inbound are one way because truck's potential for not returning empty, no deadheading

Light Duty Vehicle Activity

Activity	# Vehicles per Day	Trip Length (one-way)	VMT per day	VMT per year
Employee Commute	80	9.2	1,472	460,526
Vendors	120	9.2	2,208	690,789
TOTAL	***120***	***9***	***2,208***	***690,789***

Note - *VMT for employees are doubled to reflect round trips*

Criteria Emissions

Activity	Pounds per day				
	ROG	CO	NO_X	PM_{10}	$PM_{2.5}$
Raw product to Hay Kingdom	0.44	1.74	18.17	0.32	0.40
Processed hay to AAG	0.75	3.07	25.41	1.07	0.71
Employee Commute	0.06	3.33	0.26	0.00	0.15
Vendors	0.52	2.06	21.56	0.85	0.53
Totals	***1.8***	***10.2***	***65.4***	***2.2***	***1.8***

GHG

Activity	Tonnes per Year			
	CO_2	CH_4	N_2O	CO_2e
Raw product to Hay Kingdom	5,318.7	0.0178	0.8360	5,568.3
Processed hay to AAG	1,070.7	0.0050	0.1683	1,121.0
Employee Commute	137.4	0.0020	0.0031	138.4
Vendors	206.2	0.0029	0.0047	207.6
Totals	***6,733***	***0.028***	***1.012***	***7,035***

Table 3 - Operational Off-Road Diesel Emissions

Criteria Emissions

Equipment Type	Activity			Criteria Emission Factors (g/bhp-hr)					Criteria Emissions (lbs/d)				
	BHP	Load Factor	hrs/ day	ROG	CO	NO_X	PM_{10}	$PM_{2.5}$	ROG	CO	NO_X	PM_{10}	$PM_{2.5}$
Toyota Fork lift	78	0.20	16	0.459	3.760	4.133	0.520	0.283	0.25	2.07	2.27	0.29	0.16
Toyota Fork lift	78	0.20	16	0.459	3.760	4.133	0.520	0.283	0.25	2.07	2.27	0.29	0.16
Caterpillar Hay squeeze	155	0.20	16	0.338	3.249	3.320	0.180	0.165	0.37	3.55	3.63	0.20	0.18
Caterpillar Hay squeeze	155	0.20	16	0.338	3.249	3.320	0.180	0.165	0.37	3.55	3.63	0.20	0.18
Caterpillar Hay squeeze	155	0.20	16	0.338	3.249	3.320	0.180	0.165	0.37	3.55	3.63	0.20	0.18
Caterpillar Hay squeeze	155	0.20	16	0.338	3.249	3.320	0.180	0.165	0.37	3.55	3.63	0.20	0.18
Telehamber lift	155	0.20	8	0.338	3.249	3.320	0.180	0.165	0.18	1.78	1.81	0.10	0.09
Yard Goat	350	0.38	16	0.246	1.414	2.347	0.086	0.079	1.15	6.63	11.01	0.40	0.37
								Totals	*3.3*	*26.8*	*31.9*	*1.9*	*1.5*

Greenhouse Gas Emissions

Equipment Type	Activity			EmFacs (g/bhp-hr)		GHG Emissions (tonnes/year)		
	BHP	Load Factor	Annual Hours	CO_2	CH_4	CO_2	CH_4	CO_2e
Toyota Fork lift	78	0.20	4,797	471.5	0.153	35.29	0.0114	35.57
Toyota Fork lift	78	0.20	4,797	471.5	0.153	35.29	0.0114	35.57
Caterpillar Hay squeeze	155	0.20	4,797	472.1	0.153	70.21	0.0227	70.78
Caterpillar Hay squeeze	155	0.20	4,797	472.1	0.153	70.21	0.0227	70.78
Caterpillar Hay squeeze	155	0.20	4,797	472.1	0.153	70.21	0.0227	70.78
Caterpillar Hay squeeze	155	0.20	4,797	472.1	0.153	70.21	0.0227	70.78
Telehamber lift	155	0.20	417	472.1	0.153	6.11	0.0020	6.15
Yard Goat	350	0.20	4,797	474.6	0.153	159.36	0.0514	160.65
					Totals	*516.9*	*0.167*	*521.0*

Table 4 - Off-Road Diesel Equipment

Emission Factors for 2021

Equipment Description	OFFROAD Category	BHP	Load Factor	Emission Factors (g/bhp-hr)						
				ROG	CO	NO_x	PM_{10}	$PM_{2.5}$	CO_2	CH_4
Toyota Fork lifts	forklifts	78	0.20	0.459	3.760	4.133	0.520	0.283	471.5	0.153
Caterpillar Hay squeezes	forklifts	155	0.20	0.338	3.249	3.320	0.180	0.165	472.1	0.153
Telehamber lift	forklifts	155	0.20	0.338	3.249	3.320	0.180	0.165	472.1	0.153
Yard Goat	off-highway trucks	350	0.38	0.246	1.414	2.347	0.086	0.079	474.6	0.153

** Data from CalEEMod™ Version 2016.3.2 Users Guide, Appendix D*

Table 5 - EMFAC2017 (v1.0.2)

2021 Estimated Annual Emission Rates
EMFAC2011 Vehicle Categories
Imperial COUNTY

Vehicle Info			Emission Factor (grams/mile)											
Type	Fuel	VMT	ROG	CO	NO_X	PM_{10} Exhaust	PM_{10} TW+BW	PM_{10} Total	$PM_{2.5}$ Exhaust	$PM_{2.5}$ TW+BW	$PM_{2.5}$ Total	CO_2	CH_4	N_2O
LDA	GAS	5,643,787	0.0117	0.7956	0.0488	0.0013	0.0448	0.0461	0.0012	0.0178	0.0190	277.5	0.0030	0.0051
LDA	DSL	50,426	0.0172	0.1927	0.1172	0.0109	0.0448	0.0557	0.0105	0.0178	0.0282	195.3	0.0008	0.0307
LDT1	GAS	612,064	0.0481	2.2198	0.2045	0.0025	0.0448	0.0472	0.0023	0.0178	0.0200	328.5	0.0106	0.0135
LDT1	DSL	293	0.2201	1.3083	1.3190	0.1815	0.0448	0.2263	0.1737	0.0178	0.1914	393.3	0.0102	0.0618
LDT2	GAS	1,908,388	0.0256	1.3495	0.1365	0.0015	0.0448	0.0463	0.0014	0.0178	0.0192	353.8	0.0060	0.0097
LDT2	DSL	11,016	0.0140	0.1017	0.0566	0.0068	0.0448	0.0515	0.0065	0.0178	0.0242	262.5	0.0006	0.0413
Weighted Avg for Employees & Visitors			***0.0177***	***1.0255***	***0.0812***	***0.0015***	***0.0448***	***0.0463***	***0.0014***	***0.0178***	***0.0192***	***298.5***	***0.0042***	***0.0068***
T7 Single	DSL	10,813	0.1076	0.4239	4.4299	0.0773	0.0977	0.1751	0.0740	0.0355	0.1094	1,491.3	0.0050	0.2344
T7 Tractor	DSL	49,086	0.1398	0.5689	4.7074	0.0998	0.0977	0.1975	0.0955	0.0355	0.1309	1,398.0	0.0065	0.2197

Notes - Criteria and GHG factors come from EMFAC2017 for Calendar Year 2021 and represent Estimated Annual Emission Rates for Imperial County

Season was "annual" and Model Year and Speed were "aggregated"

Table 6 - Operational Entrained Road Dust

Entrained road dust emissions are generated by vehicles traveling on both paved and unpaved roads. These equations are based on the paved and unpaved roads emission factors found in Section 5.3 of Appendix A, CalEEMod Users Guide, version 2016.3.2 and AP-42 Sections 13.2.1 and 13.2.2.

Emission Factors - Paved Roads

EF PM_{10} = / **EF $PM_{2.5}$ =** $[k * (sL^{0.91}) * (W^{1.02})] * (1 - P/4N)$ =

0.00065 lbs PM_{10}/VMT

0.00016 lbs $PM_{2.5}$/VMT

Constant	Description	Value
k =	*PM_{10} particle size multiplier for particle size range and units of interest*	0.0022
	$PM_{2.5}$ particle size multiplier for particle size range and units of interest	0.00054
sL =	*road surface silt loading in g/m^2 (allowable range is 0.02 to 400 g/m^2)*	0.1
W =	*average weight of the vehicles traveling the road in tons (mean average fleet vehicle weight ranging from 1.5 - 3 tons)*	2.4
P =	*number of "wet" days with at least 0.01 in)ches of precipitation during the averaging period*	35
N =	*number of days in the averaging period (e.g., 365 for annual, 91 for seasonal, 30 for monthly)*	365

Emission Factors - Unpaved Roads

EF PM_{10} = / **EF $PM_{2.5}$ =** $(k * (s/12)^1 * (S/30)^{0.5} / (M/0.5)^{0.2} - C) * (1 - P/365)$ =

0.7321 lbs PM_{10}/VMT

0.0729 lbs $PM_{2.5}$/VMT

Constant	Description	Value
k =	*PM_{10} particle size multiplier for particle size range and units of interest*	1.8
	$PM_{2.5}$ particle size multiplier for particle size range and units of interest	0.18
s =	*surface material silt content (%) (allowable range 1.8 - 35 %)*	4.3
M =	*surface moisture content (%) (allowable range 0.03 – 13 %)*	0.5
S =	*the average vehicle speed (mph) (allowable range [10 - 55 mph])*	40
C =	*PM_{10} emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear*	0.00047
	$PM_{2.5}$ emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear	0.00036
P =	*number of "wet" days with at least 0.254 mm (0.01 in) of precipitation during the averaging period **	6

** Data from Western Regional Climate Center. El Centro Period of Record General Climate Summary - Precipitation. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca2713. Accessed January 2020.*

Activity	VMT per day		Emissions in pounds per day							
			Paved Roads		Unpaved Roads		Total Roads		Mitigated	
	Paved	Unpaved	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Raw product to Hay Kingdom	1,860	0	1.200	0.295	0.000	0.000	1.200	0.295	0.516	0.127
Processed hay to AAG	2,448	0	1.579	0.388	0.000	0.000	1.579	0.388	0.679	0.167
Employee Commute	1,472	0	0.950	0.233	0.000	0.000	0.950	0.233	0.408	0.100
Vendors	2,098	110	1.353	0.332	80.821	8.048	82.175	8.380	35.335	3.604
TOTAL	***7,878***	***110***	***5.08***	***1.25***	***80.82***	***8.05***	***85.90***	***9.30***	***36.94***	***4.00***

Mitigation of 57% for traffic speed restriction

Note: Since employees will be using a parking area adjacent to a paved road, all employee trips will be on paved roads. Additionally, all haulers would be on paved roads. Since vendors may travel some on unpaved roads to deliver materials or provide service or product, it was estimated that 5% of vendor travel was assigned to unpaved roads.

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Table 7 - Off-Road Diesel Equipment List

Description	Make - Model	Asset #	BHP	hrs/ day	days/ week	hrs/ week	hrs/ year
Caterpillar Hay squeezes	Hyster - H80FT	FC-000027	78	16	12	92	4,797
Toyota Fork lifts	Hyster - H80FT	FC-000028	78	16	12	92	4,797
Telehamber lift	Hyster - H210HD2	FC-000066	155	2	5	8	417
Yard Goat	Off road truck	FC-000160	350	16	12	92	4,797

Table 8 - Assumptions

Travel Distances

Delivering Hay to Hay Kingdom

Source of Hay		1-way mileage	
		In County	Total
40%	Southern Imperial Valley	10	10
35%	Northern Imperial Valley	20	20
20%	Wilcox AZ	19	383
5%	Beaverton Utah	76	528
	Weighted average 1-way Mileage	***18.6***	***114.0***

Notes - Inbound travel was presented as "In County" for criteria calculations and "Total" for GHG calculations

Inbound percentage distribution provided by client

Employees & Miscellaneous

Source		1-way mileage
50%	Brawley	11
50%	El Centro	7.4
Average 1-way Mileage		***9.2***

Processed Hay to Long Beach

Source	1-way mileage
Hay Kingdom to AAG	20.4

Note - All mileages were determined by using Google Earth's Path Measurement tool and/or Google Maps

OB-1
AIR ANALYSES

APPENDIX B

Health Risk Assessment

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HEALTH RISK ASSESSMENT

HAY KINGDOM EXPANSION PROJECT

COUNTY OF IMPERIAL

Lead Agency:

County of Imperial
Planning & Development Services Department
801 Main Street
El Centro, California 92243

Prepared by:

Vista Environmental
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Laguna Beach, California 92651
949 510 5355
Greg Tonkovich, AICP

Project No. 20046

June 1, 2020

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ACRONYMS AND ABBREVIATIONS

BACT	Best Available Control Technology
BSFC	Brake Specific Fuel Consumption
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
DPM	Diesel particulate matter
EPA	Environmental Protection Agency
ºF	Fahrenheit
HAP	Hazardous Air Pollutants
ICAPCD	Imperial County Air Pollution Control District
OEHHA	Office of Environmental Health Hazard Assessment
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PPM	Parts per million
PPB	Parts per billion
PPT	Parts per trillion
TAC	Toxic air contaminants

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Health Risk Assessment (HRA) has been completed to determine the potential cancer and non-cancer (acute and chronic) risks would exceed state and federal standards from the diesel emission sources associated with the operation of the proposed Hay Kingdom Expansion project (proposed expansion project). This analysis has been prepared based on the analysis procedures provided in the *Health Risk Assessments for Proposed Land Use Projects* (CAPCOA Guidelines), prepared by California Air Pollution Control Officers Association (CAPCOA), July 2009 and *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA Guidelines), prepared by Office of Environmental Health Hazard Assessment (OEHHA), February 2015. The following is provided in this report:

- A description of the proposed project;
- A description of toxic air contaminants (TACs);
- A description of the regulatory setting;
- A description of TAC standards or thresholds;
- An analysis of TAC concentrations created from operation of the proposed project; and
- A comparison of the calculated cancer and acute non-cancer risks with the ICAPCD thresholds.

1.2 Site Location and Study Area

The project site is located at 393 E. Worthington Road in an unincorporated area within the County of Imperial (County). The approximately 59.4 acre triangular project site is currently utilized by Hay Kingdom as a hay pressing facility and is bounded by Worthington Road and agricultural uses to the north, an aqueduct (Rose Lateral Two) and agricultural uses to the east, and an aqueduct (Rose Canal) and Highway 111 to the southeast. The project local study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

Individuals who are more sensitive to toxic exposures than the general population are considered sensitive receptors. This would include children, the elderly, and persons with preexisting respiratory or cardiovascular illness. Such receptors may reside at hospitals, residences, convalescent facilities, and schools. The nearest sensitive receptor to the project site consist of two homes located at the intersection of Worthington Road and Rose Lateral Two, a home near the middle of the east side of the project site, homes south of the project site and south of Huston Road, homes southwest of the project site and west of Highway 111 on the north side of Huston Road, and homes west and northwest of the project site on the west side of Highway 111.

1.3 Proposed Project Description

The proposed project consists of expansion of the Hay Kingdom hay pressing facility. Currently, the facility processes 530 tons per day of hay product. The proposed project would increase the daily processing rate to 1,100 tons per day. The facility currently operates six days per week, 16 hours per day but is permitted to operate seven days per week and 24 hours per day. The proposed site plan is shown in Figure 2.

The proposed project would generate an annual average of 60 daily round truck trips per day. The off-road diesel-powered equipment that is currently operating on the project site is shown in Table A. Table A also shows the brake horsepower, hours per day, days per week and hours per year that each piece of equipment operates.

Table A – Off-Road Diesel-Powered Equipment Operating on the Project Site

Equipment Description	Make – Model	Brake Horsepower	Load Factor	Hours per Day	Days per Week	Hours per Year
Toyota Fork lift	Hyster - H80FT	78	0.20	16	5	4,171
Toyota Fork lift	Hyster - H80FT	78	0.20	16	5	4,171
Caterpillar Hay squeeze	Hyster - H80FT	155	0.20	16	5	4,171
Caterpillar Hay squeeze	Hyster - H80FT	155	0.20	16	5	4,171
Caterpillar Hay squeeze	Hyster - H80FT	155	0.20	16	5	4,171
Caterpillar Hay squeeze	Hyster - H80FT	155	0.20	16	5	4,171
Telehamber lift	Hyster - H210HD2	155	0.20	8	5	2,086
Yard Goat	Off-Road Truck	350	0.38	16	5	4,171

Source: Project Applicant.

1.4 Project Design Features Incorporated into the Proposed Project

This analysis was based on implementation of the following project design features that have been detailed by the project applicant.

Project Design Feature 1:

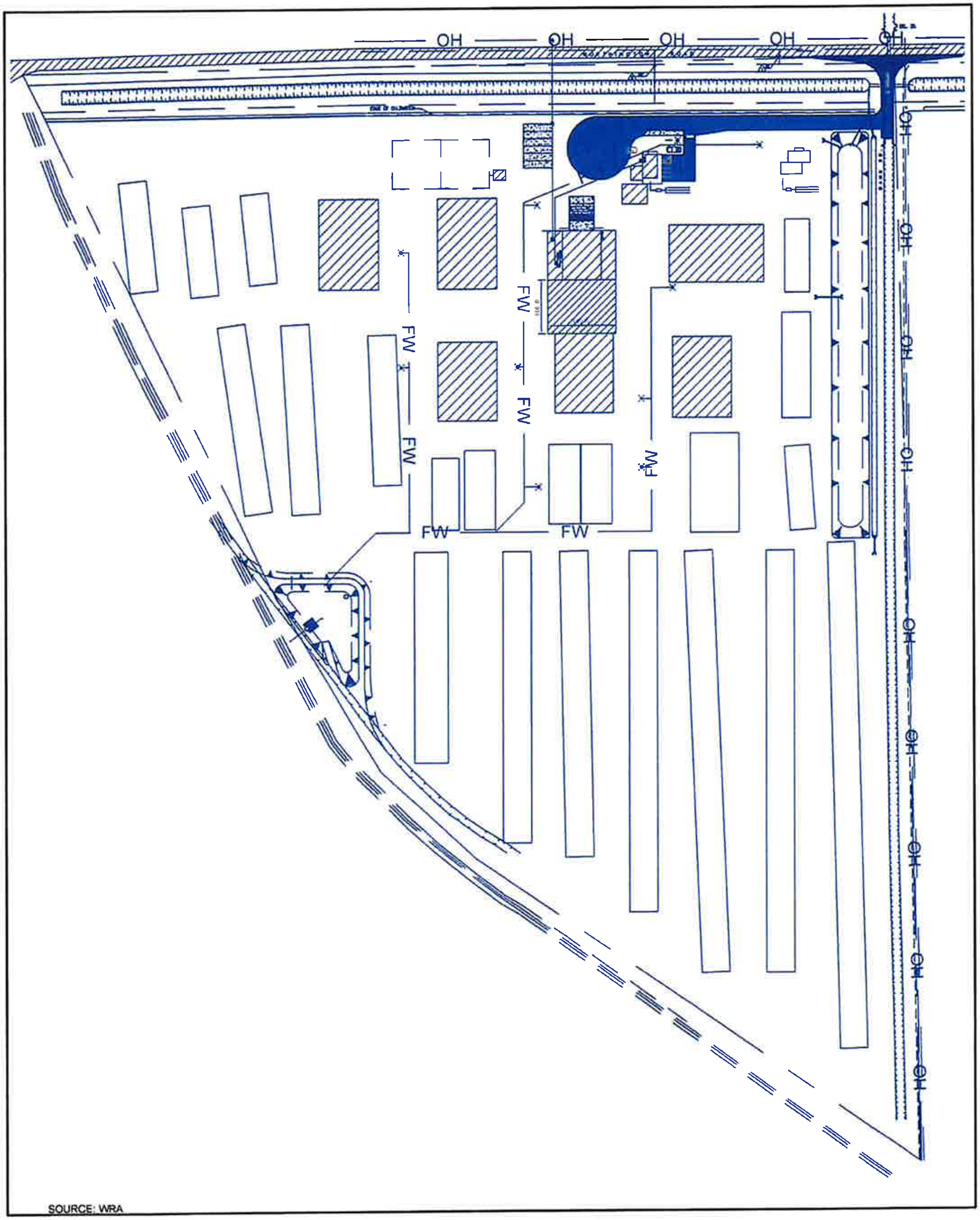
The project applicant has stated that upon approval of the proposed project, all off-road diesel equipment utilized onsite will meet the U.S. EPA's Tier 4 emissions standards. Project Design Feature 1 commits the project applicant to only using off-road diesel equipment that meets or exceeds Tier 4 emissions standards when the proposed project is implemented.

1.5 Mitigation Measures for the Proposed Project

This analysis found that through implementation of the State and ICAPCD TAC emissions reductions regulations as well as implementation of the above Project Design Feature 1, would limit TAC emissions from the proposed project to less than significant levels and no mitigation is required.

VISTA ENVIRONMENTAL

Figure 1
Project Local Study Area



VISTA
ENVIRONMENTAL

Figure 2
Site Plan
EEC ORIGINAL PKG

2.0 ATMOSPHERIC SETTING

The project site is located within the central portion of Imperial County, which is part of the Salton Sea Air Basin (Air Basin). The Air Basin is comprised of the central portion of Riverside County and all of Imperial County. The Riverside County portion of the Air Basin is regulated by the South Coast Air Quality Management District (SCAQMD) and the Imperial County portion of the Air Basin is regulated by the Imperial County Air Pollution Control District (ICAPCD).

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographical features. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with physical features of the landscape to determine their movement and dispersal, and consequently, their effect on air quality. The combination of topography and inversion layers generally prevents dispersion of air pollutants in the Air Basin. The following description of climate of Imperial County was obtained from *Imperial County 2018 Redesignation Request and Maintenance Plan for Particulate Matter less than 10 Microns in Diameter*, prepared by ICAPCD, October 23, 2018.

The climate of Imperial County is governed by the large-scale sinking and warming of air in the semi-permanent high-pressure zone of the eastern Pacific Ocean. The high-pressure ridge blocks out most mid-latitude storms, except in the winter, when it is weakest and located farthest south. The coastal mountains prevent the intrusion of any cool, damp air found in California coastal areas. Because of the barrier and weakened storms, Imperial County experiences clear skies, extremely hot summers, mild winters, and little rainfall. The sun shines, on the average, more in Imperial County than anywhere else in the United States.

Winters are mild and dry with daily average temperatures ranging between 65- and 75-degrees Fahrenheit (°F). During winter months it is not uncommon to record maximum temperatures of up to 80 °F. Summers are extremely hot with daily average temperatures ranging between 104 and 115 °F. It is not uncommon to record maximum temperatures of 120 °F during summer months.

The flat terrain of the valley and the strong temperature differentials created by intense solar heating, produce moderate winds and deep thermal convection. The combination of subsiding air, protective mountains, and distance from the ocean all combine to severely limit precipitation. Rainfall is highly variable with precipitation from a single heavy storm able to exceed the entire annual total during a later drought condition. The average annual rainfall is just over three inches with most of it occurring in late summer or mid-winter.

Humidity is low throughout the year, ranging from an average of 28 percent in summer to 52 percent in winter. The large daily oscillation of temperature produces a corresponding large variation in the relative humidity. Nocturnal humidity rises to 50 to 60 percent but drops to about 10 percent during the day.

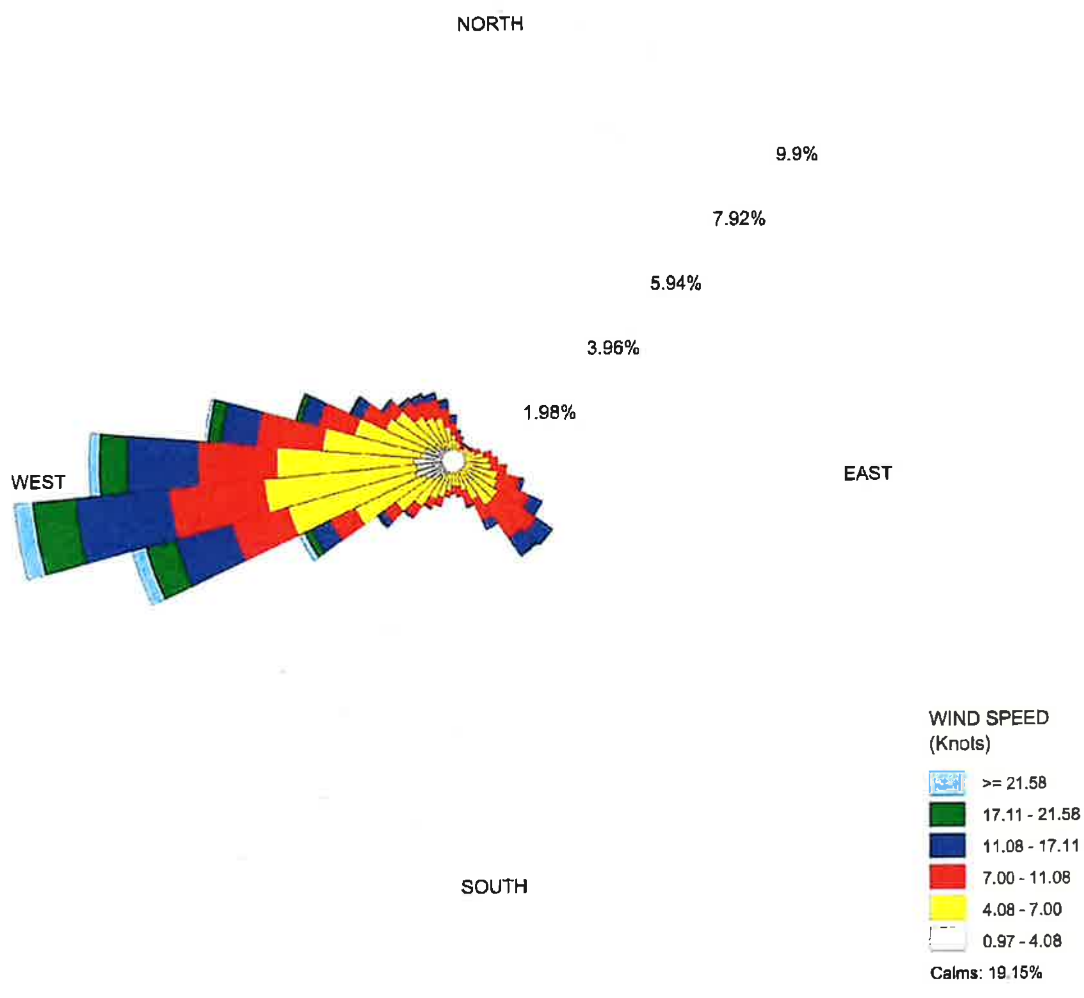
The wind in Imperial County follows two general patterns. Wind statistics indicate prevailing winds are from the west-northwest through southwest; a secondary flow maximum from the southeast is also evident. The prevailing winds from the west and northwest occur seasonally from fall through spring and are known to be from the Los Angeles area. Occasionally, Imperial County experiences periods of extremely high wind speeds. Wind speeds can exceed 31 miles per hour (mph) and this occurs most frequently during the months of April and May. However, speeds of less than 6.8 mph account for more than one-half of the observed wind measurements. The wind rose from Imperial County Airport, which is the nearest monitoring station to the project site is shown in Figure 3.

WIND ROSE PLOT:

Station #3144

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:

DATA PERIOD:

Start Date: 1/1/2009 - 00:00
End Date: 1/2/2014 - 23:59

COMPANY NAME:

MODELER:

CALM WINDS:

19.15%

TOTAL COUNT:

41831 hrs.

AVG. WIND SPEED:

6.23 Knots

DATE:

1/27/2020

PROJECT NO

WRPLOT View - Lakes Environmental Software

VISTA ENVIRONMENTAL

Figure 3
Wind Rose from Imperial County Airport

EEC ORIGINAL PKG

3.0 TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs) is a term that is defined under the California Clean Air Act and consists of the same substances that are defined as Hazardous Air Pollutants (HAPs) in the Federal Clean Air Act. There are over 700 hundred different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different toxic air contaminants. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

3.1 Diesel Particulate Matter

According to *The California Almanac of Emissions and Air Quality 2013 Edition*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM). DPM is typically considered a subset of PM2.5 because the size of diesel particles are typically 2.5 microns and smaller. The identification of DPM as a TAC in 1998 led the California Air Resources Board (CARB) to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in DPM by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources. The various pollutants within DPM that also cause acute and chronic health impacts are detailed below in Table B. Table B was developed through crosschecking all diesel emissions pollutants provided in San Diego Air Pollution Control District's (SDAPCD) Diesel Fired Engines Emissions Factor Table to the list of acute and chronic reference exposure levels provided at: http://oehha.ca.gov/air/allrels.html.

According to the California Office of Environmental Health and Hazards Assessment (OEHHA), no acute risk has been found to be directly created from DPM, so there is no Acute Reference Exposure Level (AREL) assigned to DPM. However, as detailed in Table B, other TAC emissions associated with diesel exhaust do have an acute REL assigned to them. In order to account for the acute risk from all TAC emissions associated with diesel emissions, a hypothetical acute REL was calculated for DPM through multiplying each TAC with an acute REL to its diesel weight fraction and then adding together the results, which resulted in a hypothetical acute AREL of 137 for diesel emissions.

Table B – Diesel Emission Pollutants that Cause Acute and Chronic Health Impacts

TAC	TAC Potency Factors (µg/m³)[1] Acute REL[2]	Chronic REL	Percent of DPM Emission Rate[3]	Target Organ Systems
1,3-Butadiene	660	140	0.51%	Development
Acetaldehyde	470	140	1.84%	Eyes, respiratory system (sensory irritation)
Acrolein	2.5	0.35	0.08%	Eyes, respiratory system
Arsenic	0.2	0.015	0.004%	Reproductive/developmental, cardiovascular system, nervous system
Benzene	27	3	0.44%	Hematologic system, immune system, reproductive/developmental
Cadmium	--	0.02	0.004%	kidney, respiratory system
Chlorobenzene	--	1,000	0.0005%	Eyes, respiratory system
Chromium (hexavalent)	--	0.2	0.001%	Respiratory system, hematologic system
Copper	100	--	0.01%	Respiratory system
Ethyl benzene	--	5	0.03%	Liver, kidney, developmental
Formaldehyde	55	9	4.07%	Eyes, immune system, respiratory
Hexane	--	200	0.06%	Nervous system
Hydrogen Chloride	2,100	9	0.44%	Eyes, respiratory system
Manganese	--	0.09	0.01%	Nervous system
Mercury	0.6	0.03	0.005%	Reproductive/developmental
Naphthalene	--	9	0.05%	Respiratory system
Nickel	0.2	002	0.01%	Immune system, respiratory system
Propylene	--	3000	1.10%	Respiratory System
Selenium	--	20	0.01%	Liver, cardiovascular system, nervous system
Toluene	37000	300	0.25%	Nervous system, eyes, respiratory system, reproductive/developmental
Xylene	22000	700	0.10%	Eyes, nervous and respiratory systems
DPM	--	5	--	Respiratory system

Notes:
[1] Potency factors obtained from: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp
[2] REL = Reference Exposure Level
[3] Percentage of DPM Emission Rate calculated by dividing the pollutant's pounds per 1,000 gallons rate by the PM2.5 pounds per 1,000 gallons rate provided by the SDAPCD
Sources: SDAPCD, 2011 and OEHHA, 2014.

Asbestos

Asbestos is listed as a TAC by CARB and as a Hazardous Air Pollutant by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. The nearest likely locations of naturally occurring asbestos, as identified in the *General Location Guide for Ultramafic Rocks in California*, prepared by the California Division of Mines and Geology, is located in Santa Barbara County. The nearest historic asbestos mine to the project site, as identified in the *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California*, prepared by U.S. Geological Survey, is located at Asbestos Mountain, which is approximately 75 miles northwest of the project site in the San Jacinto Mountains. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

3.2 TAC Regulatory Setting

The TACs emissions from the nearby existing uses are addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to reduce TACs through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving TACs are discussed below.

Federal and State

The United States Environmental Protection Agency (EPA) is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. There are national standards for six common "criteria" air pollutants including ozone, nitrogen dioxide, carbon monoxide, particulate matter (PM_{10} and $PM_{2.5}$), lead, and sulfur dioxide, which were identified from provisions of the Clean Air Act of 1970. California, under the California Clean Air Act, has also defined a set of health protective California Ambient Air Quality Standards (CAAQS).

Besides the "criteria" air pollutants, there is another group of substances found in ambient air referred as Hazardous Air Pollutants (HAPs) under the Federal Clean Air Act and Toxic Air Contaminants (TACs) under the California Clean Air Act. These contaminants tend to be localized to their sources and are found in relatively low concentrations in ambient air. They are regulated at the federal, state and regional levels, due to their potential of causing adverse health effects from exposure to low concentrations for long periods of time. HAPs are the air contaminants identified by the EPA as known or suspected to cause cancer, serious illness, birth defects, or death. Many of the contaminants originate from human activities, such as fuel combustion and solvent use. Mobile Source Air Toxics (MSATs) are a subset of the 188 identified HAPs. Of the 21 different HAPs that constitute the MSATs, there are six primary HAPs identified that include diesel exhaust, benzene, formaldehyde, acetaldehyde, acrolein, and 1, 3-butadiene. While vehicle miles traveled in the United States is anticipated to increase by 64 percent between 2000 and 2020, emissions of MSATs are anticipated to decrease between 57 and 67 percent as a result of efforts to control mobile source emissions.

The CARB Statewide comprehensive air toxics program was established in the early 1980s. The TAC Identification and Control Act (Assembly Bill 1807, Tanner 1983 [AB 1807]) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill 2588, Connelly 1987 [AB 2588]) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

AB 1807, requires the CARB to identify and control TACs. In selecting substances, the CARB must consider "the risk of harm to the public health, amount or potential amount of emissions, manner of, and exposure to, usage of the substance in California, persistence in the atmosphere, and ambient concentrations in the community." AB 1807 also requires the CARB to use available information gathered from the AB 2588 program to include in the prioritization of compounds. In 1992, the Hot Spots Act was amended by Senate Bill 1731, to require facilities that pose a significant health risk to reduce their risk through a risk management plan.

In 2000, the CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce PM emissions and the associated health risks by 75 percent by 2010 and 85 percent by 2020. The plan provides a roadmap that identifies steps CARB will be taking to develop specific regulations to reduce diesel particulate matter (DPM) emissions.

As a result of controls on motor vehicles, fuels, stationary sources, and consumer products, the public's exposure to air toxics has decreased dramatically. Between the early 1990's and today, the decrease in statewide average health risk ranged from approximately 20 percent from formaldehyde to approximately 90 for perchlorethylene. 1,3-butadiene and benzene have also seen significant decreases of 80 to 85 percent as a result of CARB's mobile source control program. In addition dioxins have been reduced by 99 percent in that time period, however that is primarily due to CARB's restrictions on medical waste incinerators.

CCR Title 13, Section 2025 - On-Road Diesel Truck Fleets

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. On October 12, 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in California shall meet model year 2010 (Tier 4 Final or Tier 4f) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. By January 1, 2017, 80 percent of a truck fleet is required to have installed Best Available Control Technology (BACT) for NOx emissions and 100 percent of a truck fleet installed BACT for PM10 emissions. This regulation also provides a few exemptions including a delayed implementation rate for truck fleets of three or fewer trucks, exemptions for agricultural trucks that drive less than 1,000 miles per year, and a onetime per year 3-day pass for trucks registered outside of California. All diesel trucks that utilize public roads in California are required to comply with CCR Title 13, Section 2025.

CCR Title 13, Section 2485 - Commercial Vehicle Idling and Auxiliary Power Systems

On October 20, 2005 the CARB approved regulatory measures including the adoption of Title 13, Chapter 9, Article 8, Section 2485 of the California Code of Regulations (CCR) (Section 2485), which regulates idling activities and auxiliary power systems (APS) in commercial vehicle vehicles with a vehicle weight rating of greater than 10,000 pounds. On December 5, 2014, the Office of Administrative Law (OAL) approved new Amendments Section 2485, which became effective on January 1, 2015, and now all APS systems operated in California are required to meet the model year 2007 or newer emissions standards and all new APS systems are required to meet the Tier 4f emission standards and by 2023 all APS systems operating in California will be required to meet the Tier 4f emissions standards. Section 2485 also restricts vehicle idling to no more than five minutes at any one location and restricts the operation of an APS to no more than five minutes in any location within 100 feet of a sensitive receptor.

Imperial County Air Pollution District

The ICAPCD is the agency principally responsible for comprehensive air pollution control for the Imperial County Air Basin (Air Basin). The ICAPCD is responsible for regulating emissions primarily from stationary sources and certain area wide and indirect sources, but has no authority over motor vehicle emissions and other non-stationary sources of TAC emissions. To that end, as a regional agency, the ICAPCD works directly with the county transportation commission and local governments and cooperates actively with all federal and state agencies. The ICAPCD with coordination of the County transportation agency is also responsible for developing the Air Quality Plans for the County. In addition, the ICAPCD has prepared the *CEQA Air Quality Handbook*, adopted in November 2007, which sets forth recommended thresholds of significance, analysis methodologies, and provides guidance on mitigating significant air quality impacts. Section 4.6.a. of the Air Quality Handbook requires that any industrial operations that have the potential to emit TACs, even at very low levels of emissions, are required to prepare a health risk assessment to determine the potential level of risk with the operation.

ICAPCD Rule 207, New and Modified Stationary Source Review, requires that emissions from new or modified emissions sources shall not cause or make worse a violation of an AAQS.

ICAPCD Rule 1101, New Source Performance Standards (NSPS) requires that all new stationary sources of air pollution shall comply with the standards and requirements provided within Rule 1101

4.0 MODELING PARAMETERS AND ASSUMPTIONS

The dispersion modeling utilized for analyzing TAC emissions in this analysis has been based on the recommended methodology described in *Health Risk Assessments for Proposed Land Use Projects* (CAPCOA Guidance), prepared by CCAPCOA, July 2009 and *Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments* (OEHHA Guidance), prepared by OEHHA, February 2015. Important issues that affect the dispersion modeling include the following: 1) Model Selection, 2) Source Treatment, 3) Meteorological Data, and 4) Receptor Grid. Each of these issues are addressed below.

4.1 Model Selection

Lakes Environmental's AERMOD View Version 9.9.0 was used for all dispersion modeling. Key dispersion modeling options selected included the regulatory default options. According to the OEHHA Guidance, the threshold for utilizing the urban modeling option is 750 people per square kilometer, since there is approximately 20 homes located in the 1.5 square kilometer analysis area and based on a typical occupancy rate of 3 persons per home this would result in 60 people living in the analysis area. Therefore the rural modeling option was chosen. Flagpole receptor height was set to 0 meters. AERMAP was run with a 7.5 minute USGS DEM Maps of El Centro for the west side and Holtville-west for the east side.

Meteorological Data

Meteorological data provided by CARB for Imperial County Airport for the time period of January 1, 2009 and January 2, 2014 were selected for this modeling application. CARB processed the data for input into the AERMOD model. The data was obtained at: https://ww3.arb.ca.gov/toxics/harp/metfiles2.htm.

Receptor Grid

There are two homes located at the intersection of Worthington Road and Rose Lateral Two, a home near the middle of the east side of the project site, homes south of the project site and south of Huston Road, homes southwest of the project site and west of Highway 111 on the north side of Huston Road, and homes west and northwest of the project site on the west side of Highway 111. Discrete receptors were placed at the locations of the nearest offsite residential structures. Figure 4 shows the locations of the sources and receptors modeled in the AERMOD model.

4.2 TAC Emissions Assumptions

The proposed project is anticipated to generate DPM emissions from on-road vehicle operations and off-road equipment. All emissions are based on the project opening, year 2021 emissions rates. In order to provide a worst-case analysis, this analysis analyzes the impacts from all DPM emissions created from the entire Hay Kingdom hay processing facility and not just the DPM emissions associated with the proposed expansion.

Off-Road Diesel Equipment

The OFFROAD2017 Web Database provided at: https://www.arb.ca.gov/orion/ was utilized to calculate the DPM emissions from each piece of equipment that operates on the project site. The OFFROAD2017 model was run for Imperial County for the year 2021. Since the project applicant has stated that all off-road diesel equipment meets the most current Tier 4 standards, that were not fully implemented until the year 2014, the model year 2014 was analyzed in the OFFROAD2017 model. The OFFROAD2017 model only provides a limited number of types of off-road vehicles, as such the most similar types available to the off-road equipment utilized onsite were selected, which include off-highway trucks, rubber tired loaders, tractors/loaders/backhoes, and forklifts. It should be noted that the DPM emission rates for each type of equipment needs to meet the same Tier 4 standards, so an exact match to the equipment used is not required to provide a reasonable estimate of DPM emissions created from each piece of equipment. The applicable emission rates from OFFROAD2017 emissions rates are shown in Table C and Appendix A provides the OFFROAD2017 model printouts.

Table C – OFFROAD2017 DPM (PM2.5) Equipment Emission Rates

Equipment	Total Horsepower Hours-Day per Type of Equipment	Total PM2.5 Tons per Day	DPM Emission Rates (grams per Brake Horsepower-hour)
Off-Highway Trucks	2,975	3.7E-05	0.011
Rubber Tired Loaders	222	1.0E-06	0.004
Tractors/Loaders/Backhoes	2,146	1.2E-05	0.005
Forklifts	335	8.6E-07	0.002

Source: OFFROAD2017 Web Database https://www.arb.ca.gov/orion/ (see Appendix A)

The off-road equipment DPM emission rates were calculated by multiplying the OFFROAD2017 emissions rates shown in Table C by the brake horsepower for each piece of equipment, than converting the DPM emissions into grams per second. The calculated DPM emissions from the off-road equipment operating on the project site is shown in Table D.

Table D – Off-Road Diesel-Powered Equipment DPM Emission Rates on the Project Site

Equipment Description	Brake Horsepower	DPM Emission Rates[1] (grams/horsepower-hour)	Equipment DPM Emissions (grams/year)	Equipment DPM Emissions (grams/second)
Toyota Fork lift	78	0.002	910.2	2.89E-05
Toyota Fork lift	78	0.002	910.2	2.89E-05
Caterpillar Hay squeeze	155	0.002	1808.7	5.73E-05
Caterpillar Hay squeeze	155	0.002	1808.7	5.73E-05
Caterpillar Hay squeeze	155	0.002	1808.7	5.73E-05
Caterpillar Hay squeeze	155	0.002	1808.7	5.73E-05
Telehamber lift	155	0.005	1893.4	6.00E-05
Yard Goat	350	0.011	19726.6	6.25E-04
		Combined Equipment DPM Emission Rate		**9.73 E-04**

Notes:
[1] DPM Emissions Rates from EMFAC2017, shown in Table C above.

The off-road equipment was analyzed in the AERMOD model as a 158,637 square meter (39.2 acre) area source that encompasses the area of the project site where the off-road equipment would typically operate. The AERMOD emission rates were calculated by converting each pollutant's emissions to grams per second and then dividing by the grams per second by 158,637 square meters, which resulted in an emission rate of 6.13E-09 grams per second per meter that was entered into the AERMOD model. The equipment area source was modeled with a 12 foot release height and a 50-foot initial vertical dimension of the plume in order to account for the vertical velocity of the exhaust leaving the off-road equipment.

On-Road Diesel Truck Emissions

The truck trips generated from the proposed project have been calculated through use of the average annual daily truck trip rate of 60 round trips per day, which was calculated by the project applicant and accounts for the variation of truck trips throughout the year. The truck trip distribution on the nearby roads was obtained from the *Draft Traffic Impact Analysis Hay Kingdom County of Imperial (393 E. Worthington Rd)*, prepared by LOS Engineering, Inc. April 3, 2020.

The truck travel was modeled with line volume sources of Highway 111, Worthington Road, and Rose Lateral Two Road, as well as onsite roads within a 1.5 kilometer area around the project site. According to the Traffic Impact Analysis, the following percentages of daily truck trips will occur on the nearby roadways: 1 percent on Worthington Road west of Highway 111; 98 percent on Worthington Road between Highway 111 and Rose Lateral Two; 2 percent on Worthington Road east of Rose Lateral Two; 39 percent on Highway 111 north of Worthington Road; and 58 percent on Highway 111 south of Worthington Road.

The emission factors used for the roadway line volume sources was obtained from a model run of EMFAC2017 Model Version 1.0.2 for Imperial County for the year 2021. The diesel trucks were based on the T7 Tractor truck classification. The onsite truck travel was analyzed based on a speed of 15 miles per hour and the travel on Worthington Road was analyzed based on a speed of 45 miles per hour and Highway 111 was analyzed based on a speed of 55 miles per hour. The EMFAC2017 model run printout is provided in Appendix B. The onsite truck travel emission rates utilized in the AERMOD model were calculated by the following formula:

Emissions (grams/second) = [Emission Rate from EMFAC2017 (grams/mile)] x [length of analyzed roadway (miles)] x [vehicle trips per day] x 1.157E-05 [day/second conversion factor]

Table E provides a summary of the roadway source modeling parameters used for the DPM analysis. All truck travel roadway emissions sources were modeled as line volume sources with a 6 foot height and 12 foot width.

Table E – AERMOD Model Roadway Emissions Sources

Source ID	Description	Daily Vehicle Operations[1]	Vehicle Speed (MPH)	DPM Emissions Rate (grams/second)[2]
RDON	Onsite Road (including Rose Lateral Two Rd)	120	15	3.19E-05
RDWORW	Worthington Road – West of Hwy 111	1	45	2.43E-07
RDWORM	Worthington Road – Hwy 111 to Project	118	45	3.36E-05
RDWORE	Worthington Road – East of Project	2	45	6.77E-07
RD111N	Hwy 111 – North of Worthington Road	47	55	1.65E-05
RD111S	Hwy 111 – South of Worthington Road	70	55	5.34E-05

Notes:

[1] Obtained from project applicant and LOS Engineering, Inc., 2020.

[2] Emission rates from EMFAC2017 (see Appendix B).

Onsite Truck Idling

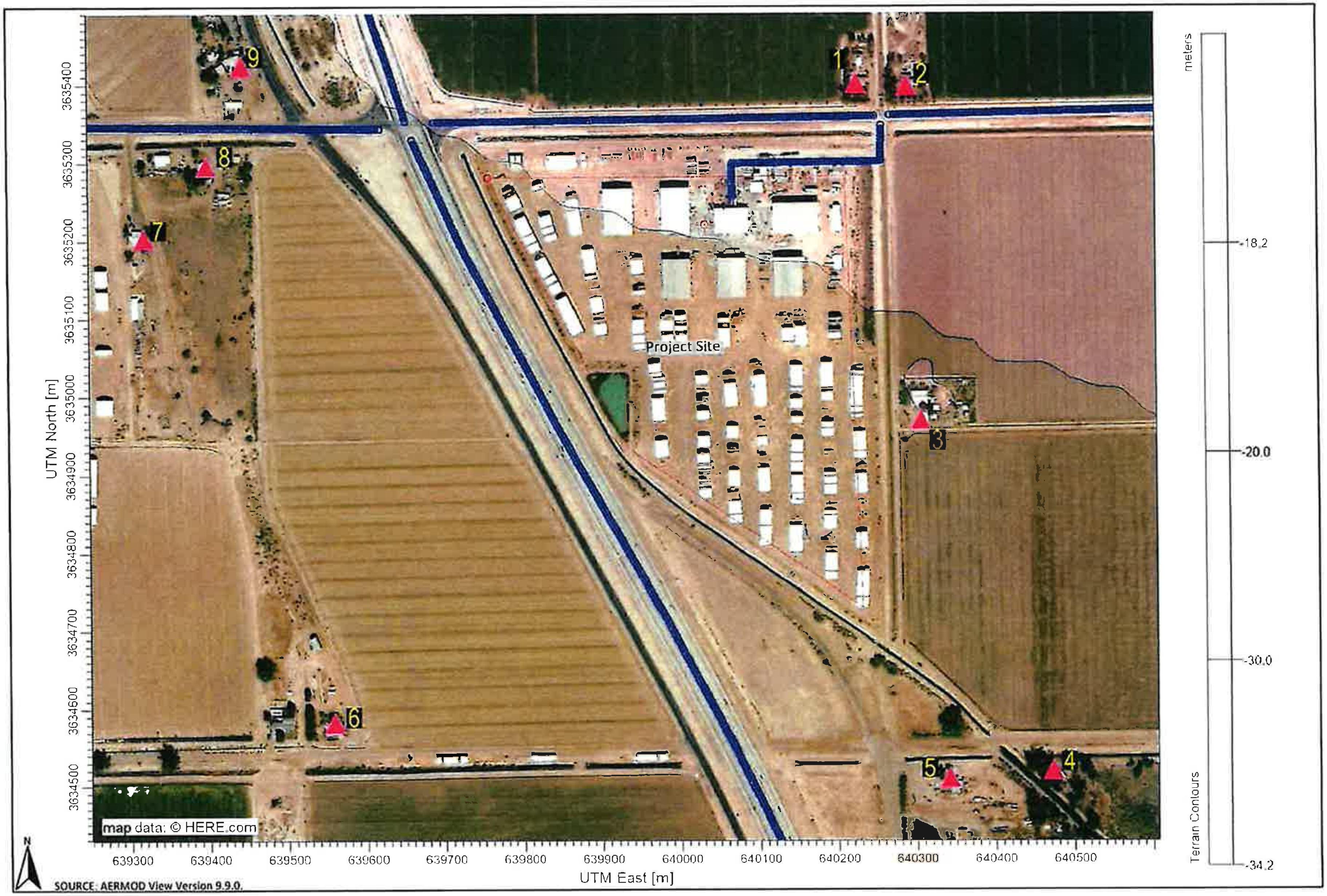
The onsite diesel truck idling was modeled as one point source located near the loading docks on the northern portion of the project site. The analysis was based on all 120 daily truck trips to or from the project site idling for five minutes. Per CCR Section 2485 truck idling is restricted to no more than five minutes at any one location.

The emissions factor used for the truck idling point source was based on the EMFAC2017 model run that was detailed above for the onsite truck travel emissions and is shown in Appendix B. The idling emission rates utilized in this analysis are shown in Table F that was calculated based on converting the EMFAC emissions rates from grams per hour to grams per second and then multiplying by the 320 daily truck trips that would each operate 5 minutes per day. The idling point source was modeled with a 12.6 foot height, a 0.1 meter diameter stack, a velocity of 51.71 meters per second, and a temperature of 366 K.

Table F – AERMOD Model Onsite Truck Idling Emissions Source

Source ID	Description	Daily Onsite Truck Trips[1]	DPM Emissions Rate (grams/second)[2]
IDLE	Onsite Truck Idling	120	7.66E-06

Notes:
[1] Obtained from project applicant.
[2] Emission rates from EMFAC2017 (see Appendix B).



VISTA ENVIRONMENTAL

Figure 4
Air Dispersion Model Emission Sources and Receptor Locations

5.0 HEALTH RISK STANDARDS

Any project with the potential to expose sensitive receptors or the general public to substantial levels of TACs would be deemed to have a potentially significant impact. A health risk is the probability that exposure to a TAC under a given set of conditions will result in an adverse health effect. The health risk is affected by several factors, such as the amount, toxicity, and concentration of the contaminant; meteorological conditions; distance from the emission sources to people; the distance between emission sources; the age, health, and lifestyle of the people living or working at a location; and the length of exposure to the toxic air contaminant.

The term "risk" usually refers to the chance of contracting cancer as a result of an exposure, and it is expressed as a probability: chances-in-a-million. The values expressed for cancer risk do not predict actual cases that will result from exposure to toxic air contaminants. Rather, they state a probability of contracting cancer over and above the background level and over a given exposure to toxic air contaminants.

Since the ICAPCD has not adopted a quantitative health risk significance threshold for TAC emissions, the thresholds provided in the CAPCOA Guidelines have been utilized. According to the CAPCOA Guidelines, any project that has the potential to expose the public to TACs in excess of the following threshold would be considered to result in a significant impact:

- If the Maximum Exposed Individual Cancer Risk from carcinogens equals or exceeds 10 in one million persons;
- If the Maximum Exposed Individual Acute Hazard Index from non-carcinogens equals or exceeds 1.0; or
- If the Maximum Exposed Individual Chronic Hazard Index from non-carcinogens equals or exceeds 1.0.

6.0 PROJECT IMPACTS

Health risks from TACs are twofold. First, TACs are carcinogens according to the State of California. Second, short-term acute and long-term chronic exposure to TACs can cause health effects to the respiratory system. Each of these health risks is discussed below.

6.1 Cancer Risk from DPM Emissions

According to the OEHHA Guidance (OEHHA, 2015), the cancer risk should be calculated using the following formula:

Cancer Risk = [Dose-inh (mg/(Kg-day)] * [Cancer Potency Factor (kg-day)/mg]*[$1x10^6$] * Age Sensitivity Factor * Fraction of Time at Home

Dose-inh = (C_{air} * DBR * A * EF * ED * 10^6) / AT

Where:

C_{air}	[Concentration in air ($\mu g/m^3$)] = (Calculated by AERMOD Model)
DBR	[Daily breathing rate (L/kg body weight – day)]
A	[Inhalation absorption factor]
EF	[Exposure frequency (days/year)]
ED	[Exposure duration (years)]
10^6	[Micrograms to milligrams conversion]
AT	[Average time period over which exposure is averaged in days]

The cancer risk parameters used in this evaluation for the nearby residential uses are shown in Table G.

Table G – Cancer Risk Parameters for Nearby Residents

Parameter	3rd Trimester to 2 years	2 years to 16 years	16 years to 30 years
Cancer Potency Factor (mg/kg-day) for DPM	1.1	1.1	1.1
Daily Breathing Rate[1] (L/kg body weight-day)	867	572	261
Inhalation Absorption Factor	1	1	1
Exposure Frequency (days/year)	350	350	350
Exposure Duration (years)	2.25	14	13.75
Age Sensitivity Factor	10	3	1
Fraction of Time at Home	0.85	0.72	0.73
Averaging Time[2] (days)	25,550	25,550	25,550
Potential Cancer Risk =	C_{air} * 250	C_{air} * 261	C_{air} * 39.5

Notes:
[1] Based on 90th percentile breathing rate for 3rd trimester to 2 years and 80th percentile for all other ages (OEHHA, 2015).
[2] Based on a 70-year average lifetime (OEHHA, 2015)

The OEHHA guidance recommends that Age Sensitivity Factors be utilized for residential receptors, which includes a 10-fold multiplier to infants (3rd trimester to age 2), a 3-fold increase in exposure for children (ages 2 to 16 years old), and an exposure factor of 1 for ages 16 and older. The OEHHA guidance also recommends utilizing the 90th percentile breathing rates for the 3rd trimester to 2 years and the 80th percentile breathing rates for all older persons. The 90th percentile breathing rates for 3rd trimester is 333 and for 0 to 2 years is 934. In order to simplify the analysis, the 3rd trimester and 0 to 2 year breathing rates were time-weighted averaged together, which resulted in a breathing rate of 867. The 80th percentile breathing rate for 2 to 16 years is 572 and for 16 to 30 years is 261.

As shown above in Table G, the potential cancer risk for residential receptors equates to C_{air} * 250 for 3rd trimester to age 2, C_{air} * 261 for ages 2 to 16, and C_{air} * 39.5 for ages 16 to 29.75. Table H provides a summary of the maximum calculated DPM concentrations at each nearby sensitive receptor as well as the coordinates of the receptor where the maximum DPM concentration was measured for each nearby sensitive receptor. Table H also shows the calculated cancer risk based on whether it the receptor is located at either a nearby residential or school use, which have been based on the parameters detailed above in Table G. The AERMOD model run printouts are provided in Appendix C.

Table H – DPM Concentrations and Cancer Risks at Nearby Homes

Sensitive Receiver	Receptor Description	Receptor Location[1] X	Receptor Location[1] Y	Annual DPM Concentration (μg/m³)	Cancer Risk Per Million People[2]
1	North of Project Site	640,229	3,635,401	0.0116	6.4
2	Northeast of Project Site	640,293	3,635,398	0.0116	6.4
3	East of Project Site	640,308	3,634,971	0.0177	9.7
4	Southeast of Project Site	640,473	3,634,521	0.0020	1.1
5	South of Project Site	640,342	3,634,511	0.0022	1.2
6	Southwest of Project Site	639,559	3,634,583	0.0004	0.2
7	West of Project Site	639,320	3,635,204	0.0012	0.7
8	West of Project Site	639,400	3,635,296	0.0017	0.9
9	Northwest of Project Site	639,446	3,635,424	0.0021	1.2
				Threshold of Significance	**10**
				Exceed Threshold?	**No**

Notes:
[1] Receptor location based on World Geodetic System 1984 (WGS84), Universal Transverse Mercator (UTM).
[2] The residential cancer risk based on: C_{air} * 250 for 3rd trimester to age 2 (2.25 years), C_{air} * 261 for ages 2 to 16 (14 years), and C_{air} * 39.5 for ages 16 to 29.75 (13.75 years).
Source: Calculated from ISC-AERMOD View Version 9.9.0.

Table H shows the highest concentration of DPM created from the proposed project is 0.0177 μg per cubic meter and would occur at Sensitive Receptor 3, which represents the ranch home located adjacent to the east side the project site. Sensitive Receptor 3 was found to result in a cancer risk increase of 9.7 per million people. All DPM emissions concentrations at the nearby sensitive receptors were found to be below the 10.0 in a million cancer risk threshold that has been discussed above in Section 5.0. Therefore, a less than significant cancer risk would occur from DPM emissions created from the operation of the proposed project.

6.2 Non-Cancer Risks from DPM Emissions

In addition to the cancer risk from exposure to TAC emissions there is also the potential TAC exposure may result in adverse health impacts from acute and chronic illnesses, which are detailed below.

Chronic Health Impacts

Chronic health effects are characterized by prolonged or repeated exposure to a TAC over many days, months, or years. Symptoms from chronic health impacts may not be immediately apparent and are often irreversible. The chronic hazard index is based on the most impacted sensitive receptor from the proposed project and is calculated from the annual average concentrations of DPM. The relationship for non-cancer chronic health effects is given by the equation:

$$HI_{DPM} = C_{DPM} / REL_{DPM}$$

Where,

HI_{DPM} = Hazard Index; an expression of the potential for non-cancer health effects.

C_{DPM} = Annual average diesel particulate matter concentration in $\mu g/m^3$.

REL_{DPM} = Reference Exposure Level (REL) for diesel particulate matter; the diesel particulate matter concentration at which no adverse health effects are anticipated.

The REL_{DPM} is 5 $\mu g/m^3$. The Office of Environmental Health Hazard Assessment as protective for the respiratory system has established this concentration. As shown above in Table H shows that the AERMOD model found that the highest annual DPM concentration of 0.0177 $\mu g/m^3$ for DPM chronic non-cancer risk emissions. The resulting Hazard Index is:

$$HI_{DPM} = 0.0177 / 5 = 0.00354$$

The criterion for significance is a Chronic Hazard Index increase of 1.0 or greater, which is detailed above in Section 5.0. Therefore, the non-cancer chronic health risks from construction of the proposed project to the nearby sensitive receptors would be less than significant.

Acute Health Impacts

Acute health effects are characterized by sudden and severe exposure and rapid absorption of a TAC. Normally, a single large exposure is involved. Acute health effects are often treatable and reversible. The acute hazard index is calculated from the maximum 1-hour concentrations of DPM at the point of maximum impact (PMI), which has been calculated with the AERMOD model (see Appendix C). The relationship for non-cancer acute health effects is given by the equation:

$$AHI = C / AREL$$

Where,

AHI = Acute Hazard Index; an expression of the potential for non-cancer health effects.

C = Maximum hourly concentration of either PM2.5 in $\mu g/m^3$.

AREL = Acute Reference Exposure Level.

No acute risk has been found to be directly created from DPM, so there is no AREL assigned to DPM, however in order to provide an DPM equivalent AREL, the ARELs from all of the other TACs that are emitted in diesel exhaust were added together based on their diesel weighting shown above in Table B. This resulted in a diesel emission weighted equivalent AREL of 137 $\mu g/m^3$. The AERMOD model found that the highest 1-hour concentration at the PMI is 0.21 μg/m³ for DPM equivalent acute non-cancer risk emissions. The resulting Hazard Index is:

$$AHI = 0.21 / 137 = 0.0015$$

The criterion for significance is an Acute Hazard Index increase of 1.0 or greater, which is detailed above in Section 5.0. Therefore, the non-cancer acute health risks from construction of the proposed project to the nearby sensitive receptors would be less than significant.

As such, DPM emissions created from the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

7.0 REFERENCES

California Air Pollution Control Officers Association, *Health Risk Assessments for Proposed Land Use Projects*, 2009.

California Air Resources Board, *2017 Off-Road Diesel Emission Factor Update for NOx and PM,* 2017.

California Air Resources Board, 2010 California Toxic Inventory in Tons per Year, November 2013.

California Air Resources Board, *Ambient Air Quality Standards,* June 4, 2013.

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California Air Resources Board, *Resolution 08-43,* December 12, 2008.

California Department of Conservation, *A General Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos,* August, 2000.

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Imperial County Air Pollution Control District *Imperial County 2018 Redesignation Request and Maintenance Plan for Particulate Matter less than 10 Microns in Diameter,* October 23, 2018.

Imperial County Air Pollution Control District, *CEQA Air Quality Handbook,* November 2007.

Imperial County Air Pollution Control District, *Rule 1101 New Source Performance Standards (NSPS),* Adopted September 14, 1999.

LOS Engineering, Inc., *Draft Traffic Impact Analysis Hay Kingdom County of Imperial (393 E. Worthington Rd),* April 3, 2020.

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

U.S. Geological Survey, *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California,* 2011.

APPENDIX A

OFFROAD2017 Model Printouts

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OFFROAD2017 (v1.0.1) Emissions Inventory

Region Type: County
Region: Imperial
Calendar Year: 2021
Scenario: All Adopted Rules - Exhaust
Vehicle Classification: OFFROAD2017 Equipment Types
Units: Emissions: tons/day, Fuel Consumption: gallons/year, Activity: hours/year, HP-Hours: HP-hours/year

Region	CalYr	VehClass	MdlYr	HP_Bin	Fuel	PM2_5_tpd	Fuel_gpy	Total_Activ	Total_Popu	Horsepower_Hours_hhpy
Imperial	2021	ConstMin - Off-Highway Trucks	2014	Aggregatec	Diesel	3.6921E-05	21404.29	2555.807	1.812622	1085770
Imperial	2021	ConstMin - Rubber Tired Dozers	2014	Aggregatec	Diesel	1.0500E-06	1701.044	283.9749	0.410813	81124.24
Imperial	2021	ConstMin - Tractors/Loaders/Backhoes	2014	Aggregatec	Diesel	1.1543E-05	15035.64	8444.025	13.28355	783139.9
Imperial	2021	Industrial - Forklifts	2014	Aggregatec	Diesel	8.6060E-07	1276.796	1330.782	1.709563	122243.4

	HP Hours-	Tons Per Day PM2.5	Grams per Brake Horse-Power Hour PM2.5
ConstMin - Off-Highway Trucks	2,975	3.7E-05	0.011
ConstMin - Rubber Tired Loaders	222	1.0E-06	0.004
ConstMin - Tractors/Loaders/Backhoes	2,146	1.2E-05	0.005
Industrial - Forklifts	335	8.6E-07	0.002

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APPENDIX B

EMFAC2017 Model Printouts

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EMFAC2017 version 1.0.2

calendar_y	season_m	sub_area	vehicle_class	fuel	temperature	relative_humidity	process	speed_tim	pollutant	emission_rate
2021	Annual	Imperial (SS)	T7 Tractor	Dsl	72	30	RUNEX	15	PM2_5	0.131009
2021	Annual	Imperial (SS)	T7 Tractor	Dsl	72	30	RUNEX	45	PM2_5	0.070513
2021	Annual	Imperial (SS)	T7 Tractor	Dsl	72	30	RUNEX	55	PM2_5	0.091542
2021	Annual	Imperial (SS)	T7 Tractor	Dsl			IDLEX		PM2_5	0.06619
2021	Annual	Imperial (SS)	T7 Tractor	Dsl			PMTW		PM2_5	0.009
2021	Annual	Imperial (SS)	T7 Tractor	Dsl			PMBW		PM2_5	0.02646

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APPENDIX C

AERMOD Model DPM Printouts

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```
**
****************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.9.0
** Lakes Environmental Software Inc.
** Date: 6/1/2020
** File: C:\Vista Env\2020\20046 Imperial Co\AERMOD\DPM\DPM.ADI
**
****************************************
**
**
****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
   TITLEONE Imperial Co Hay Kingdom Expansion - DPM Emissions
   TITLETWO DPM - PM2.5 Exhaust Emissions
   MODELOPT DFAULT CONC
   AVERTIME 1 ANNUAL
   POLLUTID PM_2.5
   RUNORNOT RUN
   ERRORFIL DPM.err
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION OFFROAD     AREAPOLY   639757.842  3635280.095      -29.870
** DESCRSRC Offroad Equipment
** ----------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = RDON
** DESCRSRC Onsite Road
** PREFIX
** Length of Side = 3.66
** Configuration = Adjacent
** Emission Rate = 0.0000319
** Vertical Dimension = 1.83
** SZINIT = 0.85
** Nodes = 4
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** 640258.824, 3635301.103, -30.78, 0.00, 1.70
** 640069.156, 3635298.755, -30.76, 0.00, 1.70
** 640069.533, 3635253.389, -30.38, 0.00, 1.70
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LOCATION	L0002462	VOLUME	640259.850	3635339.131	-30.93
LOCATION	L0002463	VOLUME	640259.751	3635335.475	-30.89
LOCATION	L0002464	VOLUME	640259.652	3635331.819	-30.85
LOCATION	L0002465	VOLUME	640259.554	3635328.162	-30.81
LOCATION	L0002466	VOLUME	640259.455	3635324.506	-30.78
LOCATION	L0002467	VOLUME	640259.356	3635320.850	-30.78
LOCATION	L0002468	VOLUME	640259.258	3635317.193	-30.78
LOCATION	L0002469	VOLUME	640259.159	3635313.537	-30.78
LOCATION	L0002470	VOLUME	640259.060	3635309.881	-30.78
LOCATION	L0002471	VOLUME	640258.962	3635306.225	-30.78
LOCATION	L0002472	VOLUME	640258.863	3635302.568	-30.78
LOCATION	L0002473	VOLUME	640256.632	3635301.076	-30.78
LOCATION	L0002474	VOLUME	640252.975	3635301.031	-30.78
LOCATION	L0002475	VOLUME	640249.317	3635300.985	-30.78
LOCATION	L0002476	VOLUME	640245.660	3635300.940	-30.78
LOCATION	L0002477	VOLUME	640242.003	3635300.895	-30.78
LOCATION	L0002478	VOLUME	640238.345	3635300.849	-30.78
LOCATION	L0002479	VOLUME	640234.688	3635300.804	-30.78
LOCATION	L0002480	VOLUME	640231.031	3635300.759	-30.78
LOCATION	L0002481	VOLUME	640227.373	3635300.714	-30.78
LOCATION	L0002482	VOLUME	640223.716	3635300.668	-30.78
LOCATION	L0002483	VOLUME	640220.059	3635300.623	-30.78
LOCATION	L0002484	VOLUME	640216.401	3635300.578	-30.78
LOCATION	L0002485	VOLUME	640212.744	3635300.533	-30.78
LOCATION	L0002486	VOLUME	640209.087	3635300.487	-30.78
LOCATION	L0002487	VOLUME	640205.430	3635300.442	-30.78
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LOCATION	L0002490	VOLUME	640194.458	3635300.306	-30.78
LOCATION	L0002491	VOLUME	640190.800	3635300.261	-30.78
LOCATION	L0002492	VOLUME	640187.143	3635300.216	-30.78
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LOCATION	L0002494	VOLUME	640179.828	3635300.125	-30.78
LOCATION	L0002495	VOLUME	640176.171	3635300.080	-30.78
LOCATION	L0002496	VOLUME	640172.514	3635300.034	-30.78
LOCATION	L0002497	VOLUME	640168.856	3635299.989	-30.78
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LOCATION	L0002499	VOLUME	640161.542	3635299.899	-30.78
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LOCATION	L0002503	VOLUME	640146.912	3635299.718	-30.78
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LOCATION	L0002506	VOLUME	640135.940	3635299.582	-30.78
LOCATION	L0002507	VOLUME	640132.283	3635299.536	-30.78
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   LOCATION L0002528      VOLUME    640069.270 3635285.078 -30.68
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   LOCATION L0002530      VOLUME    640069.330 3635277.763 -30.61
   LOCATION L0002531      VOLUME    640069.361 3635274.105 -30.57
   LOCATION L0002532      VOLUME    640069.391 3635270.448 -30.53
   LOCATION L0002533      VOLUME    640069.421 3635266.790 -30.50
   LOCATION L0002534      VOLUME    640069.452 3635263.133 -30.47
   LOCATION L0002535      VOLUME    640069.482 3635259.475 -30.44
   LOCATION L0002536      VOLUME    640069.513 3635255.818 -30.42
** End of LINE VOLUME Source ID = RDON
** ------------------------------------------------------------------------
** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = RDWORW
** DESCRSRC Worthington Rd - West of Hwy 111
** PREFIX
** Length of Side = 3.66
** Configuration = Adjacent
** Emission Rate = 2.43E-07
** Vertical Dimension = 1.83
** SZINIT = 0.85
** Nodes = 2
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   LOCATION L0001505      VOLUME    639600.104 3635343.770 -29.83
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   LOCATION L0001511      VOLUME    639578.160 3635343.964 -29.75
   LOCATION L0001512      VOLUME    639574.502 3635343.997 -29.72
   LOCATION L0001513      VOLUME    639570.845 3635344.029 -29.70
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   LOCATION L0001516      VOLUME    639559.872 3635344.126 -29.63
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LOCATION	L0001522	VOLUME	639537.928	3635344.320	-29.52
LOCATION	L0001523	VOLUME	639534.270	3635344.353	-29.51
LOCATION	L0001524	VOLUME	639530.613	3635344.385	-29.50
LOCATION	L0001525	VOLUME	639526.955	3635344.418	-29.48
LOCATION	L0001526	VOLUME	639523.298	3635344.450	-29.47
LOCATION	L0001527	VOLUME	639519.640	3635344.482	-29.46
LOCATION	L0001528	VOLUME	639515.983	3635344.515	-29.43
LOCATION	L0001529	VOLUME	639512.325	3635344.547	-29.41
LOCATION	L0001530	VOLUME	639508.668	3635344.579	-29.39
LOCATION	L0001531	VOLUME	639505.011	3635344.612	-29.36
LOCATION	L0001532	VOLUME	639501.353	3635344.644	-29.34
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LOCATION	L0001535	VOLUME	639490.381	3635344.741	-29.27
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LOCATION	L0001537	VOLUME	639483.066	3635344.806	-29.24
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LOCATION	L0001539	VOLUME	639475.751	3635344.871	-29.21
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LOCATION	L0001541	VOLUME	639468.436	3635344.935	-29.19
LOCATION	L0001542	VOLUME	639464.778	3635344.968	-29.17
LOCATION	L0001543	VOLUME	639461.121	3635345.000	-29.16
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LOCATION	L0001547	VOLUME	639446.491	3635345.130	-29.02
LOCATION	L0001548	VOLUME	639442.834	3635345.162	-28.99
LOCATION	L0001549	VOLUME	639439.176	3635345.194	-28.95
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** End of LINE VOLUME Source ID = RDWORW
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = RDWORM
** DESCRSRC Worthington Rd - Hwy 111 to Project
** PREFIX
** Length of Side = 3.66
** Configuration = Adjacent
** Emission Rate = 0.0000336
** Vertical Dimension = 1.83
** SZINIT = 0.85
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EEC ORIGINAL PKG

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LOCATION	L0001613	VOLUME	639706.123	3635352.154	-30.14
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LOCATION	L0001620	VOLUME	639731.723	3635352.499	-30.15
LOCATION	L0001621	VOLUME	639735.381	3635352.548	-30.15
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LOCATION	L0001625	VOLUME	639750.010	3635352.745	-30.17
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LOCATION	L0001630	VOLUME	639768.296	3635352.991	-30.18
LOCATION	L0001631	VOLUME	639771.953	3635353.041	-30.18
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LOCATION	L0001638	VOLUME	639797.554	3635353.386	-30.25
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LOCATION	L0001664	VOLUME	639892.643	3635354.667	-30.48
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LOCATION	L0001666	VOLUME	639899.958	3635354.765	-30.48
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LOCATION	L0001710	VOLUME	640060.878	3635356.934	-30.81
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** End of LINE VOLUME Source ID = RDWORM
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = RDWORE
** DESCRSRC Worthington Rd - East of Project
** PREFIX
** Length of Side = 3.66
** Configuration = Adjacent
** Emission Rate = 6.77E-07
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   LOCATION L0001789      VOLUME   640367.164 3635362.728 -31.11
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   LOCATION L0001799      VOLUME   640403.731 3635363.513 -31.17
   LOCATION L0001800      VOLUME   640407.388 3635363.591 -31.17
   LOCATION L0001801      VOLUME   640411.045 3635363.670 -31.18
   LOCATION L0001802      VOLUME   640414.702 3635363.748 -31.18
   LOCATION L0001803      VOLUME   640418.358 3635363.827 -31.18
   LOCATION L0001804      VOLUME   640422.015 3635363.905 -31.18
   LOCATION L0001805      VOLUME   640425.672 3635363.984 -31.18
   LOCATION L0001806      VOLUME   640429.329 3635364.062 -31.18
   LOCATION L0001807      VOLUME   640432.985 3635364.141 -31.18
   LOCATION L0001808      VOLUME   640436.642 3635364.219 -31.18
   LOCATION L0001809      VOLUME   640440.299 3635364.298 -31.18
   LOCATION L0001810      VOLUME   640443.956 3635364.376 -31.18
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LOCATION	L0001811	VOLUME	640447.612	3635364.455	-31.18
LOCATION	L0001812	VOLUME	640451.269	3635364.533	-31.18
LOCATION	L0001813	VOLUME	640454.926	3635364.612	-31.18
LOCATION	L0001814	VOLUME	640458.583	3635364.690	-31.19
LOCATION	L0001815	VOLUME	640462.239	3635364.769	-31.19
LOCATION	L0001816	VOLUME	640465.896	3635364.847	-31.19
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LOCATION	L0001822	VOLUME	640487.837	3635365.318	-31.19
LOCATION	L0001823	VOLUME	640491.493	3635365.397	-31.19
LOCATION	L0001824	VOLUME	640495.150	3635365.475	-31.19
LOCATION	L0001825	VOLUME	640498.807	3635365.554	-31.19
LOCATION	L0001826	VOLUME	640502.464	3635365.632	-31.20
LOCATION	L0001827	VOLUME	640506.121	3635365.711	-31.20
LOCATION	L0001828	VOLUME	640509.777	3635365.789	-31.20
LOCATION	L0001829	VOLUME	640513.434	3635365.868	-31.20
LOCATION	L0001830	VOLUME	640517.091	3635365.946	-31.20
LOCATION	L0001831	VOLUME	640520.748	3635366.025	-31.20
LOCATION	L0001832	VOLUME	640524.404	3635366.103	-31.20
LOCATION	L0001833	VOLUME	640528.061	3635366.182	-31.20
LOCATION	L0001834	VOLUME	640531.718	3635366.260	-31.20
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LOCATION	L0001836	VOLUME	640539.031	3635366.417	-31.20
LOCATION	L0001837	VOLUME	640542.688	3635366.496	-31.20
LOCATION	L0001838	VOLUME	640546.345	3635366.574	-31.20
LOCATION	L0001839	VOLUME	640550.002	3635366.653	-31.21
LOCATION	L0001840	VOLUME	640553.658	3635366.731	-31.21
LOCATION	L0001841	VOLUME	640557.315	3635366.810	-31.21
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LOCATION	L0001853	VOLUME	640601.196	3635367.752	-31.23
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LOCATION	L0001855	VOLUME	640608.510	3635367.909	-31.27
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LOCATION	L0001862	VOLUME	640634.107	3635368.458	-31.39
LOCATION	L0001863	VOLUME	640637.764	3635368.537	-31.39
LOCATION	L0001864	VOLUME	640641.421	3635368.615	-31.39

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   LOCATION L0001867      VOLUME   640652.391 3635368.851 -31.39
   LOCATION L0001868      VOLUME   640656.048 3635368.929 -31.39
   LOCATION L0001869      VOLUME   640659.704 3635369.008 -31.39
   LOCATION L0001870      VOLUME   640663.361 3635369.086 -31.39
   LOCATION L0001871      VOLUME   640667.018 3635369.165 -31.39
   LOCATION L0001872      VOLUME   640670.675 3635369.243 -31.39
   LOCATION L0001873      VOLUME   640674.331 3635369.322 -31.39
   LOCATION L0001874      VOLUME   640677.988 3635369.400 -31.39
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   LOCATION L0001881      VOLUME   640703.585 3635369.950 -31.39
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   LOCATION L0001883      VOLUME   640710.899 3635370.107 -31.39
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   LOCATION L0001886      VOLUME   640721.869 3635370.342 -31.41
   LOCATION L0001887      VOLUME   640725.526 3635370.421 -31.42
   LOCATION L0001888      VOLUME   640729.183 3635370.499 -31.44
   LOCATION L0001889      VOLUME   640732.839 3635370.578 -31.46
   LOCATION L0001890      VOLUME   640736.496 3635370.656 -31.48
   LOCATION L0001891      VOLUME   640740.153 3635370.735 -31.50
   LOCATION L0001892      VOLUME   640743.810 3635370.813 -31.52
   LOCATION L0001893      VOLUME   640747.467 3635370.892 -31.54
   LOCATION L0001894      VOLUME   640751.123 3635370.970 -31.55
   LOCATION L0001895      VOLUME   640754.780 3635371.049 -31.56
   LOCATION L0001896      VOLUME   640758.437 3635371.127 -31.56
   LOCATION L0001897      VOLUME   640762.094 3635371.205 -31.56
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   LOCATION L0001899      VOLUME   640769.407 3635371.362 -31.56
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   LOCATION L0001902      VOLUME   640780.377 3635371.598 -31.56
   LOCATION L0001903      VOLUME   640784.034 3635371.676 -31.56
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   LOCATION L0001906      VOLUME   640795.004 3635371.912 -31.56
   LOCATION L0001907      VOLUME   640798.661 3635371.990 -31.56
   LOCATION L0001908      VOLUME   640802.318 3635372.069 -31.57
   LOCATION L0001909      VOLUME   640805.975 3635372.147 -31.57
   LOCATION L0001910      VOLUME   640809.631 3635372.226 -31.57
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   LOCATION L0001913      VOLUME   640820.602 3635372.461 -31.57
   LOCATION L0001914      VOLUME   640824.258 3635372.540 -31.57
** End of LINE VOLUME Source ID = RDWORE
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = RD111N
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EEC ORIGINAL PKG

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** DESCRSRC Hwy 111 north of Worthington Rd
** PREFIX
** Length of Side = 3.66
** Configuration = Adjacent
** Emission Rate = 0.0000165
** Vertical Dimension = 1.83
** SZINIT = 0.85
** Nodes = 4
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** 639578.765, 3635583.439, -30.65, 0.00, 1.70
** 639540.381, 3635763.447, -31.23, 0.00, 1.70
** 639521.851, 3635870.658, -31.09, 0.00, 1.70
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   LOCATION L0001917     VOLUME   639651.363 3635361.823 -29.94
   LOCATION L0001918     VOLUME   639650.225 3635365.299 -29.97
   LOCATION L0001919     VOLUME   639649.086 3635368.775 -30.01
   LOCATION L0001920     VOLUME   639647.948 3635372.251 -30.04
   LOCATION L0001921     VOLUME   639646.809 3635375.727 -30.08
   LOCATION L0001922     VOLUME   639645.670 3635379.202 -30.11
   LOCATION L0001923     VOLUME   639644.532 3635382.678 -30.15
   LOCATION L0001924     VOLUME   639643.393 3635386.154 -30.18
   LOCATION L0001925     VOLUME   639642.254 3635389.630 -30.18
   LOCATION L0001926     VOLUME   639641.116 3635393.106 -30.18
   LOCATION L0001927     VOLUME   639639.977 3635396.582 -30.18
   LOCATION L0001928     VOLUME   639638.838 3635400.058 -30.17
   LOCATION L0001929     VOLUME   639637.700 3635403.533 -30.17
   LOCATION L0001930     VOLUME   639636.561 3635407.009 -30.17
   LOCATION L0001931     VOLUME   639635.422 3635410.485 -30.17
   LOCATION L0001932     VOLUME   639634.284 3635413.961 -30.17
   LOCATION L0001933     VOLUME   639633.145 3635417.437 -30.18
   LOCATION L0001934     VOLUME   639632.007 3635420.913 -30.18
   LOCATION L0001935     VOLUME   639630.868 3635424.388 -30.18
   LOCATION L0001936     VOLUME   639629.729 3635427.864 -30.18
   LOCATION L0001937     VOLUME   639628.591 3635431.340 -30.18
   LOCATION L0001938     VOLUME   639627.452 3635434.816 -30.18
   LOCATION L0001939     VOLUME   639626.313 3635438.292 -30.18
   LOCATION L0001940     VOLUME   639625.175 3635441.768 -30.18
   LOCATION L0001941     VOLUME   639624.036 3635445.244 -30.18
   LOCATION L0001942     VOLUME   639622.897 3635448.719 -30.19
   LOCATION L0001943     VOLUME   639621.759 3635452.195 -30.20
   LOCATION L0001944     VOLUME   639620.620 3635455.671 -30.21
   LOCATION L0001945     VOLUME   639619.482 3635459.147 -30.22
   LOCATION L0001946     VOLUME   639618.343 3635462.623 -30.23
   LOCATION L0001947     VOLUME   639617.204 3635466.099 -30.23
   LOCATION L0001948     VOLUME   639616.066 3635469.575 -30.23
   LOCATION L0001949     VOLUME   639614.927 3635473.050 -30.23
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   LOCATION L0001951     VOLUME   639612.650 3635480.002 -30.25
   LOCATION L0001952     VOLUME   639611.511 3635483.478 -30.27
   LOCATION L0001953     VOLUME   639610.372 3635486.954 -30.30
   LOCATION L0001954     VOLUME   639609.234 3635490.430 -30.33
   LOCATION L0001955     VOLUME   639608.095 3635493.905 -30.36
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LOCATION	L0001958	VOLUME	639604.679	3635504.333	-30.42
LOCATION	L0001959	VOLUME	639603.541	3635507.809	-30.42
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LOCATION	L0001962	VOLUME	639600.125	3635518.236	-30.43
LOCATION	L0001963	VOLUME	639598.986	3635521.712	-30.43
LOCATION	L0001964	VOLUME	639597.847	3635525.188	-30.44
LOCATION	L0001965	VOLUME	639596.709	3635528.664	-30.45
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LOCATION	L0001970	VOLUME	639591.015	3635546.043	-30.52
LOCATION	L0001971	VOLUME	639589.877	3635549.519	-30.53
LOCATION	L0001972	VOLUME	639588.738	3635552.995	-30.53
LOCATION	L0001973	VOLUME	639587.600	3635556.471	-30.54
LOCATION	L0001974	VOLUME	639586.461	3635559.947	-30.54
LOCATION	L0001975	VOLUME	639585.322	3635563.422	-30.53
LOCATION	L0001976	VOLUME	639584.184	3635566.898	-30.54
LOCATION	L0001977	VOLUME	639583.045	3635570.374	-30.56
LOCATION	L0001978	VOLUME	639581.906	3635573.850	-30.58
LOCATION	L0001979	VOLUME	639580.768	3635577.326	-30.61
LOCATION	L0001980	VOLUME	639579.629	3635580.802	-30.64
LOCATION	L0001981	VOLUME	639578.581	3635584.302	-30.67
LOCATION	L0001982	VOLUME	639577.818	3635587.879	-30.70
LOCATION	L0001983	VOLUME	639577.056	3635591.456	-30.72
LOCATION	L0001984	VOLUME	639576.293	3635595.034	-30.75
LOCATION	L0001985	VOLUME	639575.530	3635598.611	-30.75
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LOCATION	L0001987	VOLUME	639574.004	3635605.765	-30.75
LOCATION	L0001988	VOLUME	639573.242	3635609.342	-30.75
LOCATION	L0001989	VOLUME	639572.479	3635612.919	-30.75
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LOCATION	L0001994	VOLUME	639568.665	3635630.805	-30.82
LOCATION	L0001995	VOLUME	639567.902	3635634.383	-30.84
LOCATION	L0001996	VOLUME	639567.139	3635637.960	-30.86
LOCATION	L0001997	VOLUME	639566.377	3635641.537	-30.88
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LOCATION	L0002003	VOLUME	639561.800	3635663.000	-30.96
LOCATION	L0002004	VOLUME	639561.037	3635666.577	-30.97
LOCATION	L0002005	VOLUME	639560.274	3635670.154	-30.99
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LOCATION	L0002007	VOLUME	639558.749	3635677.309	-31.03
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LOCATION	L0002009	VOLUME	639557.223	3635684.463	-31.08

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   LOCATION L0002012      VOLUME   639554.935 3635695.195 -31.09
   LOCATION L0002013      VOLUME   639554.172 3635698.772 -31.09
   LOCATION L0002014      VOLUME   639553.409 3635702.349 -31.09
   LOCATION L0002015      VOLUME   639552.647 3635705.926 -31.09
   LOCATION L0002016      VOLUME   639551.884 3635709.503 -31.09
   LOCATION L0002017      VOLUME   639551.121 3635713.080 -31.09
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   LOCATION L0002019      VOLUME   639549.595 3635720.235 -31.09
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   LOCATION L0002021      VOLUME   639548.070 3635727.389 -31.09
   LOCATION L0002022      VOLUME   639547.307 3635730.966 -31.09
   LOCATION L0002023      VOLUME   639546.544 3635734.544 -31.09
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   LOCATION L0002031      VOLUME   639540.442 3635763.161 -31.22
   LOCATION L0002032      VOLUME   639539.808 3635766.763 -31.24
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   LOCATION L0002034      VOLUME   639538.562 3635773.971 -31.27
   LOCATION L0002035      VOLUME   639537.939 3635777.575 -31.28
   LOCATION L0002036      VOLUME   639537.316 3635781.180 -31.27
   LOCATION L0002037      VOLUME   639536.693 3635784.784 -31.26
   LOCATION L0002038      VOLUME   639536.070 3635788.388 -31.26
   LOCATION L0002039      VOLUME   639535.447 3635791.992 -31.25
   LOCATION L0002040      VOLUME   639534.824 3635795.596 -31.24
   LOCATION L0002041      VOLUME   639534.202 3635799.200 -31.24
   LOCATION L0002042      VOLUME   639533.579 3635802.805 -31.23
   LOCATION L0002043      VOLUME   639532.956 3635806.409 -31.22
   LOCATION L0002044      VOLUME   639532.333 3635810.013 -31.20
   LOCATION L0002045      VOLUME   639531.710 3635813.617 -31.18
   LOCATION L0002046      VOLUME   639531.087 3635817.221 -31.16
   LOCATION L0002047      VOLUME   639530.464 3635820.825 -31.14
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   LOCATION L0002049      VOLUME   639529.218 3635828.034 -31.11
   LOCATION L0002050      VOLUME   639528.595 3635831.638 -31.10
   LOCATION L0002051      VOLUME   639527.972 3635835.242 -31.09
   LOCATION L0002052      VOLUME   639527.349 3635838.846 -31.10
   LOCATION L0002053      VOLUME   639526.726 3635842.450 -31.11
   LOCATION L0002054      VOLUME   639526.103 3635846.054 -31.11
   LOCATION L0002055      VOLUME   639525.480 3635849.659 -31.12
   LOCATION L0002056      VOLUME   639524.857 3635853.263 -31.12
   LOCATION L0002057      VOLUME   639524.234 3635856.867 -31.12
   LOCATION L0002058      VOLUME   639523.612 3635860.471 -31.12
   LOCATION L0002059      VOLUME   639522.989 3635864.075 -31.12
   LOCATION L0002060      VOLUME   639522.366 3635867.679 -31.14
** End of LINE VOLUME Source ID = RD111N
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** Line Source Represented by Adjacent Volume Sources
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** LINE VOLUME Source ID = RD111S
** DESCRSRC Hwy 111 south of Worthington Rd
** PREFIX
** Length of Side = 3.66
** Configuration = Adjacent
** Emission Rate = 0.0000534
** Vertical Dimension = 1.83
** SZINIT = 0.85
** Nodes = 8
** 639662.152, 3635329.309, -29.87, 0.00, 1.70
** 639726.857, 3635184.990, -29.26, 0.00, 1.70
** 639782.824, 3635079.276, -28.97, 0.00, 1.70
** 639857.516, 3634938.085, -28.37, 0.00, 1.70
** 639976.933, 3634724.568, -28.04, 0.00, 1.70
** 640067.204, 3634554.027, -27.44, 0.00, 1.70
** 640126.470, 3634428.128, -26.53, 0.00, 1.70
** 640176.009, 3634285.587, -25.86, 0.00, 1.70
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   LOCATION L0002062      VOLUME    639664.396 3635324.303 -29.87
   LOCATION L0002063      VOLUME    639665.893 3635320.965 -29.87
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LOCATION	L0002343	VOLUME	640132.712	3634410.168	-26.58
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LOCATION	L0002345	VOLUME	640135.114	3634403.258	-26.56
LOCATION	L0002346	VOLUME	640136.314	3634399.803	-26.54
LOCATION	L0002347	VOLUME	640137.515	3634396.348	-26.52
LOCATION	L0002348	VOLUME	640138.716	3634392.893	-26.49
LOCATION	L0002349	VOLUME	640139.916	3634389.439	-26.46
LOCATION	L0002350	VOLUME	640141.117	3634385.984	-26.42
LOCATION	L0002351	VOLUME	640142.318	3634382.529	-26.39
LOCATION	L0002352	VOLUME	640143.519	3634379.074	-26.35
LOCATION	L0002353	VOLUME	640144.719	3634375.619	-26.32
LOCATION	L0002354	VOLUME	640145.920	3634372.164	-26.28
LOCATION	L0002355	VOLUME	640147.121	3634368.709	-26.25
LOCATION	L0002356	VOLUME	640148.322	3634365.254	-26.21
LOCATION	L0002357	VOLUME	640149.522	3634361.799	-26.21
LOCATION	L0002358	VOLUME	640150.723	3634358.344	-26.22
LOCATION	L0002359	VOLUME	640151.924	3634354.890	-26.23
LOCATION	L0002360	VOLUME	640153.124	3634351.435	-26.23
LOCATION	L0002361	VOLUME	640154.325	3634347.980	-26.23
LOCATION	L0002362	VOLUME	640155.526	3634344.525	-26.23
LOCATION	L0002363	VOLUME	640156.727	3634341.070	-26.23
LOCATION	L0002364	VOLUME	640157.927	3634337.615	-26.22
LOCATION	L0002365	VOLUME	640159.128	3634334.160	-26.20
LOCATION	L0002366	VOLUME	640160.329	3634330.705	-26.17

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   LOCATION L0002367      VOLUME    640161.530 3634327.250 -26.13
   LOCATION L0002368      VOLUME    640162.730 3634323.796 -26.10
   LOCATION L0002369      VOLUME    640163.931 3634320.341 -26.06
   LOCATION L0002370      VOLUME    640165.132 3634316.886 -26.03
   LOCATION L0002371      VOLUME    640166.332 3634313.431 -25.99
   LOCATION L0002372      VOLUME    640167.533 3634309.976 -25.96
   LOCATION L0002373      VOLUME    640168.734 3634306.521 -25.92
   LOCATION L0002374      VOLUME    640169.935 3634303.066 -25.90
   LOCATION L0002375      VOLUME    640171.135 3634299.611 -25.89
   LOCATION L0002376      VOLUME    640172.336 3634296.156 -25.89
   LOCATION L0002377      VOLUME    640173.537 3634292.701 -25.88
   LOCATION L0002378      VOLUME    640174.738 3634289.247 -25.88
   LOCATION L0002379      VOLUME    640175.938 3634285.792 -25.88
** End of LINE VOLUME Source ID = RD111S
   LOCATION IDLE          POINT       640034.484  3635220.930       -30.180
** DESCRSRC Truck Idling
** Source Parameters **
   SRCPARAM OFFROAD         6.13E-09     3.658         4    15.240
   AREAVERT OFFROAD       639757.842 3635280.095 639935.289 3634934.563
   AREAVERT OFFROAD       640231.644 3634730.127 640212.315 3635282.637
** LINE VOLUME Source ID = RDON
   SRCPARAM L0002460      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002461      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002462      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002463      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002464      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002465      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002466      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002467      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002468      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002469      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002470      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002471      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002472      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002473      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002474      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002475      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002476      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002477      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002478      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002479      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002480      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002481      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002482      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002483      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002484      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002485      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002486      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002487      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002488      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002489      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002490      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002491      0.0000004143       0.00        1.70        0.85
   SRCPARAM L0002492      0.0000004143       0.00        1.70        0.85
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   SRCPARAM L0002493     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002494     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002495     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002496     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002497     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002498     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002499     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002500     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002501     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002502     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002503     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002504     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002505     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002506     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002507     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002508     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002509     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002510     0.0000004143      0.00      1.70      0.85
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   SRCPARAM L0002514     0.0000004143      0.00      1.70      0.85
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   SRCPARAM L0002517     0.0000004143      0.00      1.70      0.85
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   SRCPARAM L0002519     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002520     0.0000004143      0.00      1.70      0.85
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   SRCPARAM L0002522     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002523     0.0000004143      0.00      1.70      0.85
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   SRCPARAM L0002525     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002526     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002527     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002528     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002529     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002530     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002531     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002532     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002533     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002534     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002535     0.0000004143      0.00      1.70      0.85
   SRCPARAM L0002536     0.0000004143      0.00      1.70      0.85
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** LINE VOLUME Source ID = RDWORW
   SRCPARAM L0001500     0.000000002229      0.00      1.70      0.85
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   SRCPARAM L0001503     0.000000002229      0.00      1.70      0.85
   SRCPARAM L0001504     0.000000002229      0.00      1.70      0.85
   SRCPARAM L0001505     0.000000002229      0.00      1.70      0.85
   SRCPARAM L0001506     0.000000002229      0.00      1.70      0.85
   SRCPARAM L0001507     0.000000002229      0.00      1.70      0.85
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SRCPARAM	L0001509	0.000000002229	0.00	1.70	0.85
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SRCPARAM	L0001521	0.000000002229	0.00	1.70	0.85
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   SRCPARAM L0001582      0.000000002229      0.00      1.70      0.85
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** LINE VOLUME Source ID = RDWORM
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   SRCPARAM L0001613      0.0000002182      0.00      1.70      0.85
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SRCPARAM	L0001619	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001620	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001621	0.0000002182	0.00	1.70	0.85
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SRCPARAM	L0001623	0.0000002182	0.00	1.70	0.85
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SRCPARAM	L0001631	0.0000002182	0.00	1.70	0.85
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SRCPARAM	L0001662	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001663	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001664	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001665	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001666	0.0000002182	0.00	1.70	0.85
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SRCPARAM	L0001668	0.0000002182	0.00	1.70	0.85
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SRCPARAM	L0001673	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001674	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001675	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001676	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001677	0.0000002182	0.00	1.70	0.85
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SRCPARAM	L0001679	0.0000002182	0.00	1.70	0.85
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SRCPARAM	L0001681	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001682	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001683	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001684	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001685	0.0000002182	0.00	1.70	0.85
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SRCPARAM	L0001688	0.0000002182	0.00	1.70	0.85
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SRCPARAM	L0001692	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001693	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001694	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001695	0.0000002182	0.00	1.70	0.85
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SRCPARAM	L0001697	0.0000002182	0.00	1.70	0.85
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SRCPARAM	L0001699	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001700	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001701	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001702	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001703	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001704	0.0000002182	0.00	1.70	0.85
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SRCPARAM	L0001706	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001707	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001708	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001709	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001710	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001711	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001712	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001713	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001714	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001715	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001716	0.0000002182	0.00	1.70	0.85
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SRCPARAM	L0001719	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001720	0.0000002182	0.00	1.70	0.85
SRCPARAM	L0001721	0.0000002182	0.00	1.70	0.85

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SRCPARAM L0001724     0.0000002182      0.00      1.70      0.85
SRCPARAM L0001725     0.0000002182      0.00      1.70      0.85
SRCPARAM L0001726     0.0000002182      0.00      1.70      0.85
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SRCPARAM L0001731     0.0000002182      0.00      1.70      0.85
SRCPARAM L0001732     0.0000002182      0.00      1.70      0.85
SRCPARAM L0001733     0.0000002182      0.00      1.70      0.85
SRCPARAM L0001734     0.0000002182      0.00      1.70      0.85
SRCPARAM L0001735     0.0000002182      0.00      1.70      0.85
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SRCPARAM L0001740     0.0000002182      0.00      1.70      0.85
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SRCPARAM L0001745     0.0000002182      0.00      1.70      0.85
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SRCPARAM L0001756     0.0000002182      0.00      1.70      0.85
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SRCPARAM L0001760     0.0000002182      0.00      1.70      0.85
SRCPARAM L0001761     0.0000002182      0.00      1.70      0.85
SRCPARAM L0001762     0.0000002182      0.00      1.70      0.85
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** LINE VOLUME Source ID = RDWORE
SRCPARAM L0001763     0.000000004454     0.00      1.70      0.85
SRCPARAM L0001764     0.000000004454     0.00      1.70      0.85
SRCPARAM L0001765     0.000000004454     0.00      1.70      0.85
SRCPARAM L0001766     0.000000004454     0.00      1.70      0.85
SRCPARAM L0001767     0.000000004454     0.00      1.70      0.85
SRCPARAM L0001768     0.000000004454     0.00      1.70      0.85
SRCPARAM L0001769     0.000000004454     0.00      1.70      0.85
SRCPARAM L0001770     0.000000004454     0.00      1.70      0.85
SRCPARAM L0001771     0.000000004454     0.00      1.70      0.85
SRCPARAM L0001772     0.000000004454     0.00      1.70      0.85
SRCPARAM L0001773     0.000000004454     0.00      1.70      0.85
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SRCPARAM	L0001781	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001782	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001787	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001788	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001792	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001799	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001800	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001801	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001804	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001806	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001807	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001808	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001810	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001811	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001812	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001813	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001815	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001816	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001817	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001818	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001819	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001820	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001821	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001822	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001824	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001826	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001827	0.000000004454	0.00	1.70	0.85

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SRCPARAM	L0001837	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001838	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001839	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001840	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001843	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001844	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001846	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001848	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001850	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001865	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001867	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001868	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001870	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001871	0.000000004454	0.00	1.70	0.85
SRCPARAM	L0001872	0.000000004454	0.00	1.70	0.85
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SRCPARAM	L0001874	0.000000004454	0.00	1.70	0.85
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SRCPARAM L0001896	0.000000004454	0.00	1.70	0.85
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SRCPARAM L0001902	0.000000004454	0.00	1.70	0.85
SRCPARAM L0001903	0.000000004454	0.00	1.70	0.85
SRCPARAM L0001904	0.000000004454	0.00	1.70	0.85
SRCPARAM L0001905	0.000000004454	0.00	1.70	0.85
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SRCPARAM L0001911	0.000000004454	0.00	1.70	0.85
SRCPARAM L0001912	0.000000004454	0.00	1.70	0.85
SRCPARAM L0001913	0.000000004454	0.00	1.70	0.85
SRCPARAM L0001914	0.000000004454	0.00	1.70	0.85

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** LINE VOLUME Source ID = RD111N

SRCPARAM L0001915	0.000000113	0.00	1.70	0.85
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SRCPARAM L0001920	0.000000113	0.00	1.70	0.85
SRCPARAM L0001921	0.000000113	0.00	1.70	0.85
SRCPARAM L0001922	0.000000113	0.00	1.70	0.85
SRCPARAM L0001923	0.000000113	0.00	1.70	0.85
SRCPARAM L0001924	0.000000113	0.00	1.70	0.85
SRCPARAM L0001925	0.000000113	0.00	1.70	0.85
SRCPARAM L0001926	0.000000113	0.00	1.70	0.85
SRCPARAM L0001927	0.000000113	0.00	1.70	0.85
SRCPARAM L0001928	0.000000113	0.00	1.70	0.85
SRCPARAM L0001929	0.000000113	0.00	1.70	0.85
SRCPARAM L0001930	0.000000113	0.00	1.70	0.85
SRCPARAM L0001931	0.000000113	0.00	1.70	0.85
SRCPARAM L0001932	0.000000113	0.00	1.70	0.85
SRCPARAM L0001933	0.000000113	0.00	1.70	0.85

SRCPARAM	L0001934	0.000000113	0.00	1.70	0.85
SRCPARAM	L0001935	0.000000113	0.00	1.70	0.85
SRCPARAM	L0001936	0.000000113	0.00	1.70	0.85
SRCPARAM	L0001937	0.000000113	0.00	1.70	0.85
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SRCPARAM	L0001943	0.000000113	0.00	1.70	0.85
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SRCPARAM	L0001945	0.000000113	0.00	1.70	0.85
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SRCPARAM	L0001950	0.000000113	0.00	1.70	0.85
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SRCPARAM	L0002247	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002248	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002249	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002250	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002251	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002252	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002253	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002254	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002255	0.0000001674	0.00	1.70	0.85

SRCPARAM L0002256	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002257	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002258	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002259	0.0000001674	0.00	1.70	0.85
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SRCPARAM L0002261	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002262	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002263	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002264	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002265	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002266	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002267	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002268	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002269	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002270	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002271	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002272	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002273	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002274	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002275	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002276	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002277	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002278	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002279	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002280	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002281	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002282	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002283	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002284	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002285	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002286	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002287	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002288	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002289	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002290	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002291	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002292	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002293	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002294	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002295	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002296	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002297	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002298	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002299	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002300	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002301	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002302	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002303	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002304	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002305	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002306	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002307	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002308	0.0000001674	0.00	1.70	0.85
SRCPARAM L0002309	0.0000001674	0.00	1.70	0.85

SRCPARAM	L0002310	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002311	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002312	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002313	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002314	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002315	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002316	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002317	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002318	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002319	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002320	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002321	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002322	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002323	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002324	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002325	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002326	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002327	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002328	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002329	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002330	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002331	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002332	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002333	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002334	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002335	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002336	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002337	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002338	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002339	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002340	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002341	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002342	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002343	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002344	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002345	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002346	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002347	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002348	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002349	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002350	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002351	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002352	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002353	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002354	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002355	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002356	0.0000001674	0.00	1.70	0.85
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SRCPARAM	L0002358	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002359	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002360	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002361	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002362	0.0000001674	0.00	1.70	0.85
SRCPARAM	L0002363	0.0000001674	0.00	1.70	0.85

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   SRCPARAM L0002364     0.0000001674      0.00      1.70      0.85
   SRCPARAM L0002365     0.0000001674      0.00      1.70      0.85
   SRCPARAM L0002366     0.0000001674      0.00      1.70      0.85
   SRCPARAM L0002367     0.0000001674      0.00      1.70      0.85
   SRCPARAM L0002368     0.0000001674      0.00      1.70      0.85
   SRCPARAM L0002369     0.0000001674      0.00      1.70      0.85
   SRCPARAM L0002370     0.0000001674      0.00      1.70      0.85
   SRCPARAM L0002371     0.0000001674      0.00      1.70      0.85
   SRCPARAM L0002372     0.0000001674      0.00      1.70      0.85
   SRCPARAM L0002373     0.0000001674      0.00      1.70      0.85
   SRCPARAM L0002374     0.0000001674      0.00      1.70      0.85
   SRCPARAM L0002375     0.0000001674      0.00      1.70      0.85
   SRCPARAM L0002376     0.0000001674      0.00      1.70      0.85
   SRCPARAM L0002377     0.0000001674      0.00      1.70      0.85
   SRCPARAM L0002378     0.0000001674      0.00      1.70      0.85
   SRCPARAM L0002379     0.0000001674      0.00      1.70      0.85
** ----------------------------------------------------------------------
   SRCPARAM IDLE          7.66E-06     3.840   366.000  51.71000
0.100

** Variable Emissions Type: "By Hour / Seven Days (HRDOW7)"
** Variable Emission Scenario: "Scenario 2"
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT OFFROAD      HRDOW7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT OFFROAD      HRDOW7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT OFFROAD      HRDOW7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0002460     HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0002460     HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0002460     HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0002461     HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0002461     HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0002461     HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0002462     HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0002462     HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0002462     HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0002463     HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
   EMISFACT L0002463     HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
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EMISFACT L0002463      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
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EMISFACT L0002464      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002464      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002465      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002465      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002465      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002466      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002466      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002466      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002467      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002467      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002467      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002468      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002468      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002468      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002469      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002469      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002469      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002470      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002470      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002470      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002471      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002471      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002471      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002472      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002472      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002472      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002473      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002473      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002473      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002474      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002474      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002474      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002475      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002475      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002475      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002476      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
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EMISFACT L0002476      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002477      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002477      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
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EMISFACT L0002478      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002478      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002478      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002479      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002479      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002479      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002480      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002480      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002480      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002481      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
EMISFACT L0002481      HRDOW7 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0
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EEC ORIGINAL PKG

EMISFACT	L0002481	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002482	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002482	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002482	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002483	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002483	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002483	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002484	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002484	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002484	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002485	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002485	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002485	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002486	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002486	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002486	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002487	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
EMISFACT	L0002487	HRDOW7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
   INCLUDED DPM.rou
RE FINISHED
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** AERMOD Meteorology Pathway
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   PROFFILE ..\747185\747185.PFL
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   UAIRDATA 3190 2009
   PROFBASE -17.7 METERS
ME FINISHED
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****************************************
** AERMOD Output Pathway
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** DESCPTN  UTM: Universal Transverse Mercator
** DATUM    World Geodetic System 1984
** DTMRGN   Global Definition
** UNITS    m
** ZONE     11
** ZONEINX  0
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ATTACHMENT 3

Deceleration Lane Study Memo

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11622 El Camino Real, Suite 100, San Diego, CA 92130
Phone 619-890-1253, e-mail: Justin@LOSengineering.com

August 28, 2019

To: Mr. Kevin Grant
Ericsson-Grant Inc.
418 Parkwood Lane, Suite 200
Encinitas, CA 92024

From: Justin Rasas, P.E.

RE: Worthington Eastbound Right Turn Lane Analysis at Hay Kingdom Driveway

---

The purpose of this memo is to determine if a separate eastbound to southbound right-turn lane is recommended at the entrance to the Hay Kingdom facility located at 393 E. Worthington Road, Imperial, California. The driveway currently has a small eastbound right-turn taper of approximately 125 feet.

Traffic volumes were collected on Wednesday July 31, 2019 and Thursday August 1, 2019. Average Daily Traffic (ADT) was collected along E. Worthington Road adjacent to the Hay Kingdom. Hourly volumes from 4 AM to 7 PM were collected at the driveway to the site (parallel to the Rose Lateral Two Canal) documenting the number of vehicles entering and exiting the facility. The Hay Kingdom has an emergency only secondary access located on the eastern side of the property midway down the Rose Lateral Two Canal drive aisle. This secondary access is not used by project vehicles. The count data is included in **Attachment A**.

Caltrans' Highway Design Manual (HDM) does not provide a volume-based criteria for requiring a separate right-turn lane; therefore, the following literature was reviewed for applicable right turn lane requirements:

1) Institute of Transportation Engineers (ITE) *Traffic Engineering Handbook Fifth Edition*, 1999, and

2) Minnesota Department of Transportation Research Synthesis *Right and Left Turn Lane Warrants*, April 2014. This out of state research was applied because it is more current, and it included an extensive review of right-turn warrants.

The ITE right-turn lane warrant is determined from a graph by plotting the hourly number of right turns against directional volume per single travel lane. During the two days of data collection, three data points fell above the line recommending a right-turn lane. The data and ITE warrant are included in **Attachment B**.

11622 El Camino Real, Suite 100, San Diego, CA 92130
Phone 619-890-1253, e-mail: Justin@LOSengineering.com

The Minnesota Department of Transportation Research Synthesis recommends a right-turn lane when the 2-lane highway Average Daily Traffic (ADT) exceeds 1,500 average annual daily traffic (AADT) and the driveway exceeds 100 ADT per their Warrant #9. Worthington Road along the Hay Kingdom frontage has a two-day average ADT of 2,018 and the driveway two-day average is 289 ADT. Because ADTs at both the frontage road and the driveway exceed 100 ADT, a right-turn lane is recommended in keeping with Warrant #9. The criteria and volumes are included in **Attachment C**.

In conclusion, a separate eastbound to southbound right-turn lane is recommended for the Hay Kingdom at the facility's driveway on E. Worthington Road based on both ITE and Minnesota warrants. While Caltrans' HDM does not have a right-turn lane volume-based warrant, it discusses how right-turn lanes can reduce backup, delay, and potential rear-end collisions.

Attachments

ATTACHMENT A

COUNT DATA

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Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Imperial
N/S: Project Driveway
E/W: Worthington Road
Weather: Clear

File Name : CIM_Worthington Dwy_7-31-19
Site Code : 14319519
Start Date : 7/31/2019
Page No : 1

Groups Printed- Passenger Vehicles - Other Trucks/Vehicles - 18 Whls

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:45 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
Total	0	0	0	0	0	0	0	0	2	0	0	2	0	0	4	4	6
05:00 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	6	6	7
05:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
05:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
05:45 AM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	8	8	10
Total	0	0	0	0	1	0	0	1	2	0	1	3	0	0	17	17	21
06:00 AM	0	0	0	0	1	0	0	1	4	0	0	4	0	0	4	4	9
06:15 AM	0	0	0	0	0	0	0	0	4	0	0	4	0	0	3	3	7
06:30 AM	0	0	0	0	1	0	0	1	3	0	0	3	0	0	1	1	5
06:45 AM	0	0	0	0	0	0	0	0	7	0	0	7	0	0	0	0	7
Total	0	0	0	0	2	0	0	2	18	0	0	18	0	0	8	8	28
07:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	4	4	5
07:15 AM	0	0	0	0	0	0	0	0	2	0	1	3	0	0	1	1	4
07:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
07:45 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	3	3	5
Total	0	0	0	0	0	0	0	0	6	0	1	7	0	0	9	9	16
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
08:15 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	4	4	6
08:30 AM	0	0	0	0	0	0	0	0	4	0	0	4	0	0	2	2	6
08:45 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	1	4
Total	0	0	0	0	0	0	0	0	9	0	0	9	0	0	9	9	18
09:00 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
09:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	6	6	7
09:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
09:45 AM	0	0	0	0	0	0	0	0	5	0	0	5	0	0	1	1	6
Total	0	0	0	0	0	0	0	0	9	0	0	9	0	0	8	8	17
10:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	4	4	5
10:15 AM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	3	3	5
10:30 AM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	3	3	5
10:45 AM	0	0	0	0	0	0	0	0	6	0	0	6	0	0	3	3	9
Total	0	0	0	0	0	0	0	0	9	0	2	11	0	0	13	13	24
11:00 AM	0	0	0	0	0	0	0	0	4	0	1	5	0	0	3	3	8
11:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	2
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
11:45 AM	0	0	0	0	2	0	0	2	2	0	0	2	0	0	6	6	10
Total	0	0	0	0	3	0	0	3	6	0	1	7	0	0	12	12	22
12:00 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
12:30 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	2	2	4
12:45 PM	0	0	0	0	0	0	0	0	4	0	0	4	0	0	2	2	6
Total	0	0	0	0	0	0	0	0	8	0	0	8	0	0	6	6	14
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
01:15 PM	0	0	0	0	0	0	0	0	3	0	1	4	0	0	1	1	5
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	4	4	6
Total	0	0	0	0	0	0	0	0	5	0	1	6	0	0	6	6	12

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(951) 268-6268

County of Imperial
N/S: Project Driveway
E/W: Worthington Road
Weather: Clear

File Name : CIM_Worthington Dwy_7-31-19
Site Code : 14319519
Start Date : 7/31/2019
Page No : 2

Groups Printed- Passenger Vehicles - Other Trucks/Vehicles - 18 Whls

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	2	2	4
02:15 PM	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	0	3
02:30 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	3	3	5
02:45 PM	0	0	0	0	2	0	0	2	1	0	0	1	0	0	2	2	5
Total	0	0	0	0	2	0	0	2	7	0	1	8	0	0	7	7	17
03:00 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	1	4
03:15 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	3	3	6
03:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
03:45 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	3	3	6
Total	0	0	0	0	0	0	0	0	10	0	0	10	0	0	8	8	18
04:00 PM	0	0	0	0	0	0	0	0	4	0	0	4	0	0	1	1	5
04:15 PM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	2	2	4
04:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	3	4
04:45 PM	0	0	0	0	1	0	0	1	1	0	0	1	0	0	1	1	3
Total	0	0	0	0	1	0	0	1	7	0	1	8	0	0	7	7	16
05:00 PM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	5	5	7
05:15 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
05:30 PM	0	0	0	0	0	0	0	0	5	0	0	5	0	0	5	5	10
05:45 PM	0	0	0	0	0	0	0	0	5	0	0	5	0	0	3	3	8
Total	0	0	0	0	0	0	0	0	13	0	1	14	0	0	14	14	28
06:00 PM	0	0	0	0	0	0	0	0	13	0	2	15	0	0	0	0	15
06:15 PM	0	0	0	0	0	0	0	0	5	0	2	7	0	0	1	1	8
06:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	3	3	4
06:45 PM	0	0	0	0	0	0	0	0	1	0	2	3	0	0	3	3	6
Total	0	0	0	0	0	0	0	0	19	0	7	26	0	0	7	7	33
Grand Total	0	0	0	0	9	0	0	9	130	0	16	146	0	0	135	135	290
Apprch %	0	0	0		100	0	0		89	0	11		0	0	100		
Total %	0	0	0	0	3.1	0	0	3.1	44.8	0	5.5	50.3	0	0	46.6	46.6	
Passenger Vehicles	0	0	0	0	6	0	0	6	54	0	11	65	0	0	62	62	133
% Passenger Vehicles	0	0	0	0	66.7	0	0	66.7	41.5	0	68.8	44.5	0	0	45.9	45.9	45.9
Other Trucks/Vehicles	0	0	0	0	1	0	0	1	17	0	4	21	0	0	12	12	34
% Other Trucks/Vehicles	0	0	0	0	11.1	0	0	11.1	13.1	0	25	14.4	0	0	8.9	8.9	11.7
Hay or Equip - 18 Whls	0	0	0	0	2	0	0	2	59	0	1	60	0	0	61	61	123
% Hay or Equip - 18 Whls	0	0	0	0	22.2	0	0	22.2	45.4	0	6.2	41.1	0	0	45.2	45.2	42.4

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 AM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:30 PM																	
05:30 PM	0	0	0	0	0	0	0	0	5	0	0	5	0	0	5	5	10
05:45 PM	0	0	0	0	0	0	0	0	5	0	0	5	0	0	3	3	8
06:00 PM	0	0	0	0	0	0	0	0	13	0	2	15	0	0	0	0	15
06:15 PM	0	0	0	0	0	0	0	0	5	0	2	7	0	0	1	1	8
Total Volume	0	0	0	0	0	0	0	0	28	0	4	32	0	0	9	9	41
% App. Total	0	0	0		0	0	0		87.5	0	12.5		0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.538	.000	.500	.533	.000	.000	.450	.450	.683

Counts Unlimited
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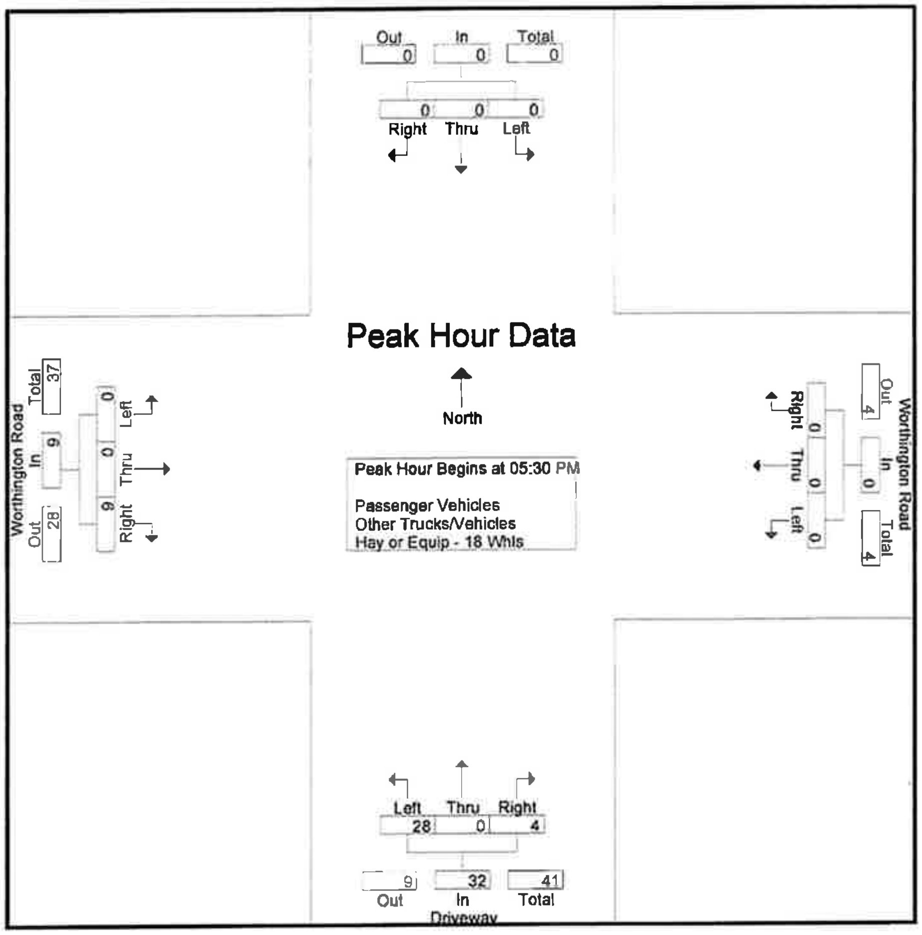
County of Imperial
N/S: Project Driveway
E/W: Worthington Road
Weather: Clear

File Name : CIM_Worthington Dwy_7-31-19
Site Code : 14319519
Start Date : 7/31/2019
Page No : 3



Peak Hour Analysis From 04:00 AM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 AM				11:00 AM				05:30 PM				05:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	5	0	0	5	0	0	6	6
+15 mins.	0	0	0	0	1	0	0	1	5	0	0	5	0	0	1	1
+30 mins.	0	0	0	0	0	0	0	0	13	0	2	15	0	0	2	2
+45 mins.	0	0	0	0	2	0	0	2	5	0	2	7	0	0	8	8
Total Volume	0	0	0	0	3	0	0	3	28	0	4	32	0	0	17	17
% App. Total	0	0	0		100	0	0		87.5	0	12.5		0	0	100	
PHF	.000	.000	.000	.000	.375	.000	.000	.375	.538	.000	.500	.533	.000	.000	.531	.531

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County of Imperial
N/S: Project Driveway
E/W: Worthington Road
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File Name : CIM_Worthington Dwy_7-31-19
Site Code : 14319519
Start Date : 7/31/2019
Page No : 1

Groups Printed- Passenger Vehicles

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
05:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
05:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:45 AM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	8	8	10
Total	0	0	0	0	0	0	0	0	2	0	1	3	0	0	12	12	15
06:00 AM	0	0	0	0	1	0	0	1	3	0	0	3	0	0	4	4	8
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	3	0	0	3	0	0	7	7	11
07:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	4	4	5
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
08:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
09:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
09:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	3
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
Total	0	0	0	0	0	0	0	0	4	0	0	4	0	0	3	3	7
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
10:15 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	3	3	4
10:30 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	2
10:45 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	2	2	5
Total	0	0	0	0	0	0	0	0	3	0	2	5	0	0	8	8	13
11:00 AM	0	0	0	0	0	0	0	0	4	0	1	5	0	0	1	1	6
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
11:45 AM	0	0	0	0	2	0	0	2	2	0	0	2	0	0	6	6	10
Total	0	0	0	0	2	0	0	2	6	0	1	7	0	0	8	8	17
12:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	2	0	0	2	0	0	2	2	4
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
01:15 PM	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	0	3
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	2	0	1	3	0	0	2	2	5

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	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
02:15 PM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	0	0	2
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	2	0	0	2	1	0	0	1	0	0	1	1	4
Total	0	0	0	0	2	0	0	2	3	0	1	4	0	0	2	2	8
03:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
03:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	2	0	0	2	0	0	2	2	4
04:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:45 PM	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	2
Total	0	0	0	0	1	0	0	1	2	0	1	3	0	0	1	1	5
05:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2	3
05:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
05:30 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	3	3	5
05:45 PM	0	0	0	0	0	0	0	0	4	0	0	4	0	0	3	3	7
Total	0	0	0	0	0	0	0	0	7	0	1	8	0	0	9	9	17
06:00 PM	0	0	0	0	0	0	0	0	11	0	2	13	0	0	0	0	13
06:15 PM	0	0	0	0	0	0	0	0	3	0	1	4	0	0	0	0	4
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	15	0	3	18	0	0	0	0	18
Grand Total	0	0	0	0	6	0	0	6	54	0	11	65	0	0	62	62	133
Apprch %	0	0	0		100	0	0		83.1	0	16.9		0	0	100		
Total %	0	0	0	0	4.5	0	0	4.5	40.6	0	8.3	48.9	0	0	46.6	46.6	

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:30 PM																	
05:30 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	3	3	5
05:45 PM	0	0	0	0	0	0	0	0	4	0	0	4	0	0	3	3	7
06:00 PM	0	0	0	0	0	0	0	0	11	0	2	13	0	0	0	0	13
06:15 PM	0	0	0	0	0	0	0	0	3	0	1	4	0	0	0	0	4
Total Volume	0	0	0	0	0	0	0	0	20	0	3	23	0	0	6	6	29
% App. Total	0	0	0		0	0	0		87	0	13		0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.455	.000	.375	.442	.000	.000	.500	.500	.558

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County of Imperial
N/S: Project Driveway
E/W: Worthington Road
Weather: Clear

File Name : CIM_Worthington Dwy_7-31-19
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Start Date : 7/31/2019
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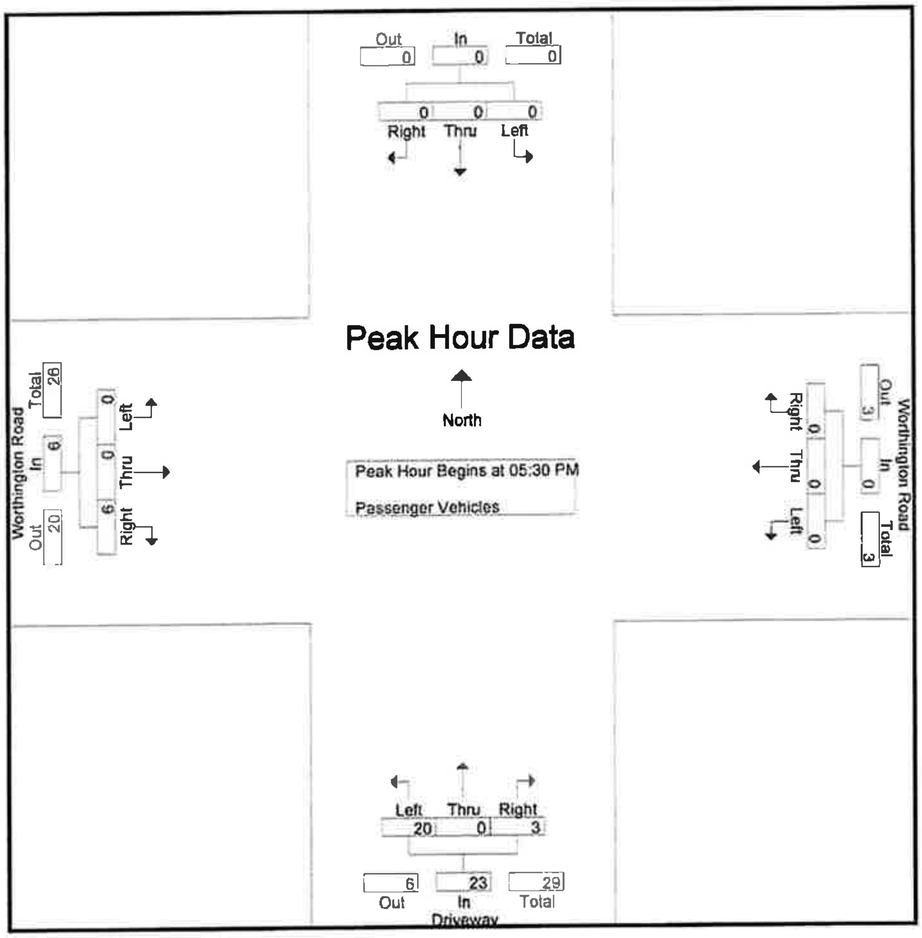

Peak Hour Analysis From 05:30 PM to 06:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:30 PM				05:30 PM				05:30 PM				05:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	2	0	0	2	0	0	3	3
+15 mins.	0	0	0	0	0	0	0	0	4	0	0	4	0	0	3	3
+30 mins.	0	0	0	0	0	0	0	0	11	0	2	13	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	3	0	1	4	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	20	0	3	23	0	0	6	6
% App. Total	0	0	0		0	0	0		87	0	13		0	0	100	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.455	.000	.375	.442	.000	.000	.500	.500

EEC ORIGINAL PKG

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County of Imperial
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E/W: Worthington Road
Weather: Clear

File Name : CIM_Worthington Dwy_7-31-19
Site Code : 14319519
Start Date : 7/31/2019
Page No : 1

Groups Printed- Other Trucks/Vehicles

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
05:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
06:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
06:45 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	4
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
09:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
09:45 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	1	4
10:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2

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County of Imperial
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File Name : CIM_Worthington Dwy_7-31-19
Site Code : 14319519
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Groups Printed- Other Trucks/Vehicles

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	3	4
04:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	3	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
06:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
06:45 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	1	1	3
Total	0	0	0	0	0	0	0	0	0	0	4	4	0	0	1	1	5
Grand Total	0	0	0	0	1	0	0	1	17	0	4	21	0	0	12	12	34
Apprch %	0	0	0		100	0	0		81	0	19		0	0	100		
Total %	0	0	0	0	2.9	0	0	2.9	50	0	11.8	61.8	0	0	35.3	35.3	

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:30 PM																	
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	2
% App. Total	0	0	0		0	0	0		0	0	100		0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.250	.250	.500

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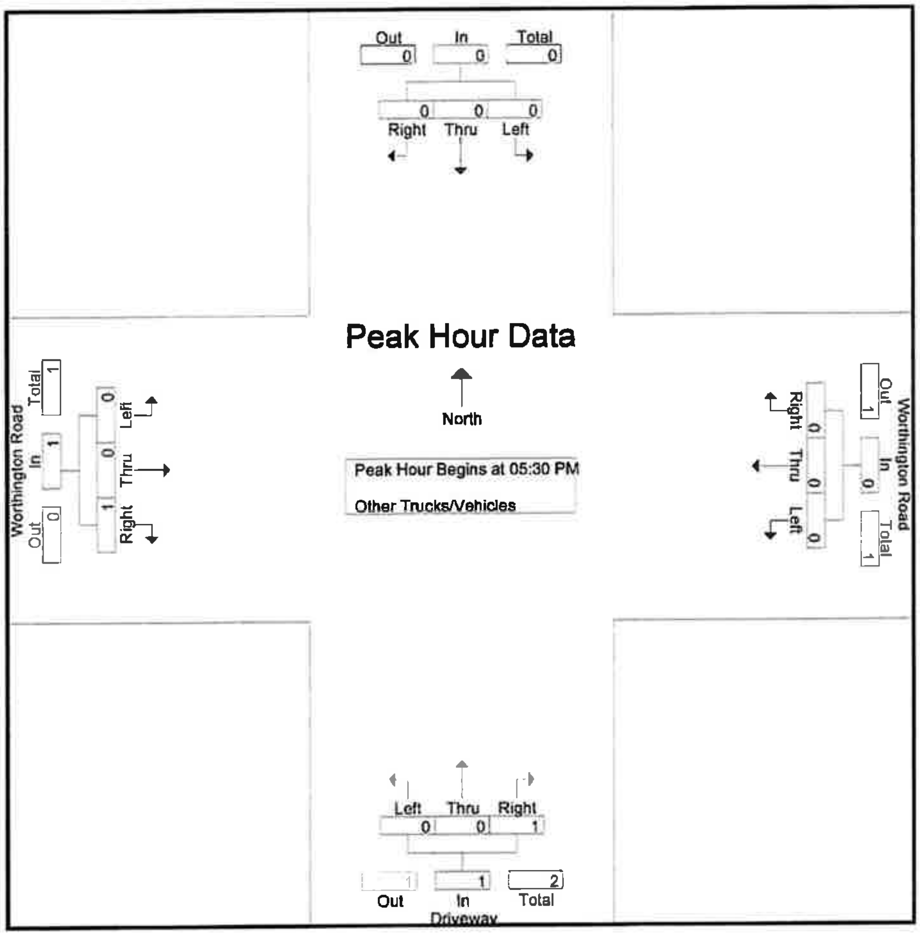

Peak Hour Analysis From 05:30 PM to 06:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	05:30 PM				05:30 PM				05:30 PM				05:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
% App. Total	0	0	0		0	0	0		0	0	100		0	0	100	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.250	.250

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Groups Printed- 18 Whls

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	3	4
05:00 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	3	4
05:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	0	0	0	0	0	0	5	5	6
06:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
06:15 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	1	4
06:30 AM	0	0	0	0	1	0	0	1	2	0	0	2	0	0	0	0	3
06:45 AM	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	5
Total	0	0	0	0	1	0	0	1	11	0	0	11	0	0	1	1	13
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
07:15 AM	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	0	3
07:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
07:45 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
Total	0	0	0	0	0	0	0	0	5	0	1	6	0	0	5	5	11
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
08:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	3	4
08:30 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	2	2	4
08:45 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	1	4
Total	0	0	0	0	0	0	0	0	6	0	0	6	0	0	8	8	14
09:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	2	0	0	2	0	0	4	4	6
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
10:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
10:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	3
10:45 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
Total	0	0	0	0	0	0	0	0	4	0	0	4	0	0	4	4	8
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4
12:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
12:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
12:45 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	1	4
Total	0	0	0	0	0	0	0	0	5	0	0	5	0	0	4	4	9
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	3	4
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	4	4	5

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County of Imperial
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File Name : CIM_Worthington Dwy_7-31-19
Site Code : 14319519
Start Date : 7/31/2019

Groups Printed- 18 Whls

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
02:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
02:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	3	4
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	3	0	0	3	0	0	5	5	8
03:00 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
03:15 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	2	2	4
03:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
03:45 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	7	0	0	7	0	0	3	3	10
04:00 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
04:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
04:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	4	0	0	4	0	0	3	3	7
05:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
05:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	1	4
05:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	6	0	0	6	0	0	2	2	8
06:00 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
06:15 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Total	0	0	0	0	0	0	0	0	4	0	0	4	0	0	6	6	10
Grand Total	0	0	0	0	2	0	0	2	59	0	1	60	0	0	61	61	123
Apprch %	0	0	0		100	0	0		98.3	0	1.7		0	0	100		
Total %	0	0	0	0	1.6	0	0	1.6	48	0	0.8	48.8	0	0	49.6	49.6	

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:30 PM																	
05:30 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	1	4
05:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
06:00 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
06:15 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
Total Volume	0	0	0	0	0	0	0	0	8	0	0	8	0	0	2	2	10
% App. Total	0	0	0		0	0	0		100	0	0		0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.667	.000	.000	.667	.000	.000	.500	.500	.625

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County of Imperial
N/S: Project Driveway
E/W: Worthington Road
Weather: Clear

File Name : CIM_Worthington Dwy_7-31-19
Site Code : 14319519
Start Date : 7/31/2019
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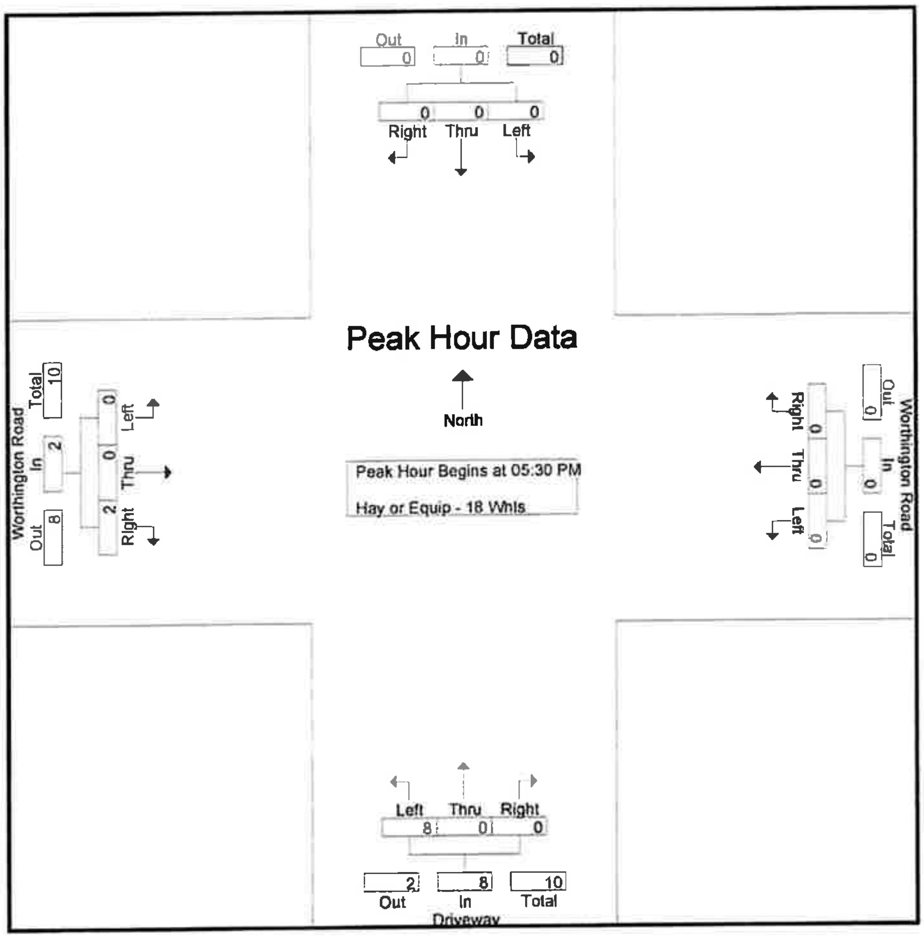

Peak Hour Analysis From 05:30 PM to 06:15 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	05:30 PM				05:30 PM				05:30 PM				05:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	1
+15 mins.	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1
Total Volume	0	0	0	0	0	0	0	0	8	0	0	8	0	0	2	2
% App. Total	0	0	0		0	0	0		100	0	0		0	0	100	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.667	.000	.000	.667	.000	.000	.500	.500

EEC ORIGINAL PKG

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County of Imperial
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File Name : CIM_Worthington Dwy_8-1-19
Site Code : 14319519
Start Date : 8/1/2019
Page No : 1

Groups Printed- Passenger Vehicles - Other Trucks/Vehicles - 18 Whls

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
04:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	2
04:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	1	0	0	1	0	0	3	3	5
05:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4
05:15 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2	3
05:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
05:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	8
Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	17	17	18
06:00 AM	0	0	0	0	0	0	0	0	6	0	1	7	0	0	2	2	9
06:15 AM	0	0	0	0	1	0	0	1	2	0	0	2	0	0	1	1	4
06:30 AM	0	0	0	0	0	0	0	0	8	0	0	8	0	0	1	1	9
06:45 AM	0	0	0	0	0	0	0	0	5	0	1	6	0	0	1	1	7
Total	0	0	0	0	1	0	0	1	21	0	2	23	0	0	5	5	29
07:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	3
07:15 AM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	1	1	3
07:30 AM	0	0	0	0	1	0	0	1	1	0	0	1	0	0	3	3	5
07:45 AM	0	0	0	0	0	0	0	0	2	0	1	3	0	0	7	7	10
Total	0	0	0	0	1	0	0	1	5	0	2	7	0	0	13	13	21
08:00 AM	0	0	0	0	0	0	0	0	2	1	2	5	0	0	2	2	7
08:15 AM	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	0	3
08:30 AM	0	0	0	0	0	0	0	0	2	0	1	3	0	0	2	2	5
08:45 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	3	3	5
Total	0	0	0	0	0	0	0	0	8	1	4	13	0	0	7	7	20
09:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	3
09:15 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
09:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	3
09:45 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	6	0	0	6	0	0	5	5	11
10:00 AM	0	0	0	0	1	0	0	1	1	0	0	1	0	0	2	2	4
10:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	3	4
10:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
10:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
Total	0	0	0	0	1	0	0	1	4	0	0	4	0	0	7	7	12
11:00 AM	0	0	0	0	0	0	0	0	6	0	1	7	0	0	2	2	9
11:15 AM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	3	3	5
11:30 AM	0	0	0	0	1	0	0	1	1	0	0	1	0	0	3	3	5
11:45 AM	0	0	0	0	1	0	0	1	3	0	0	3	0	0	4	4	8
Total	0	0	0	0	2	0	0	2	11	0	2	13	0	0	12	12	27
12:00 PM	0	0	0	0	1	0	0	1	7	0	0	7	0	0	0	0	8
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
12:30 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	2	2	5
12:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	3	4
Total	0	0	0	0	1	0	0	1	11	0	0	11	0	0	6	6	18
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
01:15 PM	0	0	0	0	1	0	0	1	3	0	1	4	0	0	4	4	9
01:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	4	0	1	5	0	0	5	5	11

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County of Imperial
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Site Code : 14319519
Start Date : 8/1/2019
Page No : 2

Groups Printed- Passenger Vehicles - Other Trucks/Vehicles - 18 Whls

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	2	2	4
02:15 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	1	4
02:30 PM	0	0	0	0	0	0	0	0	5	0	0	5	0	0	2	2	7
02:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	11	0	0	11	0	0	5	5	16
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
03:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	3	3	4
03:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	3
03:45 PM	0	0	0	0	0	0	0	0	3	0	1	4	0	0	1	1	5
Total	0	0	0	0	0	0	0	0	4	0	2	6	0	0	7	7	13
04:00 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	2	2	4
04:15 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	3	3	6
04:30 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	2	2	5
04:45 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	6	6	9
Total	0	0	0	0	0	0	0	0	11	0	0	11	0	0	13	13	24
05:00 PM	0	0	0	0	0	0	0	0	4	0	0	4	0	0	4	4	8
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	8
05:30 PM	0	0	0	0	1	0	0	1	7	0	0	7	0	0	2	2	10
05:45 PM	0	0	0	0	0	0	0	0	4	0	0	4	0	0	6	6	10
Total	0	0	0	0	1	0	0	1	15	0	0	15	0	0	20	20	36
06:00 PM	0	0	0	0	0	0	0	0	11	0	2	13	0	0	2	2	15
06:15 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	2	2	5
06:30 PM	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	0	3
06:45 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
Total	0	0	0	0	0	0	0	0	18	0	3	21	0	0	5	5	26
Grand Total	0	0	0	0	9	0	0	9	130	1	17	148	0	0	130	130	287
Apprch %	0	0	0		100	0	0		87.8	0.7	11.5		0	0	100		
Total %	0	0	0	0	3.1	0	0	3.1	45.3	0.3	5.9	51.6	0	0	45.3	45.3	
Passenger Vehicles	0	0	0	0	4	0	0	4	64	0	9	73	0	0	66	66	143
% Passenger Vehicles	0	0	0	0	44.4	0	0	44.4	49.2	0	52.9	49.3	0	0	50.8	50.8	49.8
Other Trucks/Vehicles	0	0	0	0	1	0	0	1	15	0	1	16	0	0	16	16	33
% Other Trucks/Vehicles	0	0	0	0	11.1	0	0	11.1	11.5	0	5.9	10.8	0	0	12.3	12.3	11.5
Hay or Equip - 18 Whls	0	0	0	0	4	0	0	4	51	1	7	59	0	0	48	48	111
% Hay or Equip - 18 Whls	0	0	0	0	44.4	0	0	44.4	39.2	100	41.2	39.9	0	0	36.9	36.9	38.7

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 AM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	8
05:30 PM	0	0	0	0	1	0	0	1	7	0	0	7	0	0	2	2	10
05:45 PM	0	0	0	0	0	0	0	0	4	0	0	4	0	0	6	6	10
06:00 PM	0	0	0	0	0	0	0	0	11	0	2	13	0	0	2	2	15
Total Volume	0	0	0	0	1	0	0	1	22	0	2	24	0	0	18	18	43
% App. Total	0	0	0		100	0	0		91.7	0	8.3		0	0	100		
PHF	.000	.000	.000	.000	.250	.000	.000	.250	.500	.000	.250	.462	.000	.000	.563	.563	.717

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County of Imperial
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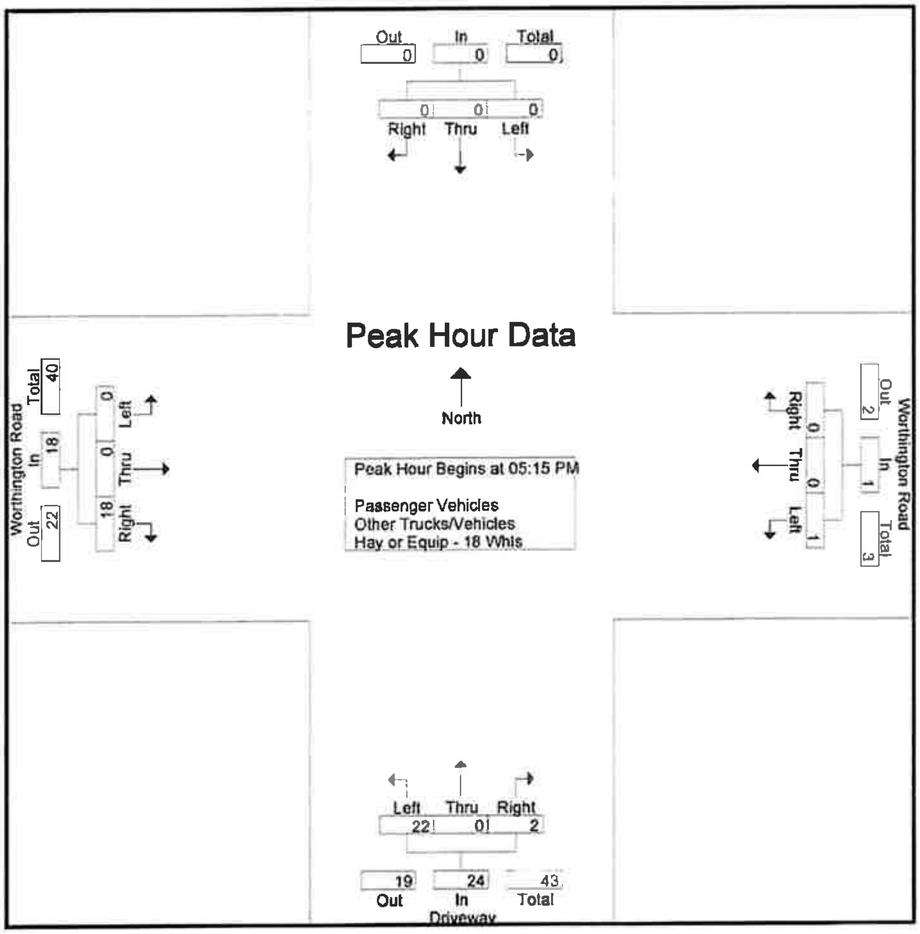

Peak Hour Analysis From 04:00 AM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 AM				11:15 AM				05:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	7	0	0	7	0	0	2	2
+15 mins.	0	0	0	0	1	0	0	1	4	0	0	4	0	0	6	6
+30 mins.	0	0	0	0	1	0	0	1	11	0	2	13	0	0	4	4
+45 mins.	0	0	0	0	1	0	0	1	3	0	0	3	0	0	8	8
Total Volume	0	0	0	0	3	0	0	3	25	0	2	27	0	0	20	20
% App. Total	0	0	0		100	0	0		92.6	0	7.4		0	0	100	
PHF	.000	.000	.000	.000	.750	.000	.000	.750	.568	.000	.250	.519	.000	.000	.625	.625

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Site Code : 14319519
Start Date : 8/1/2019
Page No : 1

Groups Printed- Passenger Vehicles

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
04:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
05:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
05:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
05:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	8
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	14	14
06:00 AM	0	0	0	0	0	0	0	0	5	0	1	6	0	0	2	2	8
06:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	2
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
06:45 AM	0	0	0	0	0	0	0	0	3	0	1	4	0	0	1	1	5
Total	0	0	0	0	1	0	0	1	8	0	2	10	0	0	5	5	16
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	4	4	5
08:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	2	0	1	3	0	0	1	1	4
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
10:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	3
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	2	0	0	2	0	0	3	3	5
11:00 AM	0	0	0	0	0	0	0	0	5	0	1	6	0	0	1	1	7
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
11:45 AM	0	0	0	0	1	0	0	1	2	0	0	2	0	0	3	3	6
Total	0	0	0	0	1	0	0	1	7	0	1	8	0	0	8	8	17
12:00 PM	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	5
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
12:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	3	4
Total	0	0	0	0	0	0	0	0	6	0	0	6	0	0	4	4	10
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
01:15 PM	0	0	0	0	1	0	0	1	2	0	1	3	0	0	3	3	7
01:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	3	0	1	4	0	0	4	4	9

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County of Imperial
N/S: Project Driveway
E/W: Worthington Road
Weather: Clear

File Name : CIM_Worthington Dwy_8-1-19
Site Code : 14319519
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Groups Printed- Passenger Vehicles

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	2	2	4
02:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	4	0	0	4	0	0	2	2	6
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	1	0	1	2	0	0	2	2	4
04:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	3
04:15 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	2	2	4
04:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
04:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	5	0	0	5	0	0	5	5	10
05:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	3
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4
05:30 PM	0	0	0	0	1	0	0	1	2	0	0	2	0	0	2	2	5
05:45 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	5	5	8
Total	0	0	0	0	1	0	0	1	6	0	0	6	0	0	13	13	20
06:00 PM	0	0	0	0	0	0	0	0	11	0	2	13	0	0	1	1	14
06:15 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3
06:30 PM	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	0	3
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	16	0	3	19	0	0	1	1	20
Grand Total	0	0	0	0	4	0	0	4	64	0	9	73	0	0	66	66	143
Apprch %	0	0	0		100	0	0		87.7	0	12.3		0	0	100		
Total %	0	0	0	0	2.8	0	0	2.8	44.8	0	6.3	51	0	0	46.2	46.2	

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:15 PM to 06:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4
05:30 PM	0	0	0	0	1	0	0	1	2	0	0	2	0	0	2	2	5
05:45 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	5	5	8
06:00 PM	0	0	0	0	0	0	0	0	11	0	2	13	0	0	1	1	14
Total Volume	0	0	0	0	1	0	0	1	16	0	2	18	0	0	12	12	31
% App. Total	0	0	0		100	0	0		88.9	0	11.1		0	0	100		
PHF	.000	.000	.000	.000	.250	.000	.000	.250	.364	.000	.250	.346	.000	.000	.600	.600	.554

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Weather: Clear

File Name : CIM_Worthington Dwy_8-1-19
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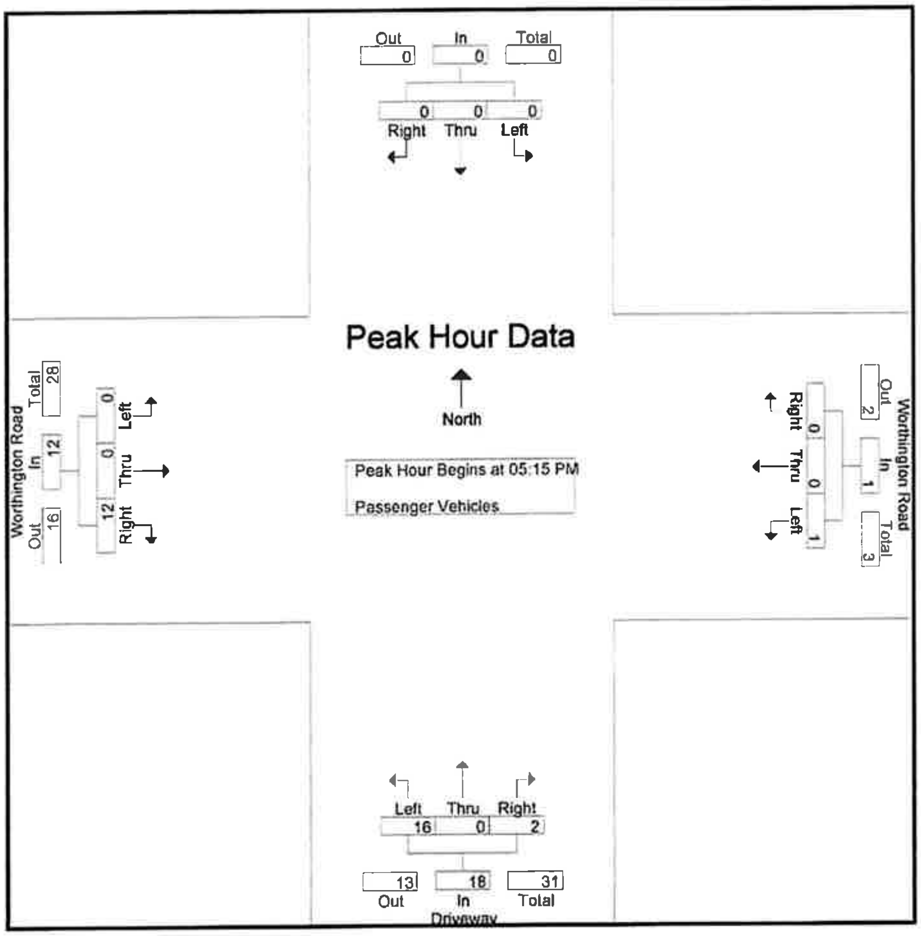

Peak Hour Analysis From 05:15 PM to 06:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:15 PM				05:15 PM				05:15 PM				05:15 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4
+15 mins.	0	0	0	0	1	0	0	1	2	0	0	2	0	0	2	2
+30 mins.	0	0	0	0	0	0	0	0	3	0	0	3	0	0	5	5
+45 mins.	0	0	0	0	0	0	0	0	11	0	2	13	0	0	1	1
Total Volume	0	0	0	0	1	0	0	1	16	0	2	18	0	0	12	12
% App. Total	0	0	0		100	0	0		88.9	0	11.1		0	0	100	
PHF	.000	.000	.000	.000	.250	.000	.000	.250	.364	.000	.250	.346	.000	.000	.600	.600

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Weather: Clear

File Name : CIM_Worthington Dwy_8-1-19
Site Code : 14319519
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Groups Printed- Other Trucks/Vehicles

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
09:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	3
10:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
11:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
12:00 PM	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	2
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	2
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1

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County of Imperial
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E/W: Worthington Road
Weather: Clear

File Name : CIM_Worthington Dwy_8-1-19
Site Code : 14319519
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Groups Printed- Other Trucks/Vehicles

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	2
03:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	3
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	1	2	0	0	3	3	5
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4
Grand Total	0	0	0	0	1	0	0	1	15	0	1	16	0	0	16	16	33
Apprch %	0	0	0		100	0	0		93.8	0	6.2		0	0	100		
Total %	0	0	0	0	3	0	0	3	45.5	0	3	48.5	0	0	48.5	48.5	

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:15 PM to 06:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
% App. Total	0	0	0		0	0	0		0	0	0		0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.750	.750	.750

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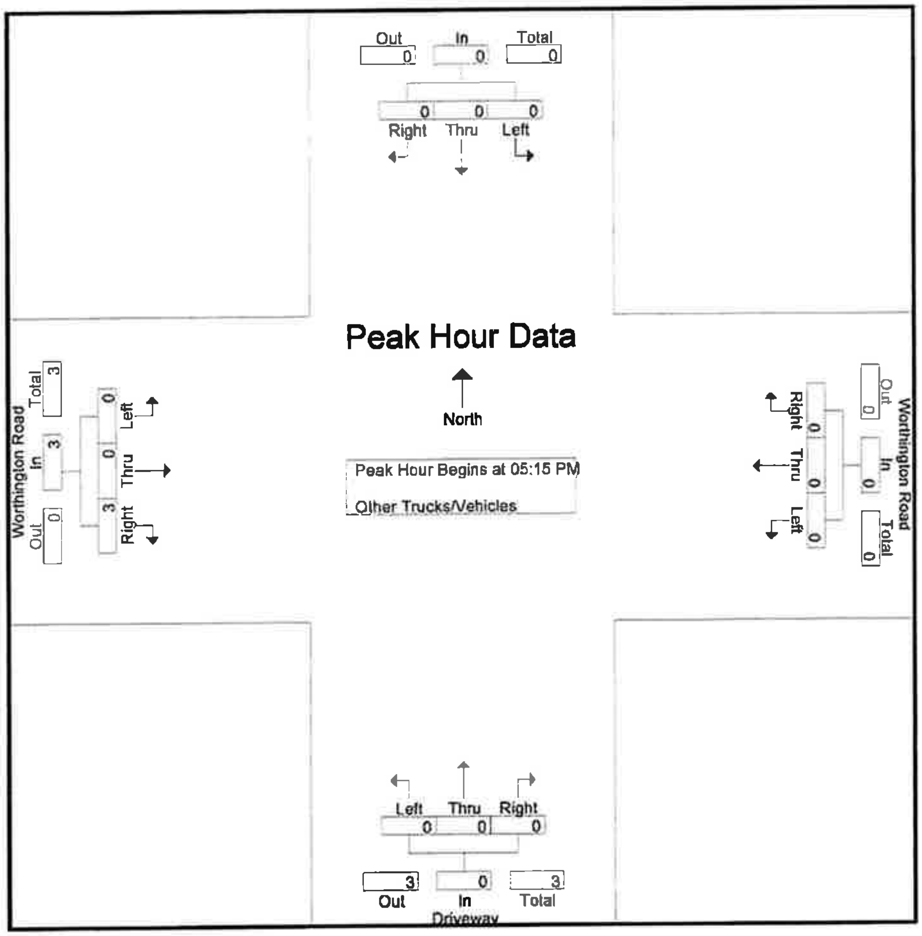

Peak Hour Analysis From 05:15 PM to 06:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:15 PM				05:15 PM				05:15 PM				05:15 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
% App. Total	0	0	0		0	0	0		0	0	0		0	0	100	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.750	.750

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Groups Printed- 18 Whls

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	2
04:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	3	4
05:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:15 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2	3
05:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	3	3	4
06:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
06:15 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
06:30 AM	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	5
06:45 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	10	0	0	10	0	0	0	0	10
07:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	3
07:15 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
07:30 AM	0	0	0	0	1	0	0	1	1	0	0	1	0	0	2	2	4
07:45 AM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	5	5	7
Total	0	0	0	0	1	0	0	1	3	0	2	5	0	0	9	9	15
08:00 AM	0	0	0	0	0	0	0	0	1	1	2	4	0	0	2	2	6
08:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	2	2	4
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Total	0	0	0	0	0	0	0	0	3	1	3	7	0	0	6	6	13
09:00 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
09:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
09:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	3	0	0	3	0	0	3	3	6
10:00 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	2
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	1	0	0	1	1	0	0	1	0	0	3	3	5
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
11:15 AM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	1	1	3
11:30 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	2
11:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	1	0	0	1	2	0	1	3	0	0	3	3	7
12:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
12:30 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	1	4
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	4	0	0	4	0	0	2	2	6
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1

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County of Imperial
N/S: Project Driveway
E/W: Worthington Road
Weather: Clear

File Name : CIM_Worthington Dwy_8-1-19
Site Code : 14319519
Start Date : 8/1/2019
Page No : 2

Groups Printed- 18 Whls

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	3
02:15 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	1	4
02:30 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	6	0	0	6	0	0	3	3	9
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	1	1	3
Total	0	0	0	0	0	0	0	0	2	0	0	2	0	0	2	2	4
04:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
04:30 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	5	5	7
Total	0	0	0	0	0	0	0	0	6	0	0	6	0	0	6	6	12
05:00 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	1	1	4
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
05:30 PM	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	5
05:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	9	0	0	9	0	0	4	4	13
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Grand Total	0	0	0	0	4	0	0	4	51	1	7	59	0	0	48	48	111
Apprch %	0	0	0		100	0	0		86.4	1.7	11.9		0	0	100		
Total %	0	0	0	0	3.6	0	0	3.6	45.9	0.9	6.3	53.2	0	0	43.2	43.2	

	Southbound				Worthington Road Westbound				Driveway Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:15 PM to 06:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
05:30 PM	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	5
05:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	6	0	0	6	0	0	3	3	9
% App. Total	0	0	0		0	0	0		100	0	0		0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.300	.000	.000	.300	.000	.000	.250	.250	.450

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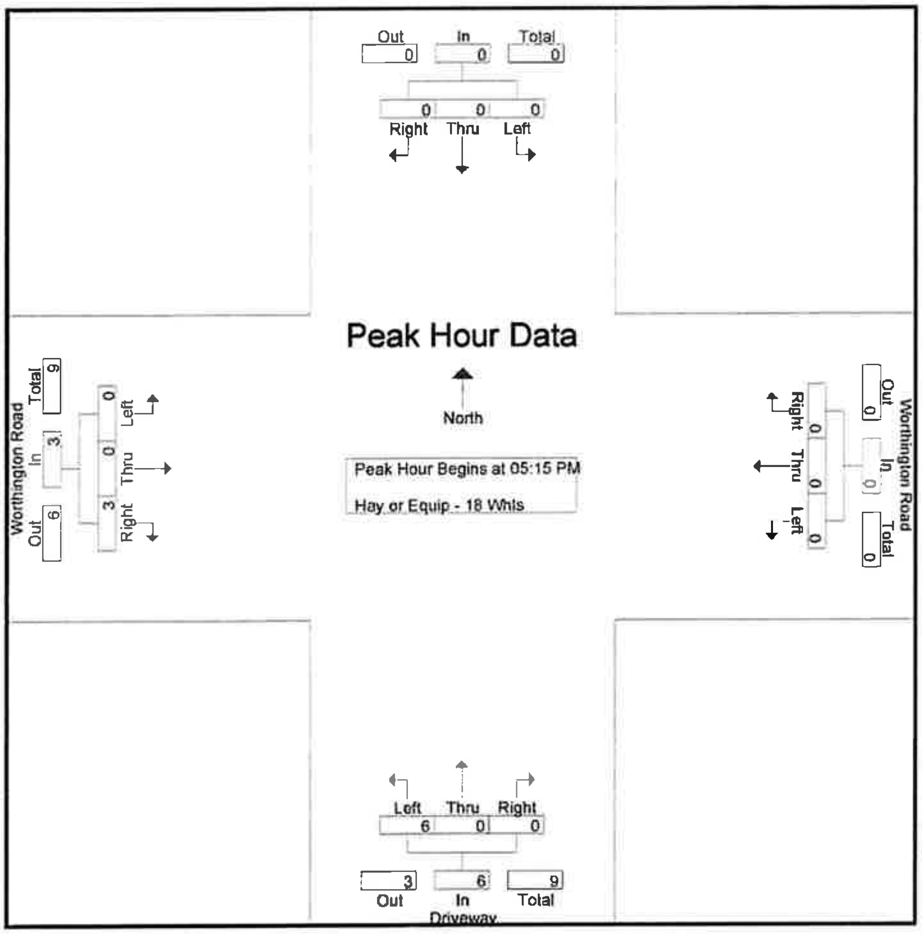
County of Imperial
N/S: Project Driveway
E/W: Worthington Road
Weather: Clear

File Name : CIM_Worthington Dwy_8-1-19
Site Code : 14319519
Start Date : 8/1/2019
Page No : 3



Peak Hour Analysis From 05:15 PM to 06:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:15 PM				05:15 PM				05:15 PM				05:15 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
+15 mins.	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	6	0	0	6	0	0	3	3
% App. Total	0	0	0		0	0	0		100	0	0		0	0	100	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.300	.000	.000	.300	.000	.000	.250	.250

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City of Imperial
Worthington Road
B/ Highway 111 - Project Driveway

File Name 001
Site Code: 143-19519
24 Hour Directional Volume Count

Date: 7/31/2019	Eastbound				Westbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals			
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	1	6			4	20				
12:15	3	18			0	12				
12:30	1	12			1	25				
12:45	7	16	12	52	3	10	8	67	20	119
1:00	4	8			0	4				
1:15	8	12			2	14				
1:30	6	14			4	10				
1:45	5	6	23	40	3	10	9	38	32	78
2:00	1	13			0	20				
2:15	6	22			0	25				
2:30	1	10			1	18				
2:45	4	14	12	59	2	27	3	90	15	149
3:00	1	20			2	26				
3:15	4	22			2	19				
3:30	1	13			4	16				
3:45	6	18	12	73	4	16	12	77	24	150
4:00	4	8			4	20				
4:15	7	18			2	15				
4:30	10	14			4	18				
4:45	7	21	28	61	8	11	18	64	46	125
5:00	19	28			4	20				
5:15	14	22			9	16				
5:30	12	28			12	15				
5:45	20	32	65	110	8	24	33	75	98	185
6:00	16	6			3	24				
6:15	19	14			18	13				
6:30	24	6			16	14				
6:45	15	16	74	42	27	12	64	63	138	105
7:00	20	6			22	8				
7:15	16	8			20	8				
7:30	12	12			18	9				
7:45	12	8	60	34	17	2	77	27	137	61
8:00	14	4			10	5				
8:15	14	5			18	1				
8:30	28	5			14	4				
8:45	4	4	60	18	24	3	66	13	126	31
9:00	7	5			6	1				
9:15	17	6			16	5				
9:30	16	6			21	7				
9:45	5	10	45	27	18	2	61	15	106	42
10:00	16	4			8	3				
10:15	11	5			12	2				
10:30	16	2			16	1				
10:45	24	1	67	12	27	1	63	7	130	19
11:00	9	0			20	1				
11:15	12	2			12	1				
11:30	10	6			8	2				
11:45	22	3	53	11	6	0	46	4	99	15
Totals	511	539			460	540				
Combined Totals		1050				1000				
ADT										2050
AM Peak Hour	545	AM			645	AM				
Volume	79				87					
P.H.F.	0.823				0.806					
PM Peak Hour		500	PM			215	PM			
Volume		110				96				
P.H.F.		0.859				0.889				
Percentage	48.7%	51.3%			46.0%	54.0%				

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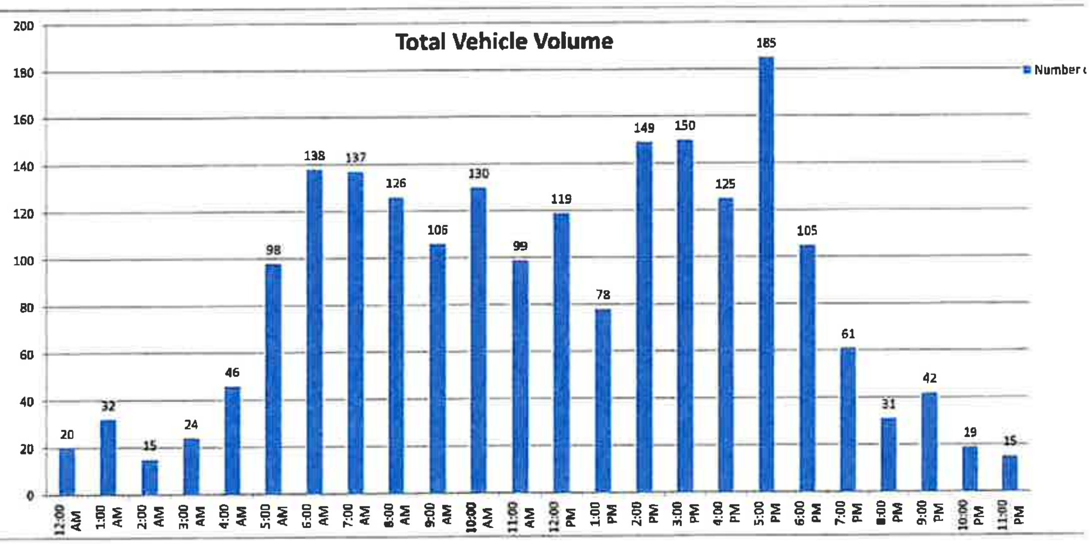
24 Hour Volume Plot

Worthington Road
B/ Highway 111 - Project Driveway
7/31/2019

Start Time	7/31/2019
12:00 AM	20
1:00 AM	32
2:00 AM	15
3:00 AM	24
4:00 AM	46
5:00 AM	98
6:00 AM	138
7:00 AM	137
8:00 AM	126
9:00 AM	106
10:00 AM	130
11:00 AM	99
12:00 PM	119
1:00 PM	78
2:00 PM	149
3:00 PM	150
4:00 PM	125
5:00 PM	185
6:00 PM	105
7:00 PM	61
8:00 PM	31
9:00 PM	42
10:00 PM	19
11:00 PM	15
Total	2050



Volumes represent the combined totals for both directions

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PO Box 1178
Corona, CA 92878

City of Imperial
Worthington Road
B/ Highway 111 - Project Driveway

File Name 001
Site Code: 143-19519
24 Hour Directional Volume Count

Date: 8/1/2019	Eastbound				Westbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals			
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	2	9			1	16				
12:15	2	8			4	16				
12:30	2	12			2	12				
12:45	0	6	6	35	1	7	8	51	14	86
1:00	0	13			0	8				
1:15	1	15			0	15				
1:30	2	10			0	11				
1:45	2	4	5	42	1	20	1	54	6	96
2:00	6	17			0	15				
2:15	8	12			4	16				
2:30	9	31			3	12				
2:45	12	14	35	74	5	20	12	63	47	137
3:00	2	8			3	14				
3:15	5	15			6	26				
3:30	6	15			4	18				
3:45	4	14	17	52	2	20	15	78	32	130
4:00	8	6			2	16				
4:15	4	12			2	10				
4:30	4	10			4	18				
4:45	10	16	26	44	6	16	14	60	40	104
5:00	12	22			7	17				
5:15	12	20			12	16				
5:30	10	14			8	14				
5:45	13	14	47	70	7	16	34	63	81	133
6:00	15	20			10	16				
6:15	14	8			21	14				
6:30	28	8			14	5				
6:45	19	12	76	48	30	8	75	43	151	91
7:00	14	12			16	6				
7:15	14	6			13	2				
7:30	12	14			15	6				
7:45	24	6	64	38	17	8	61	22	125	60
8:00	15	8			7	12				
8:15	22	13			26	3				
8:30	18	5			11	8				
8:45	15	16	70	42	11	10	55	33	125	75
9:00	8	9			17	8				
9:15	12	6			12	12				
9:30	16	8			11	8				
9:45	8	7	44	30	18	8	58	36	102	66
10:00	12	4			15	5				
10:15	13	12			22	7				
10:30	10	3			8	11				
10:45	16	8	51	27	12	6	57	29	108	56
11:00	13	2			19	5				
11:15	12	3			8	2				
11:30	8	3			12	2				
11:45	20	4	53	12	6	2	45	11	98	23
Totals	494	514			435	543				
Combined Totals		1008				978				
ADT										1986
AM Peak Hour	745	AM			615	AM				
Volume	79				81					
P.H.F.	0.823				0.675					
PM Peak Hour		200	PM			315	PM			
Volume		74				80				
P.H.F.		0.597				0.769				
Percentage	49.0%	51.0%			44.5%	55.5%				

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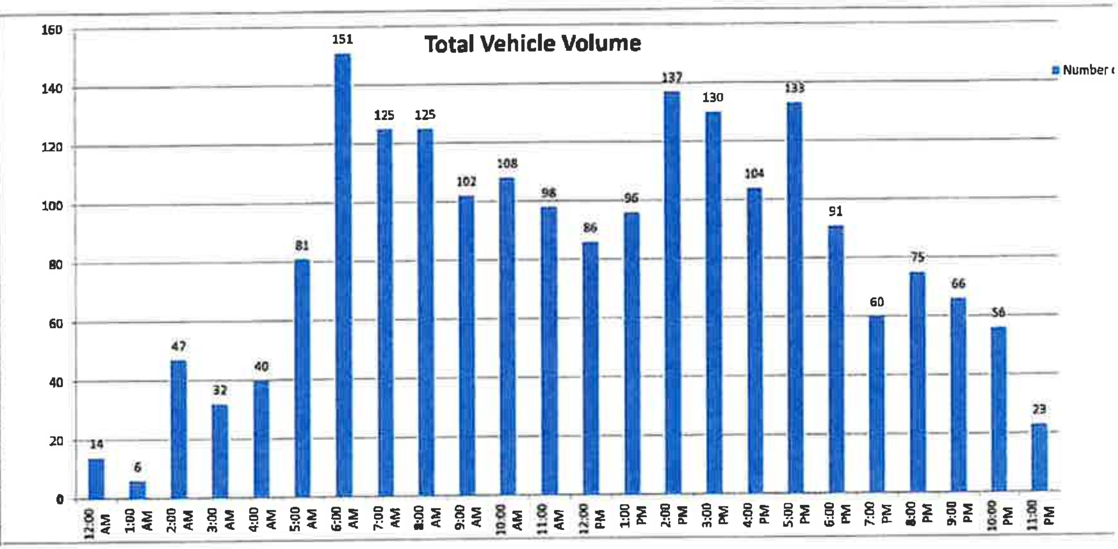
24 Hour Volume Plot

Worthington Road
B/ Highway 111 - Project Driveway
8/1/2019

Start Time	8/1/2019
12:00 AM	14
1:00 AM	6
2:00 AM	47
3:00 AM	32
4:00 AM	40
5:00 AM	81
6:00 AM	151
7:00 AM	125
8:00 AM	125
9:00 AM	102
10:00 AM	108
11:00 AM	98
12:00 PM	86
1:00 PM	96
2:00 PM	137
3:00 PM	130
4:00 PM	104
5:00 PM	133
6:00 PM	91
7:00 PM	60
8:00 PM	75
9:00 PM	66
10:00 PM	56
11:00 PM	23
Total	1986



Volumes represent the combined totals for both directions

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ATTACHMENT B

ITE RIGHT TURN LANE WARRANT AND DATA

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TRAFFIC ENGINEERING HANDBOOK

Fifth Edition

James L. Pline
Editor

Institute of Transportation Engineers

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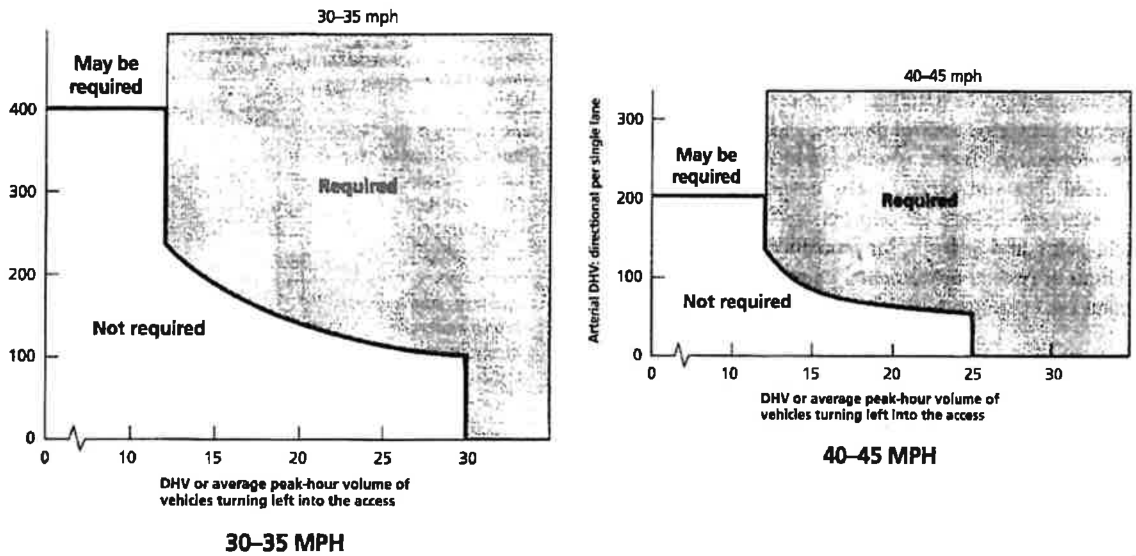


Figure 11–22(a) Left-Turn Lane Warrants

Source: *Access Management Guidelines for Activity Centers*, NCHRP Report 348.

Corner Radius Design

Corner radius design should be based on the selected design vehicle. Care should be taken to select an appropriate vehicle. Over-designing an intersection using a very large semitrailer, which may never or rarely ever use the intersection, can be costly and may create problems in executing a desired channelization plan; and it may even create a more difficult environment for pedestrians. Under-designing an intersection creates potential safety and operational problems. Table 11–17 shows guidelines for selection of an appropriate design vehicle.

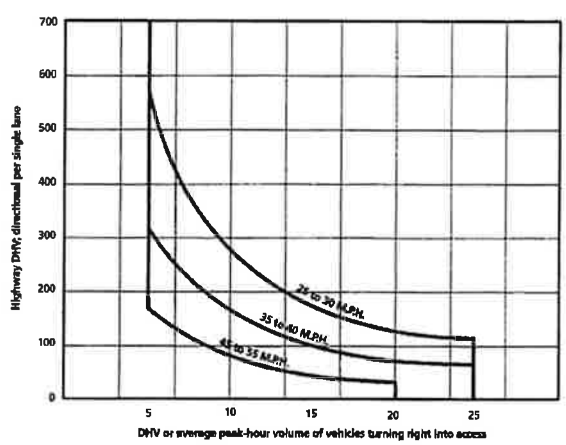


Figure 11–22(b) Right-Turn Lane Warrants

Source: State Highway Access Code, Colorado Department of Transportation, 1985.

Design of the corner radius itself can take a variety of forms. Simple circular radius designs are common for low-speed, residential, collector, and downtown streets. Higher-speed designs and radii for very large semitrailers are most efficiently accomplished using multicentered curves. These best replicate the turning paths of design vehicles.

Turning Roadway Widths

Widths of turning roadways are based on the turning paths of design vehicles. AASHTO policy gives designers a choice of three cases for which turning roadway width can be designed, as shown in Figure 11–23. Designers should take care to not over-design the turning roadway for too great a width. This can create a design that is difficult to drain, difficult for pedestrians to cross, and that may reduce or eliminate an island desired for traffic control devices or other uses.

POINTS ABOVE 45-55 MPH LINE

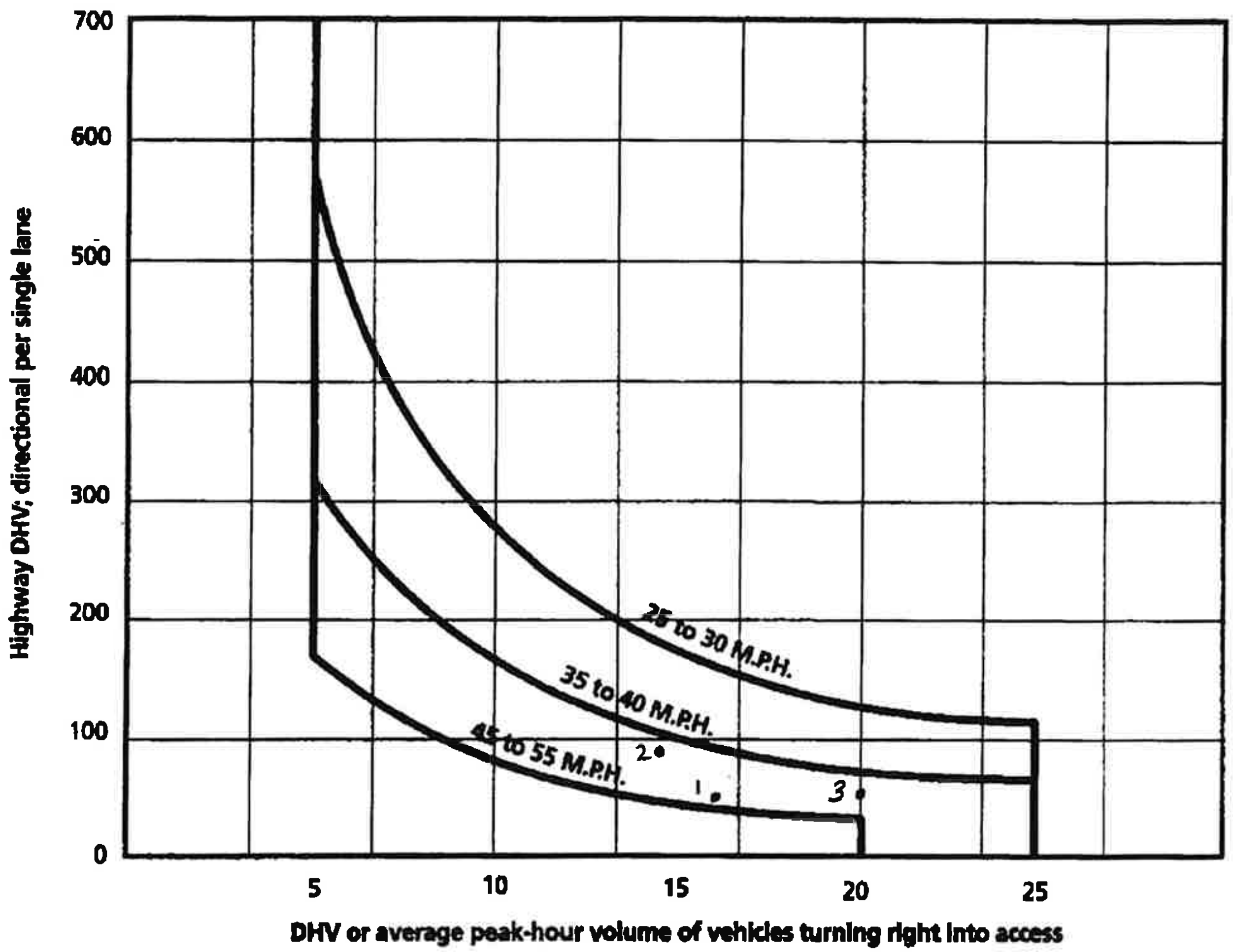
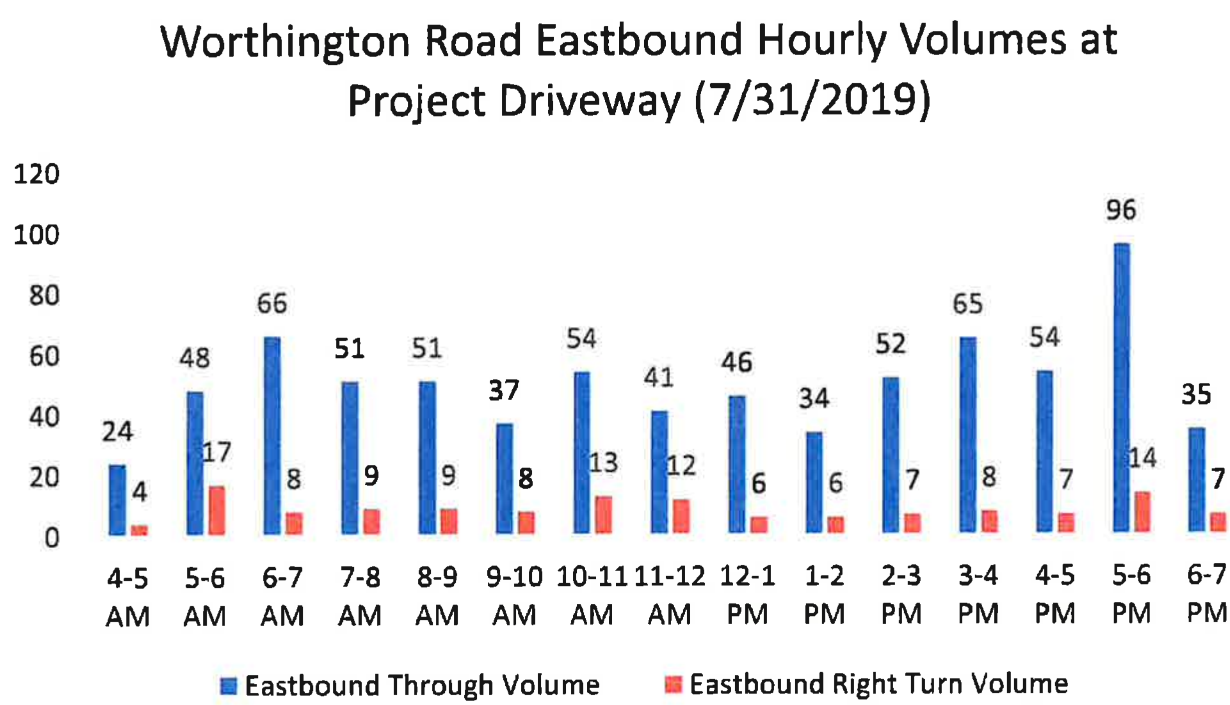


Figure 11–22(b) Right-Turn Lane Warrants

Source: State Highway Access Code, Colorado Department of Transportation, 1985.

1. 7/31/19 5 AM RT = 17 THRU = 48
2. 7/31/19 5 PM RT = 14 THRU = 96
3. 8/1/19 5 PM RT = 20 THRU = 50



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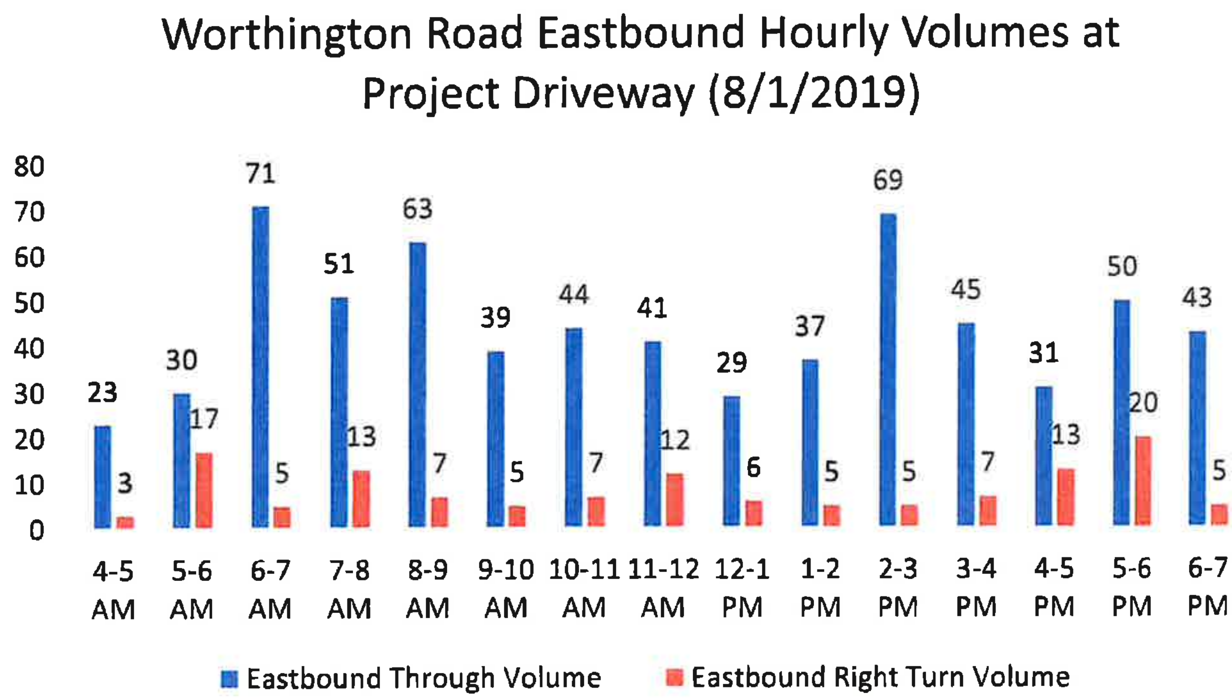
Worthington Road Eastbound Hourly Volumes at Project Driveway (8/1/2019)
80
70
60
50
40
30
20
10
0
23
3
30
17
71
5
51
13
63
7
39
5
44
7
41
12
29
6
37
5
69
5
45
7
31
13
50
20
43
5
4-5 AM
5-6 AM
6-7 AM
7-8 AM
8-9 AM
9-10 AM
10-11 AM
11-12 AM
12-1 PM
1-2 PM
2-3 PM
3-4 PM
4-5 PM
5-6 PM
6-7 PM
Eastbound Through Volume
Eastbound Right Turn Volume

ATTACHMENT C

MINNESOTA DEPARTMENT OF TRANSPORTATION RESEARCH SYNTHESIS AND DATA

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TRANSPORTATION RESEARCH SYNTHESIS

Minnesota Department of Transportation
Office of Transportation System Management
Research Services and Library
651-366-3780
www.mndot.gov/research

TRS 1406
Published April 2014

Right and Left Turn Lane Warrants

Introduction

The genesis of this project stems from a perception by city and county engineers that there is a lack of guidance relative to the installation of right and left turn lanes along local road systems. An initial review found The *Minnesota Department of Transportation (MnDOT) Road Design Manual (RDM)* has guidance for when turn lane installation is warranted along the State's roadway system, but the focus is reconstruction. Many times separated turning and through volumes are required in order to determine whether or not a turn lane is needed, as well as to determine the length of the turn lane. This lack of guidance for local systems may cause some agencies to miss out on opportunities to build turn lanes when needed, to work with the zoning (permitting) authority and/or to have a developer pay for the cost of a turn lane as part of their development project.

CH2M HILL was asked to conduct a literature review to determine what existing turn lane guidance is available and being used by different agencies. The review focused on six key areas that local agencies are concerned with and encounter when deploying turn lanes on their road systems and include both long-term and short-term scenarios.

Consistent with MnDOT Transportation Research Syntheses, the objective of this project is to search existing literature and how it relates to the topic of providing guidance for installing right and left turn lanes along local systems, but not about developing new guidance. The summary of those findings are below, along with suggested next steps, followed by the individual literature results.

Summary

There are national and local guidelines available that provide guidance on turn lane installation. Seventeen documents were reviewed, focusing on six relevant areas to turn lane installations on local roads. The six focus areas included:

MnDOT Access Management Manual [13]

MnDOT created an access management policy for state trunk highways that is outlined in this manual. Turn lane guidance and examples are in chapter three.

Access Management

Turn lane guidelines on divided trunk highways include:

1) Left turn lanes on all public street connections and median openings (except freeway emergency crossovers)
2) Right turn lanes on all public street connections, residential driveways serving 6 or more units and driveways with more than 50 trips/day
3) Right turn lane treatments (modification to shoulder, i.e., widening the paved shoulder, removing conflicting striping and shoulder rumble strips, prohibiting on-street parking on the widened shoulder and adding pavement thickness on the shoulder) at all field entrances, residential driveways and driveways with less than 50 trips/day

Turn lane guidelines on undivided trunk highways include:

1) Left or right turn lanes where there is a site-specific geometric or safety concern, indicated by turn lane warrants 1 through 8 or if traffic volumes meet warrant 9
2) Consider bypass lanes when left turn lane is warranted but construction is not practical at T intersections
3) Consider right turn lanes/bypass lanes at 4-leg intersections after all other solutions are found to be impractical and the cross street volume is low

Below are the nine turn lane warrants for undivided trunk highways and apply to both left and right turn lanes.

1) Passing Lane/Climbing Lane – at high volume driveways (greater than 100 trips/day) and all public street connections on highway segments where passing or climbing lanes are present in the approach/direction.
2) Limited Sight Distance/Terrain – at all locations with inadequate stopping sight distance or on short vertical curves or steep grades.
3) Railroad Crossings – at high volume driveways and public crossings where the railroad is parallel to the highway and vehicles queue into thru-lanes.
4) Signalized Intersections – at all locations.
5) Heavy-Vehicle Traffic – at high speed locations (45 MPH or greater) where heavy-vehicle turning volume is greater than or equal to 15 vehicles per hour for a least 8 hours per day for 4 months in a year.
6) School Entrances – at all locations on high speed roads.
7) Crash History – at high volume driveways and public streets that demonstrate a history of crashes suitable to correction by turn lane (typically 3 correctible/year) or where adequate trial of other methods have failed.
8) Corridor Crash Experience – at locations where corridor crashes are high and corridor consistency is needed.
9) Vehicular-Volume Warrant – At locations that satisfy criteria in the table provided.

Figure 3.40: Warrant 9 for Left-Turn Lanes

2-Lane Highway AADT	4-Lane Highway AADT	Cross Street or Driveway ADT	Turn Lane Requirement
1500 to 2999	3000 to 5999	> 1500	Left-turn lane warranted
3000 to 3999	6000 to 7999	> 1200	Left-turn lane warranted
4000 to 4999	8000 to 9999	> 1000	Left-turn lane warranted
5000 to 6499	10,000 to 12,999	> 800	Left-turn lane warranted
≥ 6500 AADT	≥ 13,000 AADT	101 to 400	Left-turn lane or bypass lane
		> 400	Left-turn lane warranted

Highway AADT one year after opening
Posted speed 45 mph or greater

Figure 3.41: Warrant 9 for Right-Turn Lanes

2-Lane Highway AADT	4-Lane Highway AADT	Cross Street or Driveway ADT	Turn Lane Requirement
≥ 1500 AADT	≥ 3000 AADT	> 100	Right-turn lane warranted

Highway AADT one year after opening
Posted speed 45 mph or greater

Source: MnDOT Access Management Manual

Turning movement restriction guidelines are provided based on sight distance, volumes, access point, etc.

Functional Systems

Intersection spacing is recommended based on facility type and functional class.

City of Tucson, AZ Access Management Guidelines (2011)

The City of Tucson, Arizona put together access management guidelines in order to "enable access to land uses while maintaining roadway safety and mobility through controlling access location, design, spacing and operation" [14].

Development Driven (Short-Term)

Guidelines have been adopted as ordinance and are applicable to all public and private development. Traffic impact analysis is required and must include a turn lane analysis that addresses turn lane needs.

Problem Oriented, Safety, Operations, Maintenance and Removal

Median openings should be closed when traffic volumes exceed MUTCD thresholds for traffic signal installations, but signal spacing is not sufficient to provide safe and efficient operation.

Access Management

When necessary for the safe and efficient movement of traffic, access points may be required to be designed for right turns in and out only.

Functional Systems

Left turn lanes are required along arterial roadways at intersections and driveways where the product of opposing hourly volume of through and left turns exceeds specified thresholds for 30, 40 and 55 MPH. Right turn lanes are required along arterials at intersections and

Average Daily Traffic on Wortington Road and at the project driveway

Date	Worthington Road ADT	Project Driveway ADT
July 31, 2019	2,050	290
August 1, 2019	1,986	287
Average	**2,018**	**289**

ATTACHMENT 4

Traffic Impact Analysis

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Hay Kingdom
County of Imperial (393 E. Worthington Rd)
April 3, 2020

Draft Traffic Impact Analysis

Prepared for:

Ericsson-Grant Inc.
5145 Avenida Encinas, Suite H
Carlsbad, CA 92008

Prepared by Justin Rasas (RCE 60690), a principal with:

LOS Engineering, Inc.
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Job #1920

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Appendices

1.0 Introduction

The purpose of this study is to determine and analyze potential traffic impacts associated with a new Conditional Use Permit (CUP) that would amend existing CUP #04-0003 for the Hay Kingdom located at 393 E. Worthington Road, Imperial County, California. The existing Hay Kingdom regional location is shown in **Figure 1**. The project site is shown in **Figure 2**.

This report describes the existing roadway network in the vicinity of the project site. It includes a review of the existing and proposed traffic activities for weekday peak AM and PM periods and daily traffic conditions. The format of this study includes the following chapters:

1.0 Introduction
2.0 Study Methodology
3.0 Existing Year 2020 Conditions
4.0 Project Description
5.0 Existing Year 2020 + Project Conditions
6.0 Cumulative Projects (New Development)
7.0 Existing Year 2020 + Project + Cumulative Conditions
8.0 Near-Term Year 2025 Conditions
9.0 Near-Term Year 2025 + Project Conditions
10.0 Near-Term Year 2025 + Project + Cumulative Conditions
11.0 Conclusions
12.0 References

Figure 1: Project Regional Location

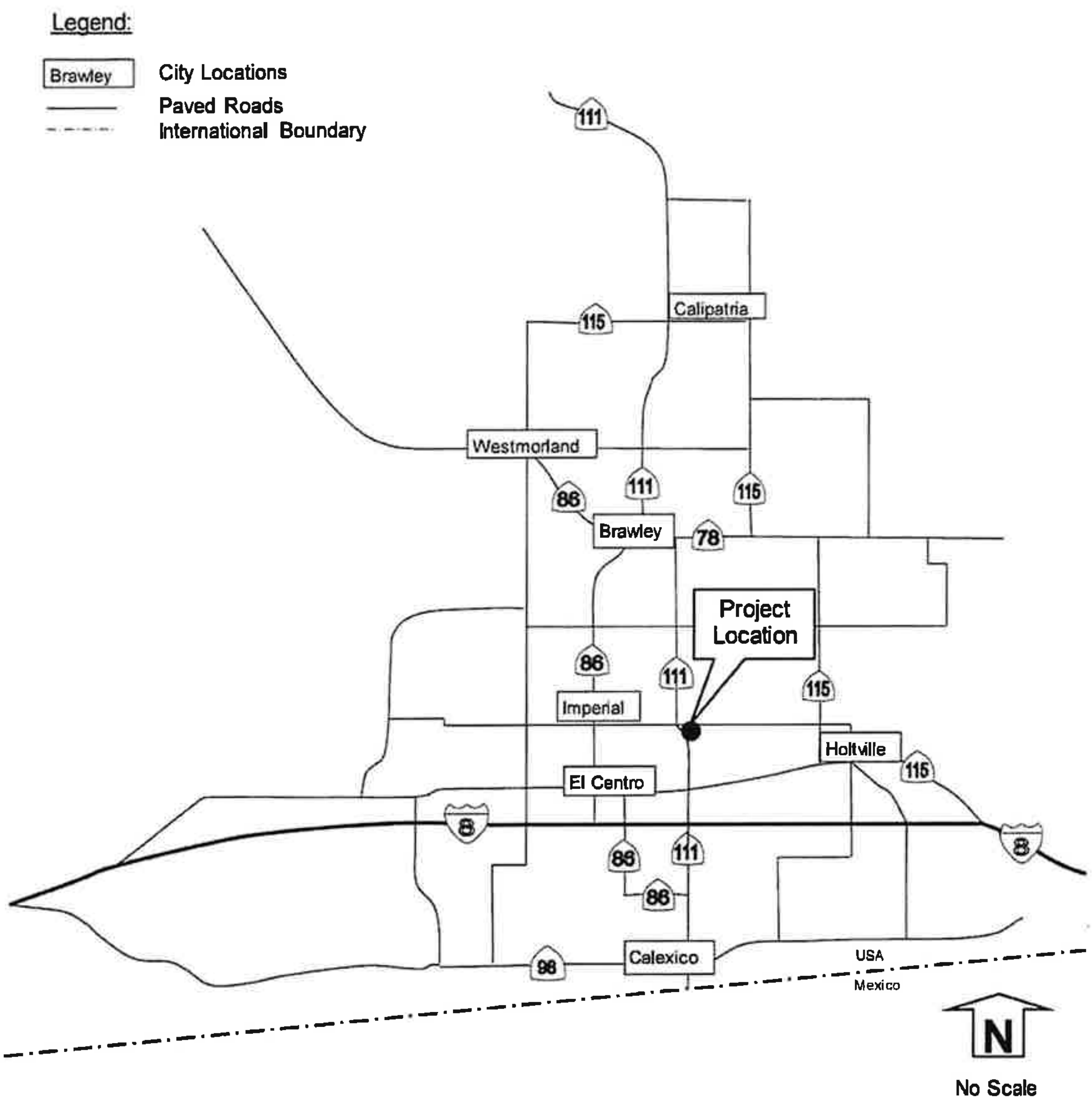

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Figure 2: Project Site

2.0 Traffic Analysis Methodology and Significance Criteria

The parameters by which this traffic study was prepared included the determination of what intersections and roadways are to be analyzed, the scenarios to be analyzed and the methods required for analysis. The criteria for each of these parameters are included herein.

2.1 Study Area Criteria

The County of Imperial Department of Public Works *Traffic Study and Report Policy* dated March 12, 2007, revised June 29, 2007 and approved by the Board of Supervisors of the County of Imperial on August 7, 2007 states on page 14 "The study area for the project will be expected to encompass an adequate surrounding area to ensure that all impacts are identified to a sufficient extent that any mitigation measures, regardless of importance are shown, e.g. stop signs, yield signs, etc." The project study area was based on the anticipated haul route where the project traffic would use SR-111. Therefore, the study area included the intersections of SR-111 at E. Worthington Rd and E. Worthington Rd/Rose Lateral Two Access Road. The segment of E. Worthington Rd between SR-111 and Rose Lateral Two Access Road was included in the analysis along with segments of SR-111 immediately north and south of E. Worthington Rd.

2.2 Scenario Criteria

The number of scenarios to be analyzed is based on the methodology outlined in the County of Imperial Department of Public Works *Traffic Study and Report Policy* dated March 12, 2007, revised June 29, 2007 and approved by the Board of Supervisors of the County of Imperial on August 7, 2007. Excerpts from the *Traffic Study and Report Policy* showing the scenario criteria are included in **Appendix A**. Based on the aforementioned methodology source, the following scenarios were analyzed:

1) Existing 2020 Conditions
2) Existing 2020 + Project Conditions
3) Existing 2020 + Project + Cumulative Conditions
4) Near-Term 2025
5) Near-Term 2025 + Project Conditions
6) Near-Term 2025 + Project + Cumulative Conditions

2.3 Traffic Analysis Criteria

In the traffic analyses prepared for this study, the 6th Edition *Highway Capacity Manual* (HCM) operations analysis using Level of Service (LOS) evaluation criteria were employed. The operating conditions of the study intersections are measured using the HCM LOS designations ranging from A through F. LOS A represents the best operating condition and LOS F denotes the worst operating condition. The individual LOS criteria for each roadway component are described below.

2.3.1 Intersections

The study intersections were analyzed based on the **operational analysis** outlined in the 6th Ed HCM. This process defines LOS in terms of **average control delay** per vehicle, which is measured in seconds. LOS at the intersections were calculated using the computer software program Synchro 10 (Trafficware Corporation). The 6th Ed HCM LOS for the range of delay by seconds for un-signalized and signalized intersections is described in **Table 1**.

TABLE 1: INTERSECTION LEVEL OF SERVICE DEFINITIONS (6TH EDITION HCM)

Level of Service	Un-Signalized (TWSC and AWSC) Control Delay (sec/veh where v/c ≤ 1)	Signalized Control Delay (sec/veh where v/c ≤ 1)
A	0-10	≤ 10
B	> 10-15	> 10-20
C	> 15-25	> 20-35
D	> 25-35	> 35-55
E	> 35-50	> 55-80
F	> 50	> 80

TWSC: Two Way Stop Control. AWSC: All Way Stop Control. Source: 6th Edition HCM (exhibit 20-2 for two way stop control, exhibit 21-8 for all way stop control, and exhibit 19-8 for signalized intersections). For unsignalized intersections, the control delay is the worst movement delay in seconds/vehicle.

2.3.2 Roadway Segments

The roadway segments were analyzed based on the functional classification of the roadway using the Imperial County Standard Street Classification capacity lookup table (copy included in **Appendix B**). The roadway segment capacity and LOS standards used to analyze roadway segments are summarized in **Table 2.**

TABLE 2: ROADWAY SEGMENT DAILY CAPACITY AND LOS (IMPERIAL COUNTY)

Circulation Element Road Classification	CROSS SECTION	LOS A	LOS B	LOS C	LOS D	LOS E
Expressway	154/210	<30,000	<42,000	<60,000	<70,000	<80,000
Prime Arterial	106/136	<22,200	<37,000	<44,600	<50,000	<57,000
Minor Arterial	82/102	<14,800	<24,700	<29,600	<33,400	<37,000
Major Collector (Collector)	64/84	<13,700	<22,800	<27,400	<30,800	<34,200
Minor Collector (Local Collector)	40/70	<1,900	<4,100	<7,100	<10,900	<16,200
Local County (Residential)	40/60	*	*	<1,500	*	*
Local County (Residential Cul-de-Sac or Loop Street)	40/60	*	*	<200	*	*
Major Industrial Collector – (Industrial)	76/96	<5,000	<10,000	<14,000	<17,000	<20,000
Industrial Local	44/64	<2,500	<5,000	<7,000	<8,500	<10,000

Source: Imperial County Department of Planning & Development Services *Circulation and Scenic Highways Element* January 29, 2008. Notes: *Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

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2.4 Significance Criteria

The significance criteria for traffic impacts are based on the Imperial County Planning & Development Services Department level of service standard as outlined on page 55 of the *Circulation and Scenic Highways Element* dated January 29, 2008, which states "The County's goal for an acceptable traffic service standard on an ADT basis and during AM and PM peak periods for all County-Maintained Roads shall be LOS C for all street segment links and intersections." An excerpt from the *Circulation and Scenic Highways Element* is included in Appendix B. The current practice of determining direct or cumulative impacts is defined by the significance criteria outlined in **Table 3**, which was obtained from several EIRs for projects located in Imperial County. Copies of traffic significance criteria from other EIRs are included in **Appendix C**.

TABLE 3: SIGNIFICANCE CRITERIA

Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
	Intersections		
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS D or worse	NA	Direct
LOS D	LOS D and adds 2.0 seconds or more of delay	LOS D or worse	Cumulative
LOS D	LOS E or F	NA	Direct
LOS E	LOS F	NA	Direct
LOS F	LOS F and delay increases by ≥ 10.0 seconds	LOS F	Direct
Any LOS	Project does not degrade LOS and adds < 2.0 seconds of delay	Any LOS	None
Any LOS	Project does not degrade LOS but adds 2.0 to 9.9 seconds of delay	LOS E or worse	Cumulative
	Segments		
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS C or better and v/c > 0.02	LOS D or worse	Cumulative
LOS C or better	LOS D or worse	NA	Direct (1)
LOS D	LOS D and v/c > 0.02	LOS D or worse	Cumulative
LOS D	LOS E or F	NA	Direct
LOS E	LOS F	NA	Direct
LOS F	LOS F and v/c increases by >0.09	LOS F	Direct
Any LOS	LOS E or worse & v/c 0.02 to 0.09	LOS E or worse	Cumulative
Any LOS	LOS E or worse and v/c < 0.02	Any LOS	None

Notes: LOS: Level of Service. (1) Exception: post-project segment operation is LOS D and intersections along segment are LOS D or better resulting in no significant impact. NA: Not Applicable.

2.5 Study Limitations

The findings and recommendations of this report were prepared in accordance with generally accepted professional traffic and transportation engineering principles and practice. No other warranty, express or implied is made.

3.0 Existing 2020 Conditions

This section describes the study area street system, peak hour intersection volumes, daily roadway volumes, and existing LOS under year 2020 conditions.

3.1 Existing Street System

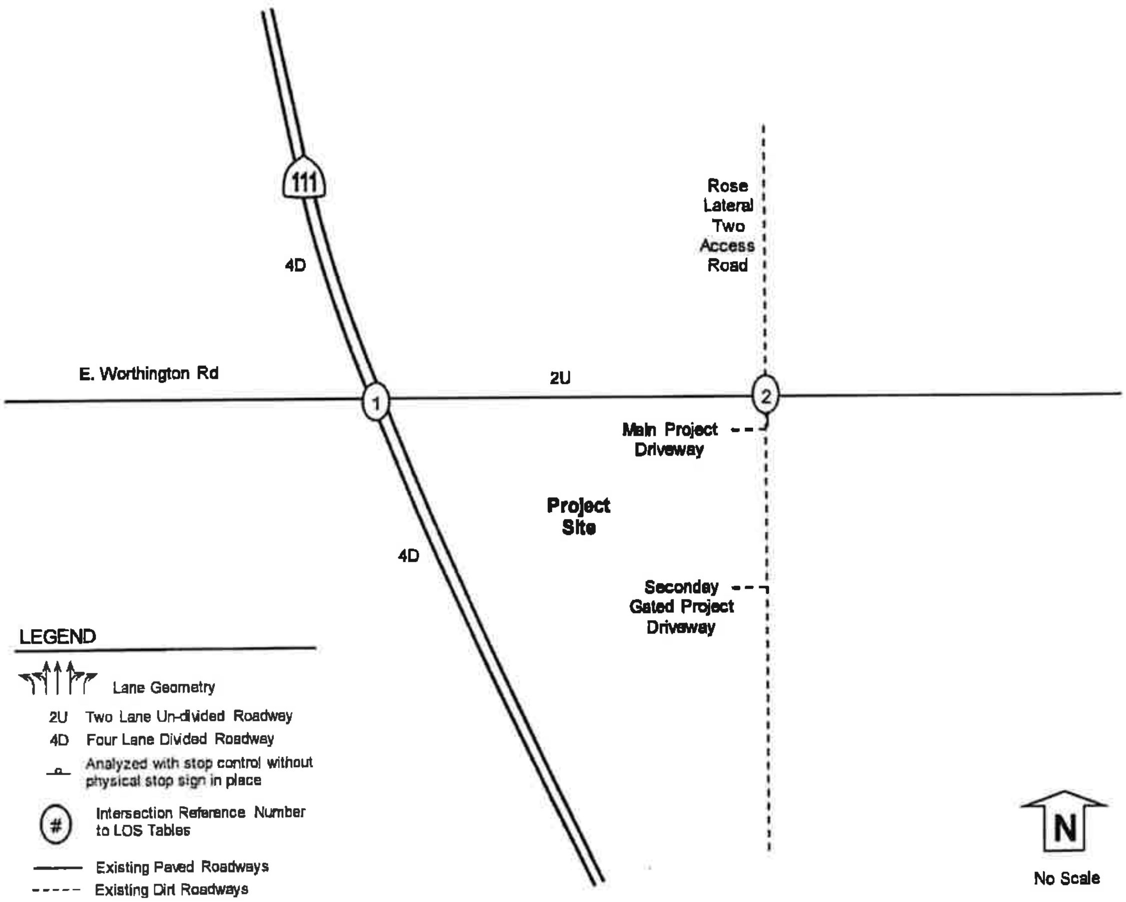
The existing roadway system and classifications are described below. These are based on the Imperial County Planning & Development Services Department *Circulation and Scenic Highways Element*, January 29, 2008 – excerpts included in Appendix B.

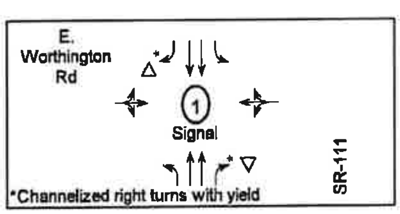
E. Worthington Road between SR-111 and Rose Lateral Two Access Road has a year 2003 classification of MAJOR COLLECTOR in the Imperial County *Circulation and Scenic Highways Element*. This roadway is currently constructed as a paved 2 lane un-divided roadway.

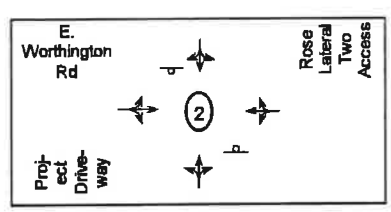
SR-111 in the project vicinity has a year 2003 classification of STATE HIGHWAY in the Imperial County *Circulation and Scenic Highways Element*. This paved roadway is currently constructed as a 4-lane divided highway.

The existing roadway conditions are shown in **Figure 3**.

Figure 3: Existing 2020 Roadway Conditions







3.2 Existing Traffic Volumes and LOS Analyses

The following existing AM and PM peak hour intersection volumes (with count dates) were collected for this study:

1) SR-111/E. Worthington Road (Tuesday 3/3/2020)
2) E. Worthington Road/Rose Two Lateral Access Road (Tuesday 3/3/2020)

Daily traffic volumes (with count dates) were obtained or collected for the following roadway and state route segments:

1) E. Worthington Road from SR-111 to Rose Lateral Two Access Rd (Wednesday 8/31/2020)
2) SR-111 north of E. Worthington Road (latest Caltrans 2017 data)
3) SR-111 south of E. Worthington Road (latest Caltrans 2017 data)

Existing AM, PM, and daily volumes are shown on **Figure 4** with count data included in **Appendix D**. The weekday intersection and segment LOS are shown in **Tables 4 and 5**. Intersections LOS calculations are included in **Appendix E.**

TABLE 4: EXISTING 2020 INTERSECTION LOS

Intersection and (Analysis)[1]	Movement	Study Period	Existing Delay[2]	Existing LOS[3]
1) SR-111 at E. Worthington Rd (S)	All	AM	14.5	B
	All	PM	15.0	B
2) E. Worthington Rd at Rose Lateral Two Access (U)	NB LTR	AM	9.7	A
	SB LTR	AM	8.8	A
	NB LTR	PM	9.7	A
	SB LTR	PM	0.0	A

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service.

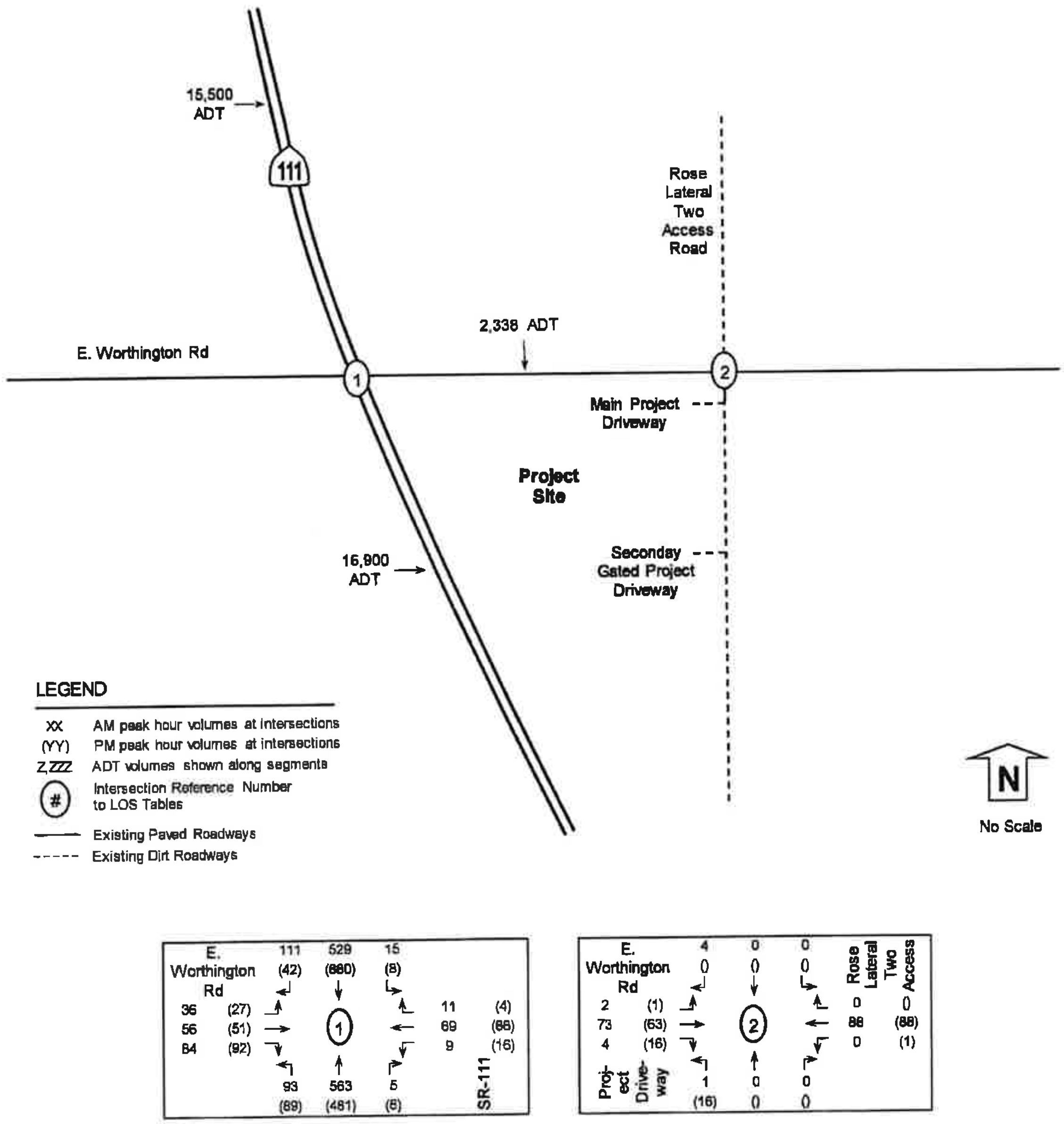
TABLE 5: EXISTING 2020 SEGMENT LOS

Segment	Classification (as built)	LOS C Capacity	Existing Daily Volume	Existing V/C	Existing LOS
E. Worthington Road					
SR-111 to Rose Lateral Two	Major Collector (2U)	7,100	2,338	0.329	B
State Route 111					
North of E. Worthington Rd	State Hwy (4D)	29,600	15,500	0.524	B
South of E. Worthington Rd	State Hwy (4D)	29,600	16,900	0.571	B

Notes: Classification based on 1/29/08 Circulation and Scenic Highways Element. 2U = 2 lane undivided roadway. Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed. V/C: Volume to Capacity ratio.

Under existing 2020 conditions, the study intersections and roadways were calculated to operate at LOS B or better.

Figure 4: Existing 2020 Volumes



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4.0 Project Description

The Hay Kingdom's existing operations include the potential to process up to 530 tons of hay per day. This analysis addresses a new Conditional Use Permit (CUP) that would amend the existing CUP #04-0003 to increase the hay processing up to 1,100 tons per day. This would result in a maximum increase of hay processing up to 570 tons per day.

4.1 Project Trip Generation

The project trip generation was based on vehicular data collected from the Hay Kingdom. From site specific data, a daily trip rate was calculated by taking the project daily traffic volume and diving that by the tons processed that day resulting in a daily trip rate by ton of processed hay. The peak hours were calculated in a similar method. The site specific trip rates were used to forecast the future project traffic. The site specific data, trip rate calculations, and project details are included in **Appendix F**.

The operations on 3/3/20 with 470.55 tons of hay processed has 220 daily trips with 5 AM peak hour trips (4 inbound and 1 outbound), and 33 PM peak hour trips (17 inbound and 16 outbound). The 3/3/20 operations with 470.55 tons were not at the maximum allowed 530 tons; therefore, the maximum 530 ton allowance trip generation was calculated at 248 daily trips with 6 AM peak hour trips (5 inbound and 1 outbound), and 37 PM peak hour trips (19 inbound and 18 outbound). The change in project traffic between the proposed 1,100 tons and the existing maximum 530 tons is calculated at 266 daily trips with 5 AM peak hour trips (4 inbound and 1 outbound), and 40 PM peak hour trips (21 inbound and 19 outbound). The existing project trips, the maximum existing CUP trips, maximum future CUP trips, and net increase in trips between 1,100 and 530 tons is shown in **Table 6.**

TABLE 6: PROJECT TRIP GENERATION

Hay Kingdom	Daily Trip Rate	Size & Units		ADT	AM %	AM Split		AM IN	AM OUT	PM %	PM Split		PM IN	PM OUT
Existing Trip Rates														
Existing Operations	0.467 /Ton	470.55	Tons	**220**	1%	0.80	0.20	**4**	**1**	7%	0.52	0.48	**17**	**16**
Existing CUP Maximum Trips														
Existing CUP Maximum:	0.467 /Ton	530	Tons	**248**	1%	0.80	0.20	**5**	**1**	7%	0.52	0.48	**19**	**18**
New CUP Maximum Trips														
New CUP Maximum:	0.467 /Ton	1,100	Tons	**514**	1%	0.80	0.20	**9**	**2**	7%	0.52	0.48	**40**	**37**
Net Increase between 1,100 and 530 Tons:				**266**				**4**	**1**				**21**	**19**

Source: Site specific survey data used to calculate trip rates.

4.2 Project Trip Distribution and Assignment

The trip distribution shown in **Figure 5** is based on the existing travel patterns from the project driveway and existing Hay Kingdom truck haul routes. The assignment of project traffic is shown in **Figure 6.**

Figure 5: Project Trip Distribution

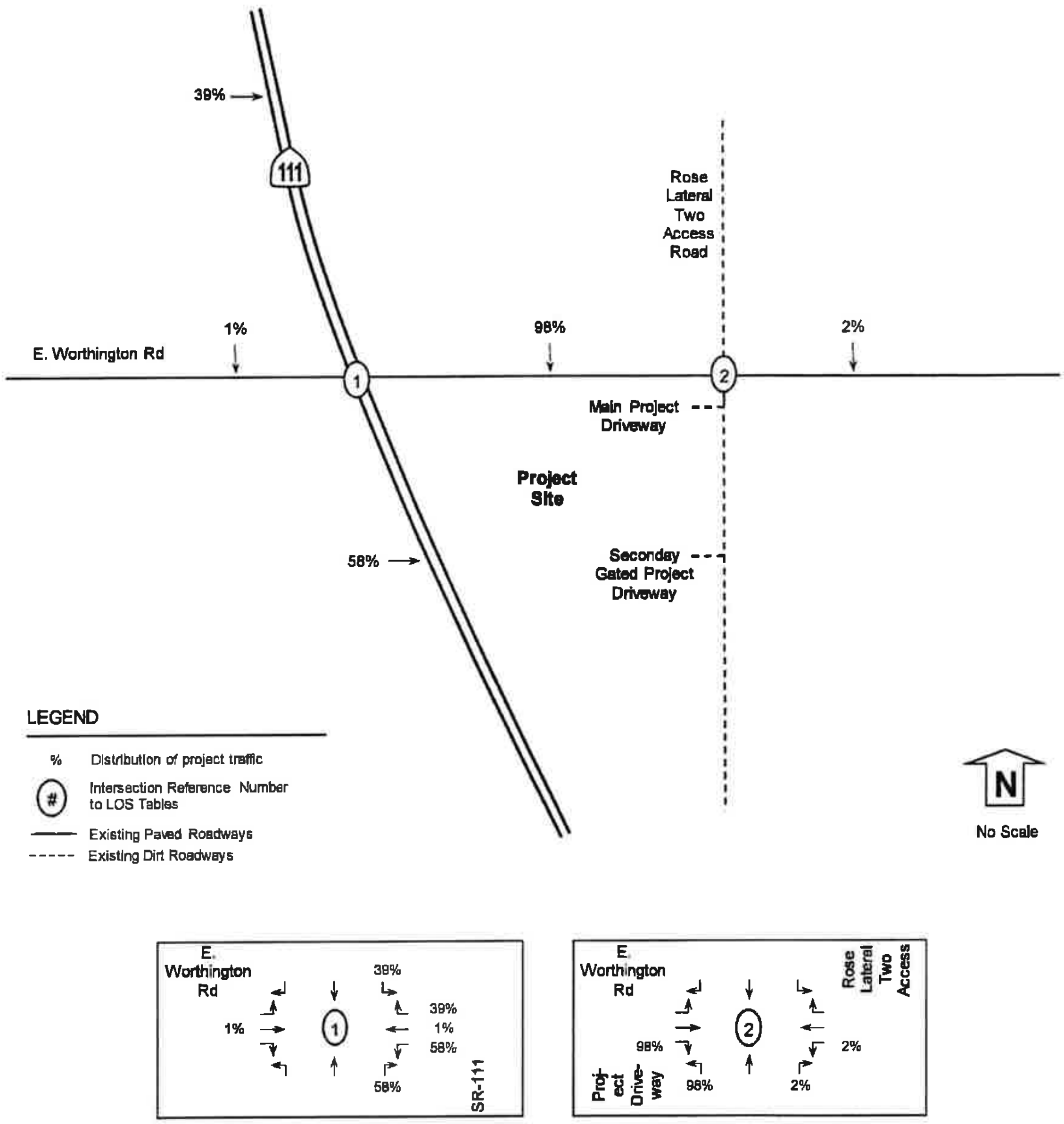

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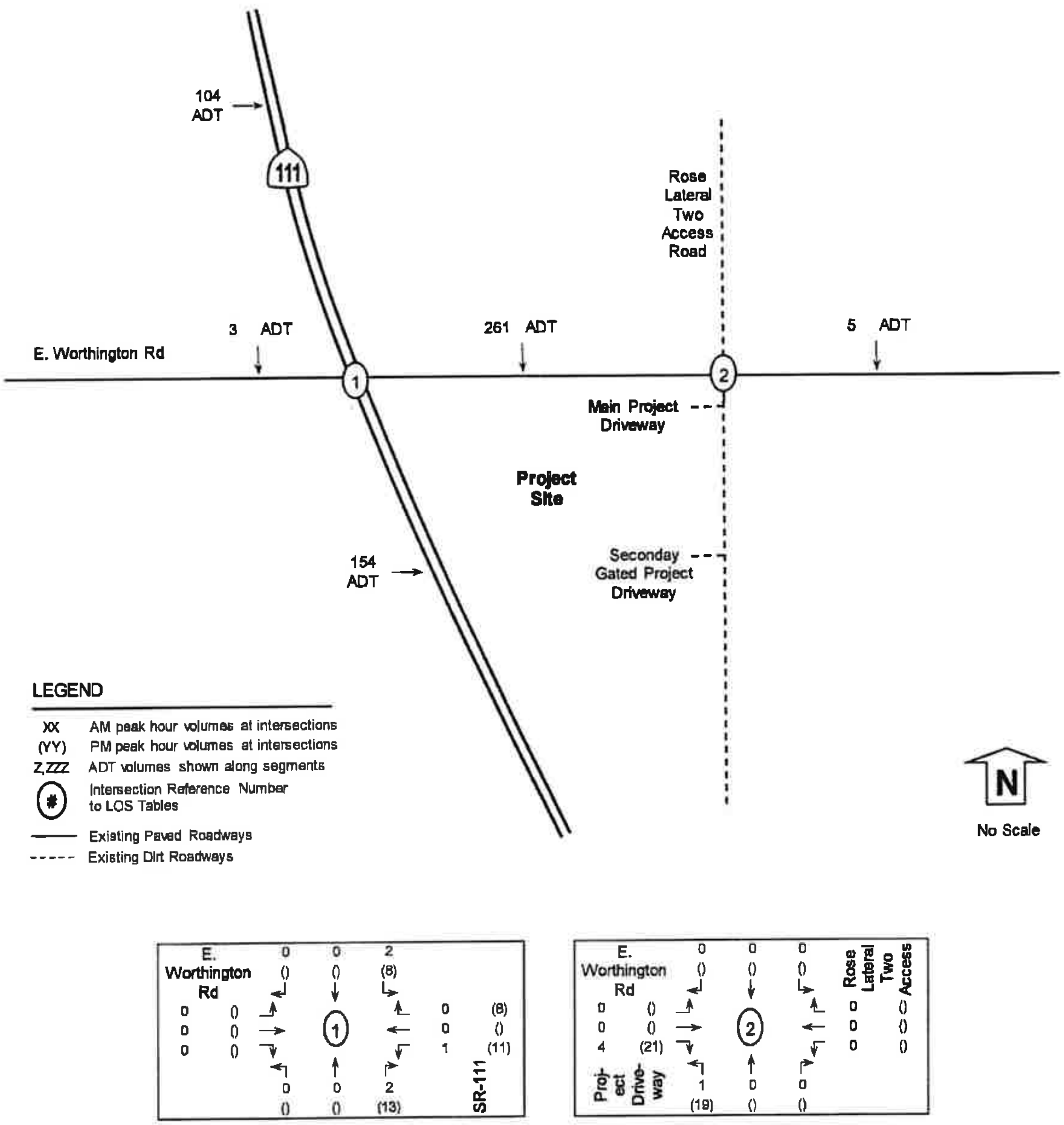
Figure 6: Project Trip Assignment



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5.0 Existing 2020 + Project Conditions

This section documents the addition of project traffic onto existing 2020 traffic. Existing plus project volumes are shown in **Figure 7**. Intersection and segment LOS are shown in **Tables 7 and 8**. Intersection LOS calculations are included in **Appendix G**.

TABLE 7: EXISTING 2020 + PROJECT INTERSECTION LOS

Intersection and (Analysis)[1]	Movement	Study Period	Existing Delay[2]	Existing LOS[3]	Existing + Project Delay[2]	Existing + Project LOS[3]	Delta[4]	Impact?[5]
1) SR-111 at E. Worthington Rd (S)	All	AM	14.5	B	14.6	B	0.1	None
	All	PM	15.0	B	16.0	B	1.0	None
2) E. Worthington Rd at Rose Lateral Two Access (U)	NB LTR	AM	9.7	A	9.7	A	0.0	None
	SB LTR	AM	8.8	A	8.8	A	0.0	None
	NB LTR	PM	9.7	A	10.0	B	0.3	None
	SB LTR	PM	0.0	A	0.0	A	0.0	None

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. 4) Delta is the increase in delay from project. 5) Type of Impact.

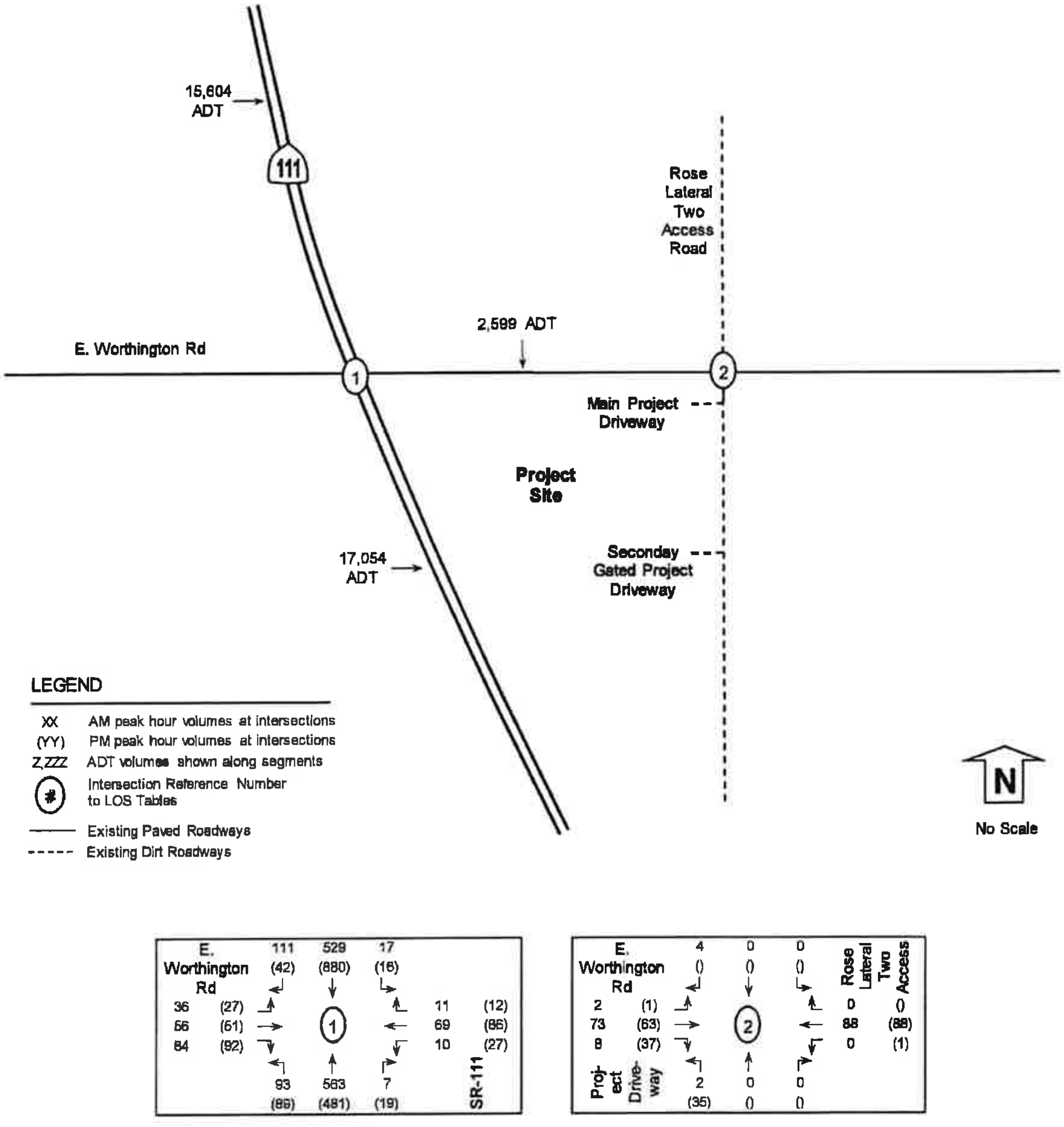
TABLE 8: EXISTING 2020 + PROJECT SEGMENT LOS

Segment	Classification (as built)	LOS C Capacity	Existing Daily Volume	Existing V/C	Existing LOS	Project Daily Volume	Existing + Project Daily Volume	Existing + Project V/C	Existing + Project LOS	Change in V/C	Project Impact?
E. Worthington Road											
SR-111 to Rose Lateral Two	Major Collector (2U)	7,100	2,338	0.329	B	261	2,599	0.366	B	0.037	None
State Route 111											
North of E. Worthington Rd	State Hwy (4D)	29,600	15,500	0.524	B	104	15,604	0.527	B	0.004	None
South of E. Worthington Rd	State Hwy (4D)	29,600	16,900	0.571	B	154	17,054	0.576	B	0.005	None

Notes: Classification based on 1/29/08 Circulation and Scenic Highways Element. 2U = 2 lane undivided roadway. Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed. V/C: Volume to Capacity ratio.

Under existing 2020 + project conditions, the study intersections and roadways were calculated to operate at LOS B or better with no significant direct project impacts.

Figure 7: Existing 2020 + Project Volumes



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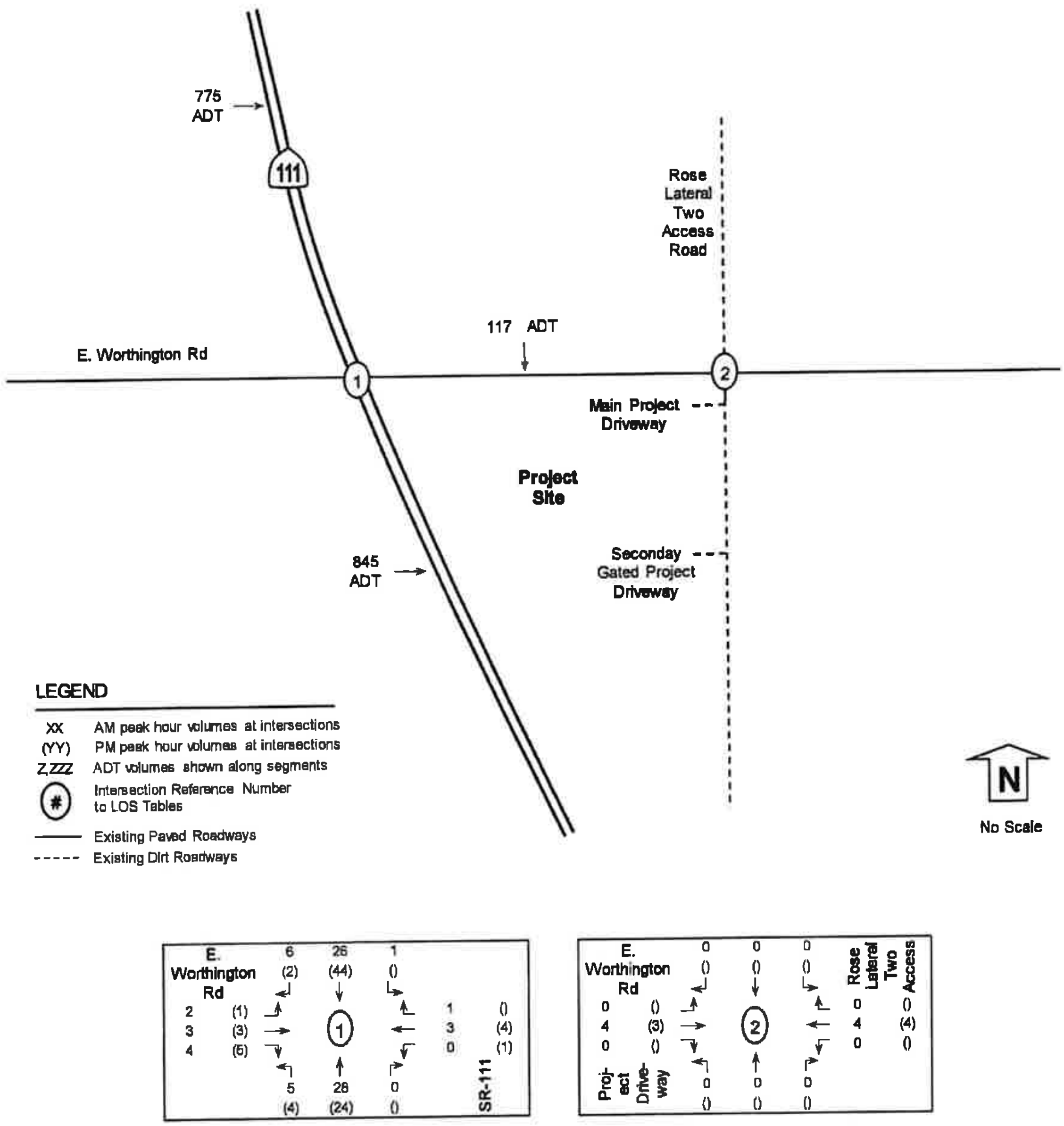
6.0 Cumulative Projects (New Development)

Based on coordination with County staff, there were no deemed complete cumulative projects (new development) in the project vicinity. To account for cumulative projects outside the immediate project vicinity an ambient 5% growth factor was applied to existing background traffic to represent new development. The 5% ambient growth representing cumulative project volumes are shown in **Figure 8**.

Figure 8: Cumulative Project (New Development) Volumes



EEC ORIGINAL PKG

7.0 Existing 2020 + Project + Cumulative Conditions

This scenario documents the anticipated project traffic added onto existing 2020 traffic with cumulative traffic. Year 2025 plus project volumes plus cumulative traffic are shown in **Figure 9**. Intersection and segment LOS are shown in **Tables 9 and 10**. Intersection LOS calculations are included in **Appendix H.**

TABLE 9: EXISTING 2020 + PROJECT + CUMULATIVE INTERSECTION LOS

Intersection and (Analysis)[1]	Movement	Peak Hour	Existing + Cumulative Delay[2]	Existing + Cumulative LOS[3]	Existing + Project + Cumulative Delay[2]	Existing + Project + Cumulative LOS[3]	Delta[4]	Impact?[5]
1) SR-111 at E. Worthington Rd (S)	All	AM	14.8	B	14.9	B	0.1	None
	All	PM	15.5	B	16.4	B	0.9	None
2) E. Worthington Rd at Rose Lateral Two Access (U)	NB LTR	AM	9.8	A	9.8	A	0.0	None
	SB LTR	AM	8.8	A	8.8	A	0.0	None
	NB LTR	PM	9.8	A	10.0	B	0.2	None
	SB LTR	PM	0.0	A	0.0	A	0.0	None

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. 4) Delta is the increase in delay from project. 5) Type of Impact.

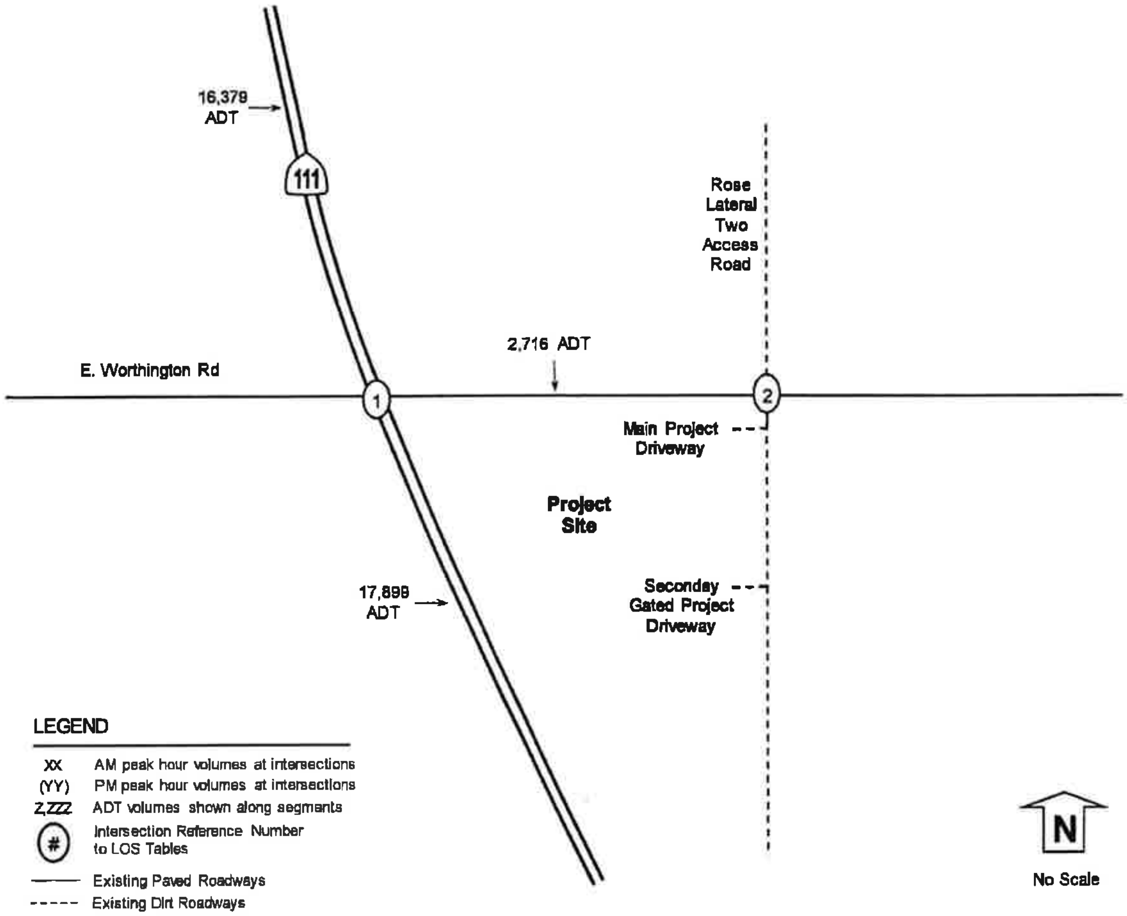
TABLE 10: EXISTING 2020 + PROJECT + CUMULATIVE SEGMENT LOS

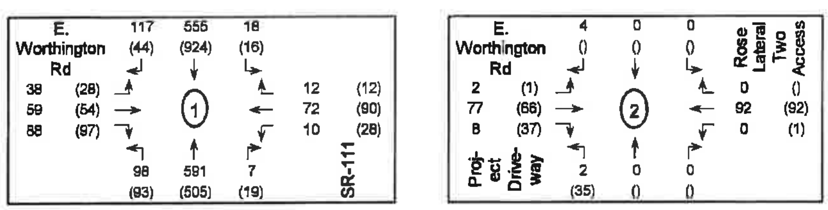
Segment	Classification (as built)	LOS C Capacity	Existing+Cumulative Daily Volume	Existing+Cumulative V/C	Existing+Cumulative LOS	Project Daily Volume	Existing + Cumulative + Project Daily Volume	Existing + Cumulative + Project V/C	Existing + Cumulative + Project LOS	Change in V/C	Project Impact?
E. Worthington Road											
SR-111 to Rose Lateral Two	Major Collector (2U)	7,100	2,455	0.346	B	261	2,716	0.383	B	0.037	None
State Route 111											
North of E. Worthington Rd	State Hwy (4D)	29,600	16,275	0.550	B	104	16,379	0.553	B	0.004	None
South of E. Worthington Rd	State Hwy (4D)	29,600	17,745	0.599	B	154	17,899	0.605	B	0.005	None

Notes: Classification based on 1/29/08 Circulation and Scenic Highways Element. 2U = 2 lane undivided roadway. Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed. V/C: Volume to Capacity ratio.

Under existing 2020 + project + cumulative conditions, the study intersections and roadways were calculated to operate at LOS B or better with no cumulatively considerable impacts.

Figure 9: Existing 2020 + Project + Cumulative Volumes





8.0 Near-Term 2025 Conditions

This section documents near-term 2025 conditions representing a projected minimum of five years from today. The year 2025 background volumes are based on increasing the existing year 2020 volumes by an annual growth rate. Determination of the project minimum of five years and annual growth rate were based on guidelines defined in the County of Imperial Department of Public Works *Traffic Study and Report Policy* dated March 12, 2007, revised June 29, 2007 and approved by the Board of Supervisors of the County of Imperial on August 7, 2007. The county document indicates that traffic projections should be based on demonstrated growth as detailed in the general plan. The following growth rate options were reviewed:

1) The Land Use Element of the general plan indicates that the Population Research Unit of the California Department of Finance (DOF) estimates the annual change in population. Using the DOF revised July 1, 2006 population estimate of 168,979 and the projected population of Imperial County in 2030 of 283,693, for an annual growth rate of approximately 2.2 percent.
2) The Southern California Association of Governments (SCAG) Community Development Division's 2004 *Regional Transportation Plan Socio-Economic Forecast Report*, dated June 2004, states that the population of Imperial County is projected to grow at an annual rate of 2.8 percent. The SCAG April 2012 RTP describes a growth rate of about 1.0% forecasted between 2010 and 2035.
3) The U.S. Census Bureau population data from year 2000 to year 2010 for the local cities/residential communities within Imperial County. The U.S. Census Bureau reported a population growth of 27,162 people over a 10 year period (population of 109,588 per the 2000 census and population of 136,750 per the 2010 census). Over this 10 year period, the annual growth rate was about 2.0 percent.

For the purpose of this traffic study, an older (SCAG 2004 study) and more conservative growth rate of **2.8 percent** was selected for the annual population growth to account for possible near-term growth rate accelerations. The growth factor support data are included in **Appendix I**.

Year 2025 volumes were factored up from year 2020 volumes through the application of a 14% growth rate (2.8% x 5 years = 14%) and are shown in **Figure 10**. Intersection and segment LOS are shown in **Tables 11 and 12**. Intersection LOS calculations are included in **Appendix J**.

Figure 10: Near-Term 2025 Volumes

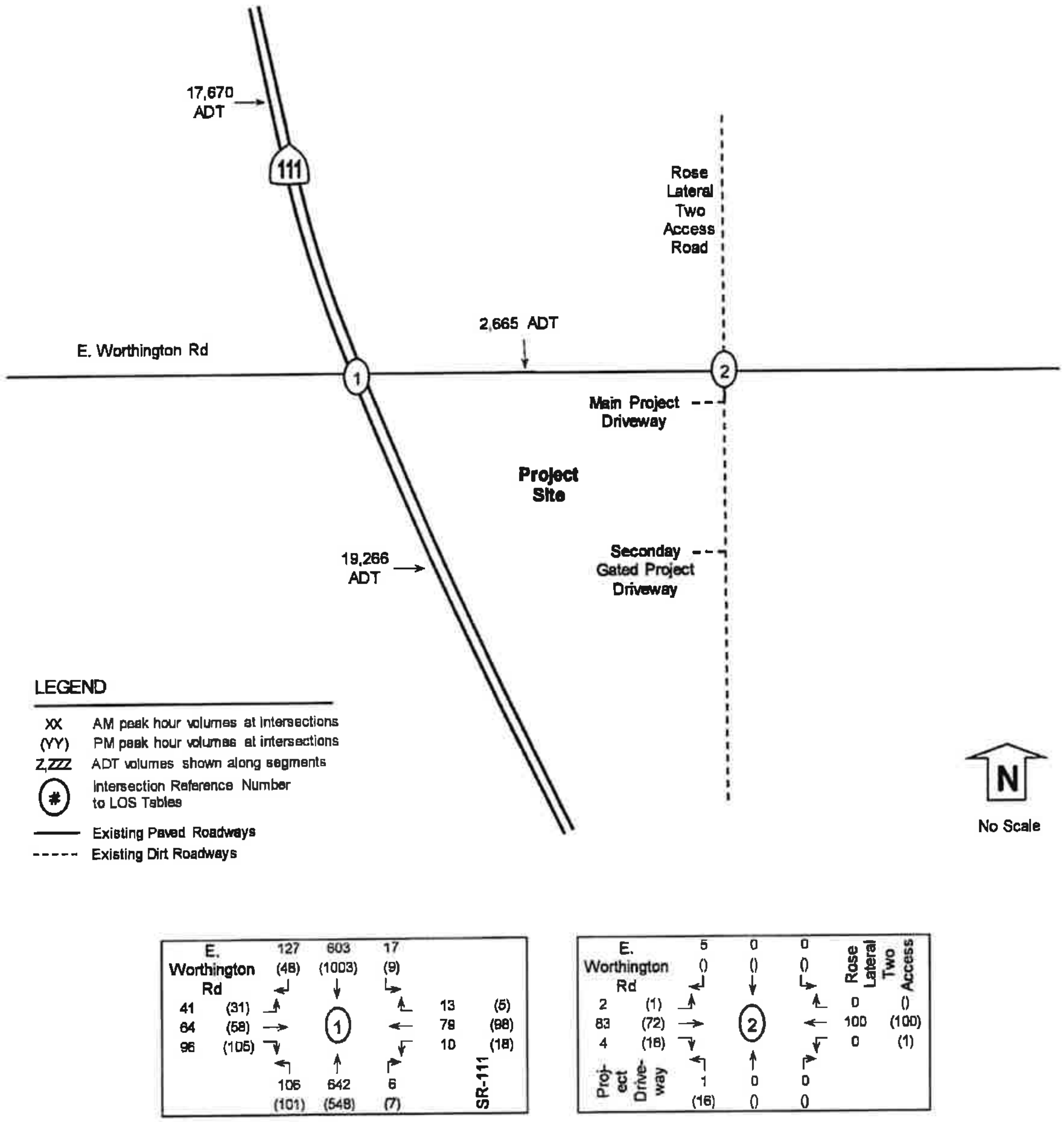


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TABLE 11: NEAR-TERM 2025 INTERSECTION LOS

Intersection and (Analysis)[1]	Movement	Study Period	Year 2025	
			Delay[2]	LOS[3]
1) SR-111 at E. Worthington Rd (S)	All	AM	15.2	B
	All	PM	16.5	B
2) E. Worthington Rd at Rose Lateral Two Access (U)	NB LTR	AM	9.9	A
	SB LTR	AM	8.9	A
	NB LTR	PM	9.9	A
	SB LTR	PM	0.0	A

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service.

TABLE 12: NEAR-TERM 2025 SEGMENT LOS

Segment	Classification (as built)	LOS C Capacity	Year 2025		
			Daily Volume	V/C	LOS
E. Worthington Road					
SR-111 to Rose Lateral Two	Major Collector (2U)	7,100	2,665	0.375	B
State Route 111					
North of E. Worthington Rd	State Hwy (4D)	29,600	17,670	0.597	B
South of E. Worthington Rd	State Hwy (4D)	29,600	19,266	0.651	B

Notes: Classification based on 1/29/08 Circulation and Scenic Highways Element. 2U = 2 lane undivided roadway. Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed. V/C: Volume to Capacity ratio.

Under Near-Term 2025 conditions, the study intersections and roadways were calculated to operate at LOS B or better.

9.0 Near-Term 2025 + Project Conditions

This section documents the addition of project traffic onto near-term 2025 traffic. Year 2025 plus project traffic volumes are shown in **Figure 11**. Intersection and segment LOS are shown in **Tables 13 and 14**. Intersection LOS calculations are included in **Appendix K**.

TABLE 13: NEAR-TERM 2025 WITHOUT AND WITH PROJECT INTERSECTION LOS

Intersection and (Analysis)[1]	Movement	Study Period	Year 2025 Delay[2]	Year 2025 LOS[3]	Year 2025 + Project Delay[2]	Year 2025 + Project LOS[3]	Delta[4]	Impact?[5]
1) SR-111 at E.	All	AM	15.2	B	15.4	B	0.2	None
Worthington Rd (S)	All	PM	16.5	B	17.5	B	1.0	None
2) E. Worthington	NB LTR	AM	9.9	A	9.9	A	0.0	None
Rd at Rose Lateral	SB LTR	AM	8.9	A	8.9	A	0.0	None
Two Access (U)	NB LTR	PM	9.9	A	10.1	B	0.2	None
	SB LTR	PM	0.0	A	0.0	A	0.0	None

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. 4) Delta is the increase in delay from project. 5) Type of Impact.

TABLE 14: NEAR-TERM 2025 WITHOUT AND WITH PROJECT SEGMENT LOS

Segment	Classification (as built)	LOS C Capacity	Year 2025 Daily Volume	Year 2025 V/C	Year 2025 LOS	Project Daily Volume	Year 2025 + Project Daily Volume	Year 2025 + Project V/C	Year 2025 + Project LOS	Change in V/C	Project Impact?
E. Worthington Road											
SR-111 to Rose Lateral Two	Major Collector (2U)	7,100	2,665	0.375	B	261	2,926	0.412	B	0.037	None
State Route 111											
North of E. Worthington Rd	State Hwy (4D)	29,600	17,670	0.597	B	104	17,774	0.600	B	0.004	None
South of E. Worthington Rd	State Hwy (4D)	29,600	19,266	0.651	B	154	19,420	0.656	B	0.005	None

Notes: Classification based on 1/29/08 Circulation and Scenic Highways Element. 2U = 2 lane undivided roadway. Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed. V/C: Volume to Capacity ratio.

Under near-term 2025 + project conditions, the study intersections and roadways were calculated to operate at LOS B or better with no significant direct project impacts.

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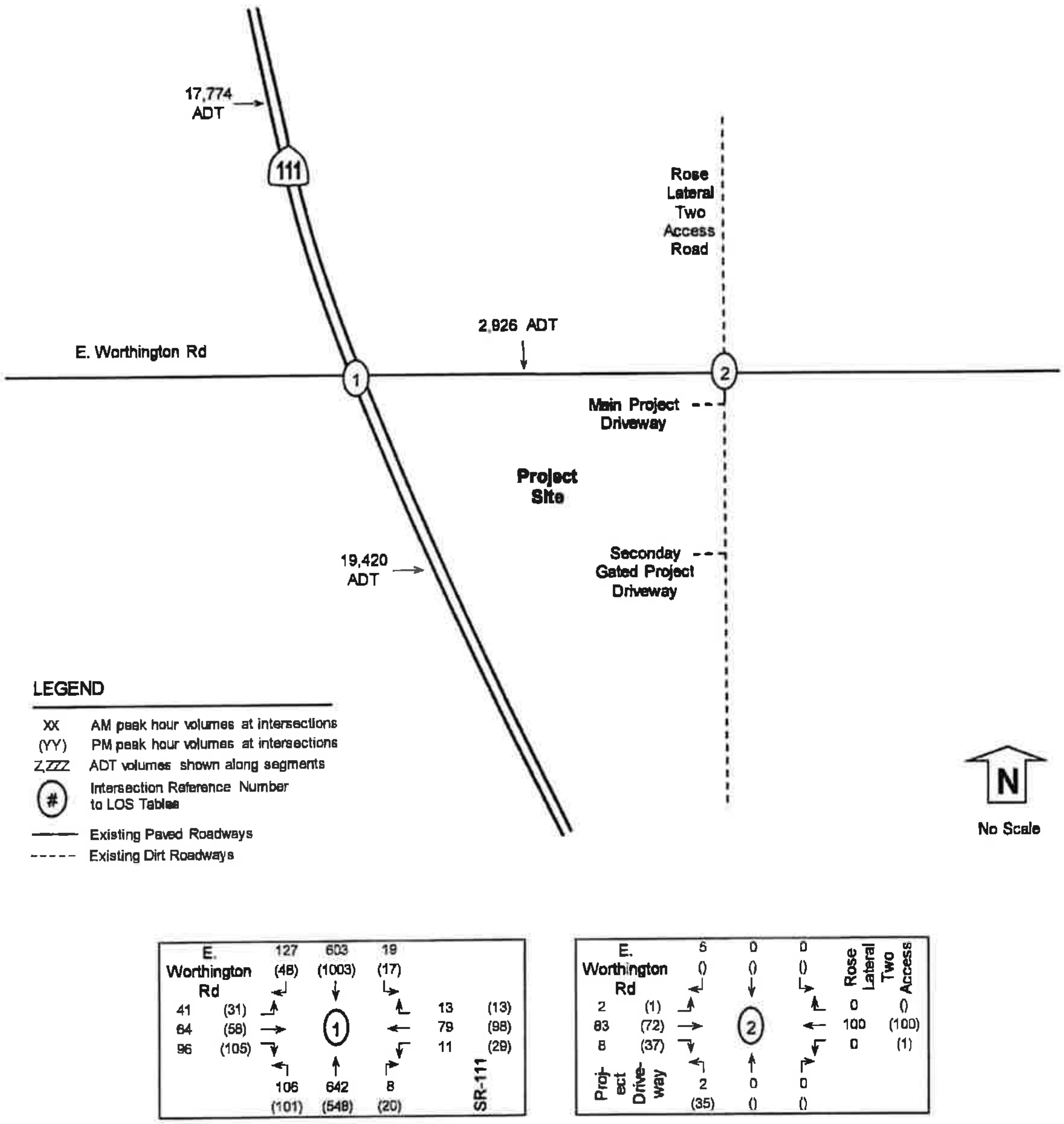
Figure 11: Near-Term 2025 + Project Volumes



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10.0 Near-Term 2025 + Project + Cumulative Conditions

This scenario documents the anticipated project traffic added onto near-term 2025 traffic with cumulative traffic. Year 2025 plus project volumes plus cumulative traffic are shown in **Figure 12.** Intersection and segment LOS are shown in **Tables 15 and 16.** Intersection LOS calculations are included in **Appendix L.**

TABLE 15: NEAR-TERM 2025 + PROJECT + CUMULATIVE INTERSECTION LOS

Intersection and (Analysis)[1]	Movement	Peak Hour	Year 2025 + Cumulative Delay[2]	Year 2025 + Cumulative LOS[3]	Year 2025 + Project + Cumulative Delay[2]	Year 2025 + Project + Cumulative LOS[3]	Delta[4]	Impact?[5]
1) SR-111 at E. Worthington Rd (S)	All	AM	15.6	B	15.7	B	0.1	None
	All	PM	17.1	B	18.2	B	1.1	None
2) E. Worthington Rd at Rose Lateral Two Access (U)	NB LTR	AM	10.0	B	10.0	A	0.0	None
	SB LTR	AM	8.9	A	8.9	A	0.0	None
	NB LTR	PM	10.0	B	10.2	B	0.2	None
	SB LTR	PM	0.0	A	0.0	A	0.0	None

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. 4) Delta is the increase in delay from project. 5) Type of Impact.

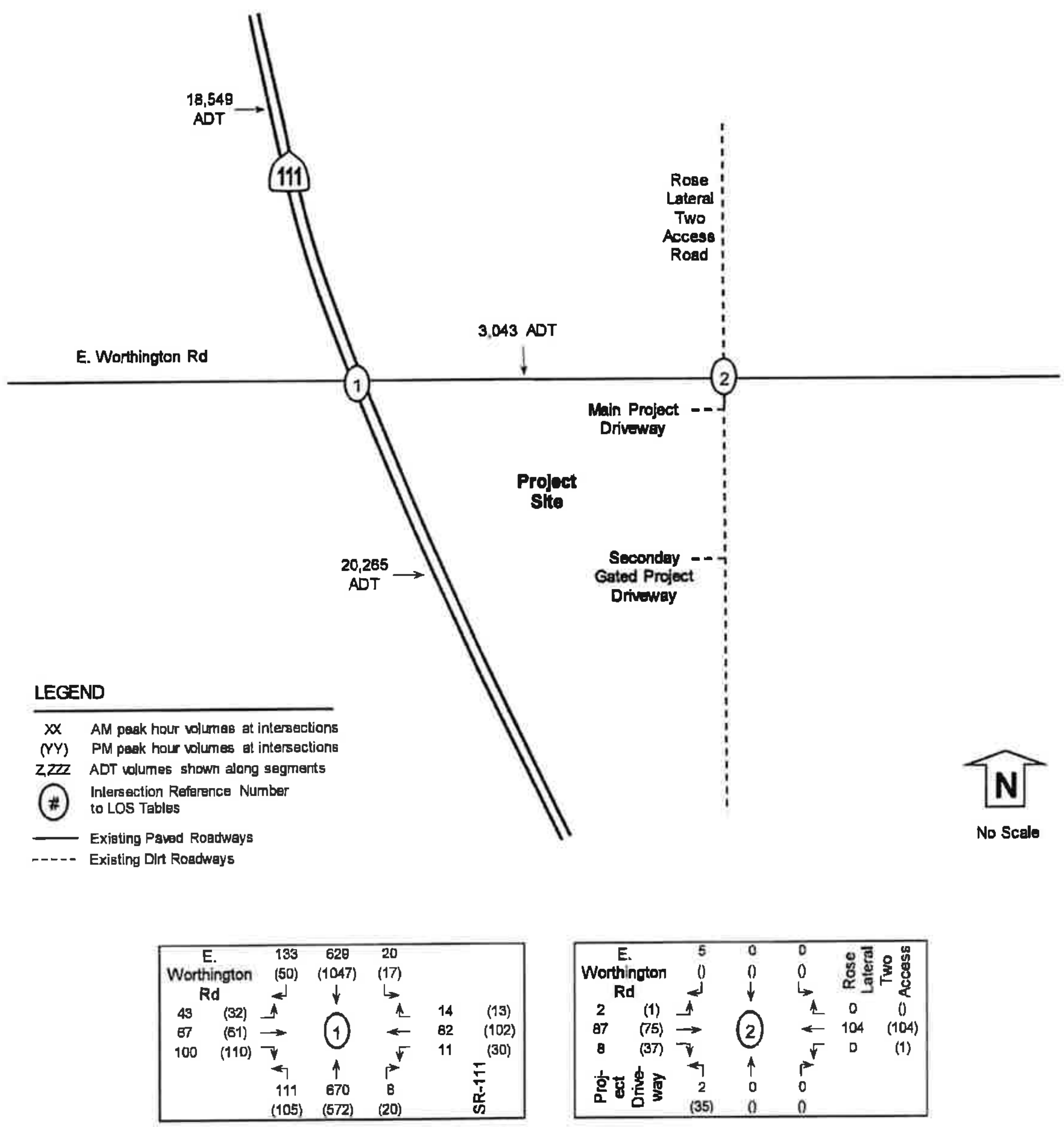
TABLE 16: NEAR-TERM 2025 + PROJECT + CUMULATIVE SEGMENT LOS

Segment	Classification (as built)	LOS C Capacity	Yr2025 + Cumulative Daily Volume	Yr2025 + Cumulative V/C	Yr2025 + Cumulative LOS	Project Daily Volume	Year 2025 + Cumulative + Project Daily Volume	V/C	LOS	Change in V/C	Project Impact?
E. Worthington Road											
SR-111 to Rose Lateral Two	Major Collector (2U)	7,100	2,782	0.392	B	261	3,043	0.429	B	0.037	None
State Route 111											
North of E. Worthington Rd	State Hwy (4D)	29,600	18,445	0.623	B	104	18,549	0.627	B	0.004	None
South of E. Worthington Rd	State Hwy (4D)	29,600	20,111	0.679	B	154	20,265	0.685	B	0.005	None

Notes: Classification based on 1/29/08 Circulation and Scenic Highways Element. 2U = 2 lane undivided roadway. Daily volume is a 24 hour volume. LOS: Level of Service. LOS based on actual number of lanes currently constructed. V/C: Volume to Capacity ratio.

Under near-term 2025 + project + cumulative conditions, the study roadways were calculated to operate at LOS B or better with no cumulatively considerable impacts.

Figure 12: Near-Term 2025 + Project + Cumulative Volumes



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11.0 Conclusions

The purpose of this study was to determine and analyze potential traffic impacts associated with a new Conditional Use Permit that would amend existing CUP #04-0003 for the Hay Kingdom located at 393 E. Worthington Road, Imperial County, California.

The Hay Kingdom's existing operations include the potential to process up to 530 tons of hay per day. This analysis addressed a new Conditional Use Permit that would amend the existing CUP #04-0003 to increase the hay processing up to 1,100 tons per day. This would result in a maximum increase of hay processing up to 570 tons per day. The change in project traffic between the proposed 1,100 tons and the existing maximum 530 tons is calculated at 266 daily trips with 5 AM peak hour trips (4 inbound and 1 outbound), and 40 PM peak hour trips (21 inbound and 19 outbound).

Six scenarios were analyzed, that accounted for existing and near-term conditions. Operational findings by scenario are summarized below:

1) Under existing 2020 conditions, the study intersections and roadways were calculated to operate at LOS B or better.
2) Under existing 2020 + project conditions, the study intersections and roadways were calculated to operate at LOS B or better with no significant direct project impacts.
3) Under existing 2020 + project + cumulative conditions, the study intersections and roadways were calculated to operate at LOS B or better with no cumulatively considerable impacts.
4) Under Near-Term 2025 conditions, the study intersections and roadways were calculated to operate at LOS B or better.
5) Under near-term 2025 + project conditions, the study intersections and roadways were calculated to operate at LOS B or better with no significant direct project impacts.
6) Under near-term 2025 + project + cumulative conditions, the study intersections and roadways were calculated to operate at LOS B or better with no cumulatively considerable impacts.

No traffic impacts were calculated; therefore, traffic mitigation is not required.

12.0 References

Caltrans. December 2002. *Guide for the Preparation of Traffic Impact Studies.*

County of Imperial Department of Public Works. Dated March 12, 2007, revised June 29, 2007 and approved by the Board of Supervisors of the County of Imperial on August 7, 2007. *Traffic Study and Report Policy.*

Institute of Transportation Engineers, 1999. *Traffic Engineering Handbook, Fifth Edition.*

Imperial County Planning & Development Services Department. October 1, 2006. *Imperial County Circulation Element.*

Imperial County Planning & Development Services Department. January 29, 2008. *Circulation and Scenic Highways Element.*

Trafficware Ltd. Synchro 10.0 computer software.

Transportation Research Board National Research Council Washington, D.C. 2000. *Highway Capacity Manual 2000.* CD ROM.

Appendix A

Excerpts from Imperial County's Traffic Study and Report Policy

BOS Approved 08-07-07
M.O. #37

COUNTY OF IMPERIAL

DEPARTMENT OF PUBLIC WORKS

TRAFFIC STUDY AND REPORT POLICY

Date: March, 12, 2007

Revised June 29, 2007

APPROVALS:

WILLIAM S. BRUNET, P. E.
DIRECTOR OF PUBLIC WORKS
ROAD COMMISSIONER

JURG HEUBERGER
PLANNING DIRECTOR

necessary to develop a traffic report that determines whether the traffic study general criteria have been met.

In the case of significant development, it may be necessary to hold one or more scope of work meetings which would be attended by a ICPDS staff, the County Traffic Engineer or other County Advisory Staff, the individual who will be responsible for preparing the traffic study report and the Traffic and/or Civil Engineer responsible for the report and its recommendations. The individual preparing the traffic study should be familiar with the project site and the local conditions which may affect any final conclusions and recommendations.

Listed below are the basic criteria that will be used to make the determination for providing a complete traffic study as a part of the project review process. The criteria are not a complete or exhaustive list, but they are intended to define when such a report is to be prepared and to indicate the necessary components of the study report to be submitted.

1. General Criteria

a. Any project that adds more than 8% of the total existing vehicle trips on the adjacent road system at full build-out of the project.

b. Any project that generates more than 400 daily residential trip ends, 800 commercial or industrial trip ends or 200 peak hour trip ends, as determined by the average trip rates contained in the ITE Trip Generation Informational Report or the **Imperial County local exceptions in Section 2.**

c. Any project that has the potential to degrade an existing road section, an existing signalized intersection, or an existing unsignalized intersection to below the existing level of service or to cause it to be lower than a level of service (LOS)

unit, unless it is for urban infill development, within one half mile of major retail and commercial developmentt.

b. Existing traffic on the adjacent road system and projected traffic on the adjacent road system, projected for a minimum of five (5) years, to project build-out, or both, depending on the project and the area; larger projects or high traffic generation may require future year build-out, currently Year 2030. Future CMP TIA reports would require additional traffic projection information.

c. Traffic projections on the adjacent road system for both the project and "normal background growth" (demonstrated growth, as detailed in the general plan, or as agreed upon with County staff). Normally, traffic will be projected to Year 2030 or later for an updated future year condition.

d. Traffic projections shall include the additional impact of undeveloped land or new development within an area surrounding the proposed development site (project) as agreed to by the County Director of Public Works, the County Planning Director and advisory staff.

e. Projected impacts on intersections adjacent to or within the defined impact area of the project, using intersection capacity analysis - Highway Capacity Manual Operations Delay Method. Right turn-on-red volumes and changes in signal timing can be incorporated in a signalized intersection analysis, but any signal timing changes must be specifically identified in the study recommendations with additional cautions or impact conclusions identified if the timing changes are not

m. Traffic counts, calculations, other basic information, and supporting data shall be included in an Appendix to the report or provided as a separate Technical Appendix. All actual traffic count data will be provided to the County in a useful summary form, digital and paper format, as specified by the County.

3. **Analysis Methodology**

The build-up method of traffic analysis will be followed, showing:

a. Existing traffic;

b. Existing traffic and normal background growth (rate and time to be agreed to by County staff);

c. Existing traffic and normal background growth (see C. 3. b. above) and project build-out traffic;

d. Existing traffic and normal background growth (see C. 3. b. above) and new development traffic (see C. 3. b. above);

e. Existing traffic and 5 year normal background growth (see b. above) and new development (see b. above) and project build out, if longer than 5 years to build out of project.

If the study period to build-out is longer than 5 years, the future projection time period appropriate for a new development will be determined by the County staff. Significant projects may require a future projection time period of 20 years or General Plan build out. The future year is currently year 2030 as of the date of adopting this Policy. State Highway traffic projections will usually be carried to the year 2030 or to Caltrans current policy and procedures.

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Appendix B

Excerpts from Imperial County's Circulation and Scenic Highways Element

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CIRCULATION AND SCENIC HIGHWAYS ELEMENT

Prepared by:
Imperial County Planning & Development Services Department
801 Main Street
El Centro, CA 92243

in collaboration with the

Imperial County Public Works Department
155 South 11th Street
El Centro, CA 92243

WILLIAM S. BRUNET, P.E.
Director of Public Works

JURG HEUBERGER, AICP
Planning & Development Services Director

Approved by:
Board of Supervisors
January 29, 2008

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TABLE 5 IMPERIAL COUNTY STANDARD STREET CLASSIFICATION AVERAGE DAILY VEHICLE TRIPS						
Road		**Level of Service (LOS)**				
Class	**X-Section**	**A**	**B**	**C**	**D**	**E**
Expressway	154/210	30,000	42,000	60,000	70,000	80,000
Prime Arterial	106/136	22,200	37,000	44,600	50,000	57,000
Minor Arterial	82/102	14,800	24,700	29,600	33,400	37,000
Major Collector (Collector)	64/84	13,700	22,800	27,400	30,800	34,200
Minor Collector (Local Collector)	40/70	1,900	4,100	7,100	10,900	16,200
Local County (Residential)	40/60	*	*	<1,500	*	*
Local County (Residential Cul-de-Sac or Loop Street)	40/60	*	*	<200	*	*
Major Industrial Collector – (Industrial)	76/96	5,000	10,000	14,000	17,000	20,000
Industrial Local	44/64	2,500	5,000	7,000	8,500	10,000

* Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

Table 5 was originally developed for the County of San Diego by the San Diego County Department of Public Works in 1985 and compares ADT to levels of service (LOS) for various roadway classifications. Proposed functional classifications were then inserted into this table and right-of-way widths adjusted to match County of Imperial standards.

Transition Areas

The Circulation and Scenic Highways Element is the graphical reference guide which shows the present and planned street system, along with the classification of those streets. It is important to note that where there is a change from one classification to another along a certain street, the transition will occur in mid-block areas to preclude non-continuing lanes and intersections. The design criteria (design, speed, curve radii, etc.) for the higher classification shall generally take precedence through the transition area.

The County Director of Public Works shall review these transition areas and provide guidance in achieving this policy.

c. New or enlarged Roads:

Local Roads

The County shall require all new developments to provide for local roads to serve the direct access needs of abutting property. These streets should be designed with a discontinuous pattern to discourage through traffic. They generally should not intersect with arterial street classifications. Typical design features include two travel lanes with parking on both sides of the street. Local roads include loop streets and cul-de-sacs.

Regional Roads (Roads beyond the actual development project)

The County shall require that all new developments participate in the improvement of regional roads that may be impacted by the proposed development. The extent to which a project impacts regional roads is generally determined by a traffic study. In some cases however the County may have predetermined improvement requirements for certain road segments or road intersections. The new developments will be required to either make certain regional improvements or in the alternative contribute a "fair share" towards the cost of such improvements.

d. Level of Service Standards

As the County continues to grow, transportation demand management and systems management will be necessary to preserve and increase available roadway "capacity". Level of Service (LOS) standards are used to assess the performance of a street or highway system and the capacity of a roadway.

An important goal when planning the transportation system is to maintain acceptable levels of service along the federal and state highways and the local roadway network. To accomplish this, the California Department of Transportation (Caltrans), Imperial County and local agencies adopt minimum levels of service to determine future infrastructure needs.

Imperial County must provide and maintain a highway system with adequate capacity and acceptable levels of service to accommodate projected travel demands associated with the projected population growth within the Land Use Element. This can be accomplished by establishing minimum service levels for the designated street and conventional state highway system. Strategies that result in improvements to the transportation system, coupled with local job creation, will allow County residents to have access to a wide range of job opportunities within reasonable commute times.

The County's goal for an acceptable traffic service standard on an ADT basis and during AM and PM peak periods for all County-Maintained Roads shall be LOS C for all street segment links and intersections. These service values are defined by the 1985 or 2000 edition of the *Highway Capacity* Manual or any subsequent edition thereof. This policy shall acknowledge that the aforementioned level of service standards may not be obtainable on some existing facilities where abutting development precludes acquisition of additional right-of-way needed for changes in facility classification.

In order to achieve the level of service goals in the previous policy, the County shall develop and institute a long-range funding program in which new land development shall bear the major burden of the associated costs and improvement requirements.

e. Design Standards

The County shall adopt design standards for all streets in accordance with their functional classifications and recognized design guidelines. In developing these standards, the County shall consider the design standards of Caltrans and the American Association of State and Highway Transportation Officials (AASHTO). All streets within the County shall be designed in accordance with the adopted County of Imperial Design Standards. Typical cross sections and design criteria for the various street classifications are shown as an attachment to this document.

f. Private Streets

The County may permit construction of private streets within individual development projects (gated community). providing the following are addressed:

- They are designed geometrically and structurally to meet County standards.
- Only project occupants are served (gated community).
- Emergency vehicle access requirements are satisfied.
- The streets do not provide a direct through route between public streets.
- The Homeowners Associations and/or property owners provide an acceptable program for financing regular street maintenance.
- If the private street is permitted with a waiver of any of the above standards, any future requests to make the private street a public street shall require that all adjacent property owners provide and pay for all improvements and right of way required to bring the street to current public street or road standards. This includes road width, right of way widths and structural section. In no circumstance shall the County pay for any costs to upgrade a private street to public street standards if the above-mentioned requirements were waived at the request of the original developer or subdivider.

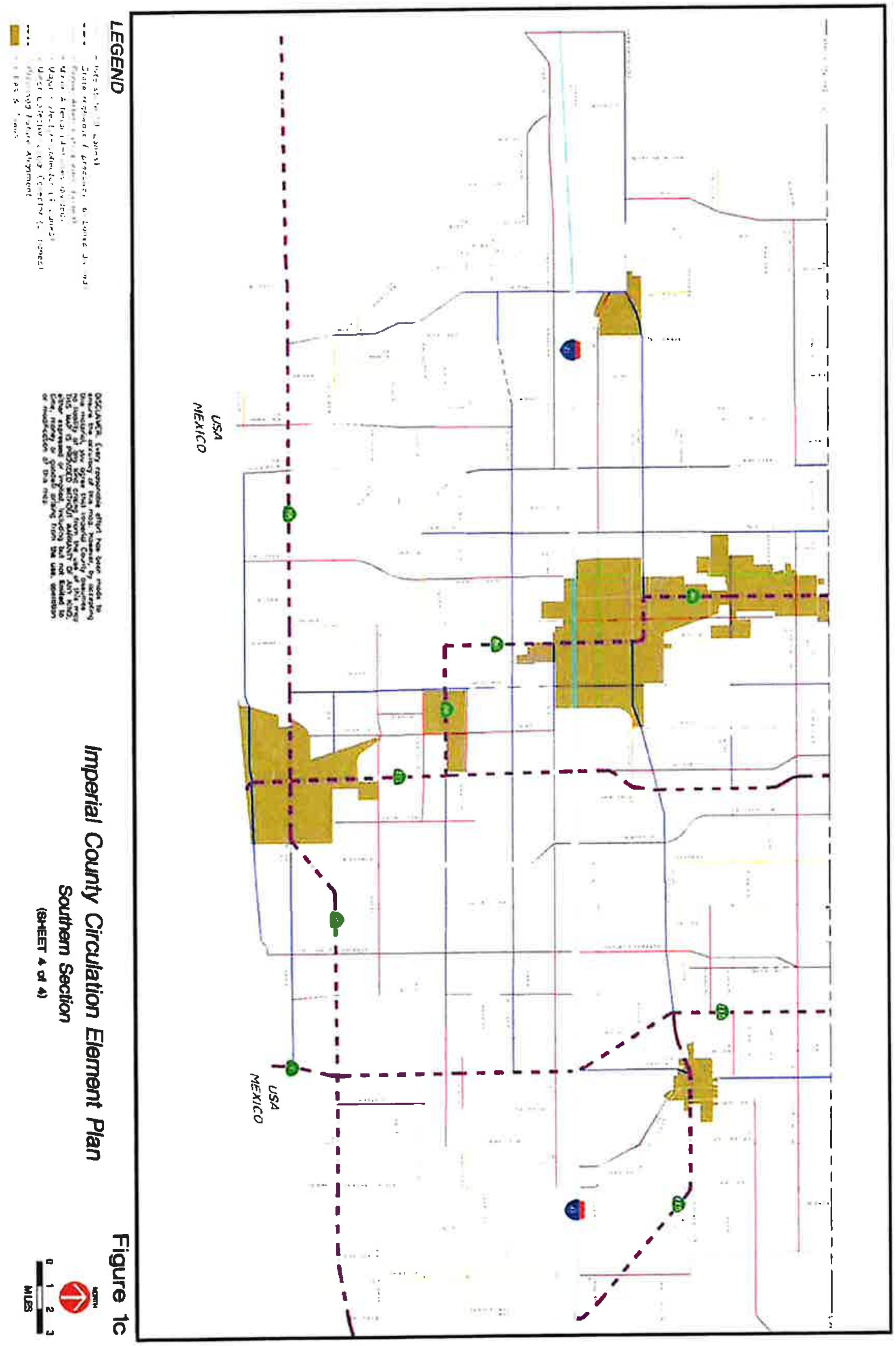
LEGEND
USA
MEXICO
Imperial County Circulation Element Plan
Southern Section
(SHEET 4 of 4)
Figure 1c
NORTH
MILES

TABLE 3
IMPERIAL COUNTY PROJECTED STREET SEGMENT CONFIGURATIONS AND VOLUMES

Segment Location	2003 Classification	Year 2002 ADT Volume[a]	Year 2005 ADT Volume[a]	Year 2025 ADT Volume[c]	25 Year Total Growth Factor[d]	Year 2050 ADT Volume	Year 2050 Recommended Classification (# of Lanes)	2050 LOS[e]
Alamo Road								
Meloland/SR-115	Major Collector						Major Collector (4)	
Albright Road								
SR-111/SR-115	Minor Collector						Minor Collector (2)	
SR-115/Butters	Major Collector						Major Collector (4)	
Anderholt Road								
Evan Hewes (S-80)/Hunt	Minor Collector						Minor Collector (2)	
Hunt/Carr	Major Collector						Major Collector (4)	
Andre Road								
Forrester/End	Minor Collector						Minor Collector (2)	
Anza Road								
Pulliam/Rockwood	Local						Minor Collector (2)	
Rockwood/Calexico	Prime Arterial						Prime Arterial (6-divided)	
Calexico/Barbara Worth	Prime Arterial						Prime Arterial (6-divided)	
Aten Road								
End/Forrester	Minor Collector						Minor Collector (2)	
Forrester/Austin	Minor Arterial						Minor Arterial (6-divided)	
East Imperial City Limits/Dogwood	Prime Arterial	7,300	8,450	39,000	1.13	44,500	Prime Arterial (6-divided)	C
Dogwood/SR-111	Prime Arterial						Prime Arterial (6-divided)	
Proposed/SR-111/River	None						Prime Arterial (6-divided)	
Austin Road								
McCabe/Wahl	Local						Prime Arterial (6-divided)	
Proposed Wahl/SR-86	None						Prime Arterial (6-divided)	
Evan Hewes Hwy/McCabe	Major Collector						Prime Arterial (6-divided)	
Aten/Evan Hewes Hwy	Minor Arterial						Prime Arterial (6-divided)	
Keystone/Aten	Major Collector						Prime Arterial (6-divided)	
SR-86/Keystone	Minor Collector						Prime Arterial (6-divided)	
Bannister Road								
SR-86/Brandt	Major Collector						Major Collector (4)	
Barbara Worth Road								
Zenos/Evan Hewes (S-80)	Minor Collector						Major Collector (4)	
Evan Hewes Hwy/Anza	Major Collector						Major Collector (4)	
Baughman Road								
Garvey/Lack	Minor Collector						Minor Collector (2)	
Lack/SR-86	Major Collector						Major Collector (4)	
Bell Road								
Alamo/Evan Hewes Hwy	Minor Collector						Minor Collector (2)	
Bennett Road								
Havens/Ross	Minor Collector						Minor Collector (2)	
Best Road								
Rutherford/Brawley	Minor Arterial						Minor Arterial (4)	
Blair Road								
Pound/Sinclair	Minor Collector						Minor Collector (2)	
Peterson/Lindsey	Major Collector						Major Collector (4)	
Lindsey/SR-115	Major Collector						Major Collector (4)	
SR-115/Yocum	Local						Major Collector (4)	
Blais Road								
Wieman/Forrester	Minor Collector						Minor Collector	
Boarts Road (S26)								
Westmorland/Kalin	Major Collector						Major Collector (4)	
Boley Road								
Westmorland/Huff	Minor Collector						Minor Collector (2)	
Bonds Corner Road								
Holtville/I-8	Major Collector						Major Collector (4)	
I-8/SR-98	Minor Arterial						Minor Arterial (4)	
Bonesteele Road								
Kumberg/SR-98	Minor Collector						Minor Collector (2)	
Bornt Road								
Verde School/SR-98	Minor Collector						Minor Collector (2)	
Bowker Road								
Evan Hewes Hwy/I-8	Major Collector						Major Collector (4)	
I-8/SR-98	Minor Arterial						Expressway (6)	
SR-98/Anza	None						Minor Arterial (4)	

TABLE 3
IMPERIAL COUNTY PROJECTED STREET SEGMENT CONFIGURATIONS AND VOLUMES (continued)

Segment Location	2003 Classification	Year 2002 ADT Volume[a]	Year 2005 ADT Volume[a]	Year 2025 ADT Volume[c]	25 Year Total Growth Factor[d]	Year 2050 ADT Volume	Year 2050 Recommended Classification (# of Lanes)	2050 LOS[e]
Bowles Road								
Riley/Lyerly	Minor Collector						Minor Collector (2)	
Boyd Road								
Wiest/SR-78	Local						Minor Collector (2)	
SR-115/Highline	Local						Minor Collector (2)	
Highline/End	Minor Collector						Minor Collector (2)	
Brandt Road								
Sinclair/Lindsey	Local						Minor Collector (2)	
Lindsey/Eddins	Minor Collector						Minor Collector (2)	
Eddins/Webster	Minor Collector						Minor Collector (2)	
Bridenstein Road								
Proposed SR-78/Hartshorn							Minor Collector (2)	
Hartshorn/Bonds Corner	Minor Collector						Minor Collector (2)	
Brockman Road (S30)								
McCabe/SR-98	Major Collector						Major Collector (4)	
Butters Road (S32)								
Gonder/SR-78	Prime Arterial						Prime Arterial (6)	A
Bowles/Albright	Local						Major Collector (4)	
Albright/SR-78	Major Collector						Major Collector (4)	
Cady Road								
Pellett/SR-86	Major Collector						Major Collector (4)	
Cambell Road								
Jessup/Derrick	Major Collector						Major Collector (4)	
Derrick/Drew	Major Collector						Major Collector (4)	
Carey Road								
SR-86/Dogwood	Minor Collector						Minor Collector (2)	
Carr Road								
Barbara Worth/SR-7	Major Collector						Minor Arterial (4)	
Carter Road								
Kalin/Forrester	Minor Collector						Major Collector (4)	
Casey Road								
Dickerman/SR-78	Minor Collector						Minor Collector (2)	
SR-78/Worthington	Minor Collector						Major Collector (4)	
Proposed Worthington/Norrish	None						Major Collector (4)	
Chick Road								
El Centro/Pitzer	Prime Arterial						Prime Arterial (6)	
Pitzer/Barbara Worth	Major Collector						Major Collector (4)	
Clark Road								
El Centro/SR-98	Minor Arterial						Minor Arterial (4)	
North El Centro City Limits/Worthington	Major Collector	2,100	2,430	12,550	1.64	21,000	Major Collector (4)	B
Worthington/Larsen	Minor Collector	800	930	6,220	1.64	10,500	Major Collector (4)	A
Cole Road								
Dogwood/Calexico	Prime Arterial						Prime Arterial (6-divided)	
East Calexico City Limits/SR-98	Minor Arterial	9,700	11,230	18,340	1.64	30,500	Prime Arterial (6-divided)	B
Connelly Road								
Vencill/Van Der Linden	Minor Collector						Minor Collector (2)	
Cooley Road								
Worthington/Gillett	Minor Collector						Minor Collector (2)	
Corn Road								
Bowles/Eddins	Minor Collector						Minor Collector (2)	
Correll Road								
Dogwood/SR 111	Minor Arterial						Minor Arterial (4)	
Cross Road								
Imperial (City)/Villa	Minor Collector						Minor Collector (2)	
Davis Road								
Gillespie/Schrimpf	Major Collector						Major Collector (4)	
Proposed Schrimpf/Sinclair	Major Collector						Major Collector (4)	
Dearborn Road								
Harrigan/Wormwood	Minor Collector						Minor Collector (2)	
Derrick Road								
Evan Hewes Hwy/Wixom	Minor Collector						Minor Collector (2)	
Dickerman Road								
SR-115/Butters	Minor Collector						Minor Collector (2)	

TABLE 3
IMPERIAL COUNTY PROJECTED STREET SEGMENT CONFIGURATIONS AND VOLUMES (continued)

Segment Location	2003 Classification	Year 2002 ADT Volume[a]	Year 2006 ADT Volume[a]	Year 2025 ADT Volume[c]	25 Year Total Growth Factor[d]	Year 2050 ADT Volume	Year 2050 Recommended Classification (# of Lanes)	2050 LOS[e]
Diehl Road								
Westside/Drew	Minor Collector						Minor Collector (2)	
Drew/Harrigan	Major Collector						Prime Arterial (6)	
Proposed Harrigan/Silsbee	Major Collector						Prime Arterial (6)	
Dietrich Road								
Rutherford/Shank	Minor Collector						Major Collector (4)	
Proposed Shank/SR-78	None						Major Collector (4)	
Doetsch Road								
Elder/SR-86	Minor Collector						Minor Collector (2)	
Dogwood Road (S31)'								
Proposed Lindsey/Hovley	None						Prime Arterial (6-divided)	
Brawley/SR-98	Prime Arterial						Prime Arterial (6-divided)	
Dowden Road								
Proposed Forrester/Gentry	None						Local Collector (2)	
Gentry/Kershaw	None						Prime Arterial (6)	
Kershaw/Butters	Minor Collector						Prime Arterial (6)	
Drew Road (S29)								
Evan Hewes/SR-98	Prime Arterial						Prime Arterial (6-divided)	
Dunaway Road								
I-8/Evan Hewes Hwy	Major Collector	900	1,040	2,756	1.64	4,500	Major Collector (4)	A
Eady Road								
Willoughby/Cole	Minor Collector						Minor Collector (2)	
Eddins Road (S30)								
Gentry/SR-111(Calipatria City Limits)	Major Collector						Major Collector (4)	
Edgar Road								
Pierle/Forrester	Minor Collector						Minor Collector (2)	
Elder Road								
Doetsch/Cady	Minor Collector						Minor Collector (2)	
English Road								
Sinclair/Wilkins	Minor Collector						Minor Collector (2)	
Erskine Road								
Wheeler/Payne	Minor Collector						Minor Collector	
Evan Hewes Hwy (S80)								
Imperial Hwy/El Centro	Prime Arterial						Prime Arterial (6-divided)	
El Centro/SR-115	Prime Arterial						Prime Arterial (6-divided)	
SR-115/End	Prime Arterial						Prime Arterial (6-divided)	
Fawcett Road								
Dogwood/Meadows	Minor Collector						Major Collector (4)	
Ferrell Road								
Kubler/SR-98	Major Collector						Major Collector (4)	
SR-98/Anza	Minor Collector						Minor Collector (2)	
Fifield Road								
SR-78/Streiby	Minor Collector						Minor Collector (2)	
Fisher Road								
Drew/Pulliam	Minor Collector						Minor Collector (2)	
Flett Road								
Wilkinson/Wirt	Minor Collector						Minor Collector (2)	
Forrester Road (S30)								
Proposed Sinclair/Walker	None						Prime Arterial (6-divided)	
Walker/Westmorland	Major Collector						Prime Arterial (6-divided)	
Westmorland/McCabe	Prime Arterial						Prime Arterial (6-divided)	
McCabe/Hime	Minor Collector						Prime Arterial (6-divided)	
Proposed Hime/River	Minor Collector						Prime Arterial (6-divided)	
North Westmorland City Limits/Gentry	Major Collector	1,200	1,390	9,000	1.64	15,000	Prime Arterial (6-divided)	A
Foulds Road								
Pellett/Lack	Minor Collector						Minor Collector (2)	
Fredericks Road								
Loveland/SR-111	Minor Collector						Minor Collector (2)	
Frontage Road								
Ross/Brawley (City)	Major Collector						Major Collector (4)	
Garst Road								
Sinclair/McDonald	Minor Collector						Minor Collector (2)	
Garvey Road								
Baughman/Andre	Minor Collector						Minor Collector (2)	

TABLE 3
IMPERIAL COUNTY PROJECTED STREET SEGMENT CONFIGURATIONS AND VOLUMES (continued)

Segment Location	2003 Classification	Year 2002 ADT Volume[a]	Year 2005 ADT Volume[a]	Year 2025 ADT Volume[c]	25 Year Total Growth Factor[d]	Year 2050 ADT Volume	Year 2050 Recommended Classification (# of Lanes)	2050 LOS[e]
Gentry Road								
Sinclair/Walker	Major Collector						Major Collector (4)	
Gillespie Road								
Davis/Wilkins	Minor Collector						Minor Collector (2)	
Gillett Road								
Cooley/Bowker	Minor Collector						Minor Collector (2)	
Gonder Road								
Proposed New River/SR-115	None						Major Collector (4)	
SR-115/Butters	Local						Minor Collector (2)	
Butters/Green	Minor Collector						Minor Collector (2)	
Green/Highline	Major Collector						Major Collector (4)	
Gowling Road								
Norrish/Zenos	Minor Collector						Major Collector (4)	
Green Road								
SR-78/Gonder	Major Collector						Major Collector (4)	
Griffin Road								
Wiest/SR-115	Minor Collector						Minor Collector (2)	
Grumbles Road								
James/Meloland	Minor Collector						Minor Collector (2)	
Gullett Road								
Worthington/Aten	Minor Collector						Minor Collector (2)	
Gutherie Road								
Wienert/Worthington	Minor Collector						Minor Collector (2)	
Proposed Worthington/Hackleman	Minor Collector						Minor Collector (2)	
Hackleman Road								
Low/Forrester	Minor Collector						Minor Collector (2)	
Hardy Road								
Dunaway/Jeffrey	Major Collector						Major Collector (4)	
Jeffrey/Hyde	Major Collector						Major Collector (4)	
Hyde/Jessup	Major Collector						Major Collector (4)	
Harrigan Road								
Diehl/Dearborn	Minor Collector						Minor Collector (2)	
Harris Road								
Austin/SR-86	Local						Major Collector (4)	
SR-86/McConnel	Major Collector						Major Collector (4)	
McConnell/Highline	Minor Collector						Major Collector (4)	
Hart Road								
Wiest/SR-115	Minor Collector						Minor Collector (2)	
Hartshorn Road								
Bridenstein/Proposed Bridenstein	Minor Collector						Minor Collector	
Haskell Road								
Evan Hewes Hwy/End	Minor Collector						Minor Collector (2)	
Hastain Road								
Taecker/SR-78	Minor Collector						Minor Collector (2)	
Young/Dickerman	Minor Collector						Minor Collector (2)	
Havens Road								
Haskell/Bennett	Minor Collector						Minor Collector (2)	
Hetzel Road								
Westmorland/Huff	Minor Collector						Minor Collector (2)	
Heber Road								
La Brucherie/SR-86	Local						Minor Collector (2)	
SR-111/Anderholt	Minor Arterial	N/A	2,040	16,700	1.64	27,500	Prime Arterial (6-divided)	B
Anderholt/Keffer	Major Collector						Major Collector (4)	
Keffer/Vencill	Minor Collector						Major Collector (4)	
Highline Road (S33)								
Proposed SR-78/Gonder	None						Major Collector (4)	
Gonder/Kavanaugh	Major Collector						Major Collector (4)	
Proposed Kavanaugh/I-8	None						Major Collector (4)	
Holt Road. (S32)								
Gonder/Holtville city limits	Prime Arterial						Prime Arterial (6-divided)	
Hoskins Road								
SR-86/Steiner	Minor Collector						Minor Collector	
Hovley Road								
Rutherford/Brawley	Major Collector						Major Collector (4)	

TABLE 3
IMPERIAL COUNTY PROJECTED STREET SEGMENT CONFIGURATIONS AND VOLUMES (continued)

Segment Location	2003 Classification	Year 2002 ADT Volume[a]	Year 2005 ADT Volume[a]	Year 2025 ADT Volume[c]	25 Year Total Growth Factor[d]	Year 2050 ADT Volume	Year 2050 Recommended Classification (# of Lanes)	2050 LOS[e]
Huff Road								
Imler/Evan Hewes Hwy	Major Collector						Major Collector (4)	
Hunt Road								
Barbara Worth/Bonds Corner	Major Collector						Major Collector (4)	
Bonds Corner/Van Der Linden	Minor Collector						Minor Collector (2)	
Huston Road								
Dogwood/McConnell	Minor Collector						Minor Collector (2)	
Imler Road								
Huff/Forrester	Major Collector						Major Collector (4)	
International Road								
Noffsinger/Pound	Minor Collector						Minor Collector (2)	
Irvine Road								
Shank/End	Minor Collector						Minor Collector (2)	
James Road								
Ralph/Evan Hewes Hwy	Minor Collector						Minor Collector (2)	
Jasper Road								
Calexico/Anderholt	Major Collector						Expressway (6)	
Proposed Anderholt/ SR-7	None						Expressway (6)	
Jeffery Road								
Evan Hewes Hwy/Hardy	Minor Collector						Minor Collector (2)	
Kaiser Road								
Wirt/Albright	Minor Collector						Minor Collector (2)	
Kalin (S26)								
Sinclair/SR-78/86	Major Collector						Major Collector (4)	
SR-78/86/Webster	Minor Collector						Minor Collector (4)	
Kamm Road								
River/SR-115	Local						Prime Arterial (6)	
SR-115/Holt	Minor Collector						Major Collector (4)	
Keffer Road								
SR-98/King	Major Collector						Major Collector (4)	
Kershaw Road								
Yocum/Rutherford	Minor Collector						Minor Collector (2)	
Keystone Road (S27)								
Forrester/SR-111	Prime Arterial						Expressway (6)	
SR-111/Highline	Major Collector						Expressway (6)	
King Road								
Orchard/Keffer	Major Collector						Major Collector (4)	
Kloke Road								
Willoughby/Calexico	Major Collector						Major Collector (4)	
Kramar Road								
Drew/Forrester	Major Collector						Major Collector (4)	
Kubler Road								
Drew/Clark	Minor Collector						Minor Collector (2)	
Kumberg Road								
Bonesteele/Miller	Minor Collector						Minor Collector (2)	
La Brucherie Road								
El Centro city limits/Kubler	Major Collector						Major Collector (4)	
Larsen/Murphy	Minor Collector						Minor Collector (2)	
Murphy/Imperial city limits	Minor Collector						Minor Collector (2)	
Lack Road								
Lindsey/Blais	Minor Collector						Minor Collector (2)	
Larsen Road								
Forrester/SR-86	Major Collector						Major Collector (4)	
SR-86/Clark	Minor Collector						Minor Collector (2)	
Lavigne Road								
SR-98/Bowker	Prime Arterial						Prime Arterial (6)	
Proposed Bowker/Barbara Worth	Prime Arterial						Prime Arterial (6)	
Liebert Road								
Wixom/Rd 8018	Minor Collector						Minor Collector (2)	
Proposed Road 8018/SR-98	Minor Collector						Minor Collector (2)	
Lindsey Road								
Lack/West	Minor Collector						Minor Collector (2)	
Loveland Road								
Fredericks/Monte	Minor Collector						Minor Collector (2)	
Low Road								
Hackleman/Evan Hewes Hwy	Minor Collector						Minor Collector (2)	

TABLE 3
IMPERIAL COUNTY PROJECTED STREET SEGMENT CONFIGURATIONS AND VOLUMES (continued)

Segment Location	2003 Classification	Year 2002 ADT Volume[a]	Year 2005 ADT Volume[a]	Year 2025 ADT Volume[c]	25 Year Total Growth Factor[d]	Year 2050 ADT Volume	Year 2050 Recommended Classification (# of Lanes)	2050 LOS[e]
Lyerly Road								
Bowles/Eddins	Minor Collector						Minor Collector (2)	
Lyons Road								
Drew/Nichols	Minor Collector						Major Collector (4)	
Proposed Nichols/La Brucherie	None						Major Collector (4)	
Main ST (Niland)								
SR-111/Blair	Major Collector						Major Collector (4)	
Martin Road								
Baughman/7th	Minor Collector						Minor Collector (2)	
7th/Bannister	Local						Minor Collector (2)	
Mead Road								
Dogwood/McConnell	Minor Collector						Minor Collector (2)	
Meadows Road								
Heber/Calexico (City)	Major Collector						Major Collector (4)	
Meloland Road								
Worthington/Correll	Minor Collector						Minor Collector (2)	
Proposed Correll/SR-98	Minor Collector						Minor Collector (2)	
McCabe Road								
Silsbee/La Brucherie	Major Collector						Prime Arterial (6-divided)	
La Brucherie/SR-111	Minor Arterial	N/A	200	17,270	1.64	28,500	Prime Arterial (6-divided)	B
SR-111/SR-7	Major Collector						Prime Arterial (6-divided)	
McConnell Road								
SR-78/Evan Hewes Hwy	Major Collector						Major Collector (4)	
McDonald Road								
Garst/SR-111	Minor Collector						Minor Collector (2)	
SR-111 TO Rd 8041	Minor Collector						Minor Collector (2)	
McKim Road								
Harris/Ralph	Minor Collector						Minor Collector (2)	
Miller Road (S33)								
I-8/Kumberg	Minor Collector						Minor Collector (2)	
I-8/SR-115	Major Collector	200	230	5,250	1.64	9,000	Major Collector (4)	A
SR-115/Kavanaugh	Major Collector	100	120	5,300	1.64	9,000	Major Collector (4)	A
Monte Road								
Pellett/Loveland	Minor Collector						Minor Collector (2)	
Neckel Road								
Austin/Clark	Minor Collector						Minor Collector (2)	
Nichols Road								
McCabe/Lyons	Minor Collector						Minor Collector (2)	
Noffsinger Road								
SR-111/McDonald	Minor Collector						Minor Collector (2)	
Norrish Road								
Gowling/Holt	Minor Collector						Minor Collector (2)	
Holt/Highline	Local						Major Collector (4)	
Highline/End	Major Collector						Major Collector (4)	
Orchard Road (S32)/ SR 7								
King/McCabe	Major Collector	700	810	50,740	1.13	57,500	Expressway (6)	C
McCabe/I-8	Major Collector	900	1,040	49,000	1.13	56,000	Expressway (6)	C
Holtville/I-8	Minor Arterial						Prime Arterial (6-divided)	
I-8/Connelly	Major Collector						Major Collector (4)	
Orr Road								
Baughman/SR-86	Minor Collector						Minor Collector (2)	
Park Road								
Proposed Dowden/Williams	None						Major Collector (4)	
Williams/Rutherford	Minor Collector						Major Collector (4)	
Proposed Rutherford/Dietrich	None						Major Collector (4)	
Parker Road								
Ross/Gillett	Minor Collector						Minor Collector (2)	
Payne Road								
Huff/Erskine	Minor Collector						Minor Collector (2)	
Pellett Road								
Foulds/Monte	Minor Collector						Minor Collector (2)	
Proposed Monte/Imler	Minor Collector						Minor Collector (2)	
Pickett Road								
Hastain/Butters	Minor Collector						Minor Collector (2)	

TABLE 3
IMPERIAL COUNTY PROJECTED STREET SEGMENT CONFIGURATIONS AND VOLUMES (continued)

Segment Location	2003 Classification	Year 2002 ADT Volume[a]	Year 2005 ADT Volume[a]	Year 2025 ADT Volume[c]	25 Year Total Growth Factor[d]	Year 2050 ADT Volume	Year 2050 Recommended Classification (# of Lanes)	2050 LOS[e]
Pierle Road								
Edgar/Wheeler	Minor Collector						Minor Collector(2)	
Pitzer Road								
Proposed Jasper/Willoughby	None						Major Collector (4)	
Chick/SR-86	Major Collector						Major Collector (4)	
SR-86/Jasper	Minor Collector						Major Collector (4)	
Pound Road								
Davis/International	Major Collector						Major Collector (4)	
International/Noffsinger	Minor Collector						Minor Collector (2)	
Pulliam Road								
Fisher/ SR-98	Minor Collector						Minor Collector (2)	
Ralph Road								
Imperial (City)/Dogwood	Major Collector						Major Collector (4)	
Dogwood/Mckim	Minor Collector						Minor Collector (2)	
Riley Road								
Bowles/Eddins	Minor Collector						Minor Collector	
Rockwood Road								
Proposed River/Lyons	Minor Collector						Prime Arterial (6)	
Lyons SR-98	Minor Collector						Prime Arterial (6)	
SR-98/Anza	Major Collector						Major Collector	
Ross Road								
Drew/Bennett	Major Collector	1,500	1,740	2,310	1.64	4,000	Major Collector (4)	A
Drew/Austin	Major Collector						Major Collector (4)	
El Centro/SR-111	Minor Arterial						Minor Arterial (4)	
SR-111/Mets	Local	N/A	560	2,120	1.64	3,500	Minor Collector (2)	B
Ruegger Road								
Kalin/SR-111	Minor Collector						Minor Collector (2)	
Rutherford Road (S26)								
Proposed Banister/Kalin							Major Collector (4)	
Kalin/Butters	Major Collector						Major Collector (4)	
Butters/Irvine	Minor Collector						Minor Collector (2)	
Schartz Road								
Proposed SR-86/Dogwood	None						Major Collector (4)	
Dogwood/McConnell	Minor Collector						Major Collector (4)	
Proposed McConnell/River	None						Major Collector (4)	
Seybert Road								
Taecker/SR-78	Minor Collector						Minor Collector	
Shank Road								
Best/SR-115	Minor Arterial						Minor Arterial (4)	
SR-115/Irvine	Minor Collector						Minor Collector (2)	
Silsbee Road								
Evan Hewes Hwy/McCabe	Minor Collector						Minor Collector (2)	
Sinclair Road								
Gentry/SR-111	Major Collector						Prime Arterial (6-divided)	
SR-111/Weist	Minor Collector						Minor Collector (2)	
Slayton Road								
Worthington/Holtville (City)	Minor Collector						Minor Collector (2)	
Snyder Road								
Worthington/Bonds Corner Road	Minor Collector						Minor Collector (2)	
Stahl Road								
McConnell/End	Minor Collector						Minor Collector (2)	
Streiby Road								
Fifield/Wiest	Minor Collector						Minor Collector (2)	
Taecker Road								
Seybert/Hastain	Minor Collector						Minor Collector (2)	
Titsworth Road								
Butters/End	Minor Collector						Minor Collector (2)	
Townsend Road								
SR-115/Holt	Minor Collector						Minor Collector (2)	
Vail Road								
Lack/Kalin	Minor Collector						Minor Collector (2)	
Van Der Linden								
Hunt/Connelly	Minor Collector						Minor Collector (2)	
Vencill Road								
Connelly/Heber	Minor Collector						Minor Collector (2)	

TABLE 3
IMPERIAL COUNTY PROJECTED STREET SEGMENT CONFIGURATIONS AND VOLUMES (continued)

Segment Location	2003 Classification	Year 2002 ADT Volume[a]	Year 2005 ADT Volume[a]	Year 2025 ADT Volume[c]	25 Year Total Growth Factor[d]	Year 2050 ADT Volume	Year 2050 Recommended Classification (# of Lanes)	2050 LOS[e]
Verde School Road								
Keffer/Bornt	Minor Collector						Minor Collector (2)	
Villa Road								
Dogwood/Cooley	Minor Collector						Minor Collector (2)	
Wahl Road								
Nichols/Clark	Minor Collector						Minor Collector (2)	
Walker Road								
Gentry/End	Major Collector						Major Collector (4)	
Gentry/Brandt	Minor Collector						Minor Collector (2)	
Ware Road								
Fawcett/Willoughby	Major Collector						Major Collector (4)	
Weaver Road								
Kalin/SR-86	Minor Collector						Minor Collector (2)	
Webster Road								
Kalin/Brandt	Minor Collector						Minor Collector (2)	
Westmorland Road								
Boley/Evan Hewes Hwy	Minor Collector						Minor Collector (2)	
Westside Road								
Evan Hewes Hwy/End	Minor Collector						Minor Collector (2)	
Wheeler Road								
Erskine/Pierle	Minor Collector						Minor Collector (2)	
Wieman Road								
Steiner/Cady	Minor Collector						Minor Collector (2)	
Wienert Road								
Guthrie/Forrester	Minor Collector						Minor Collector (2)	
Wiest Road								
SR-78/Griffin	Minor Collector						Minor Collector (2)	
Griffin/Boyd	Local						Minor Collector (2)	
McDonald/SR-115	Minor Collector						Minor Collector (2)	
Wilkins Road								
English/Cuff	Minor Collector						Minor Collector (2)	
Wilkinson Road								
Brandt/SR-111	Minor Collector						Minor Collector (2)	
Wiest/Flett	Minor Collector						Minor Collector (2)	
Willoughby Road								
Proposed La Brucherie/Clark	none						Major Collector (4)	
Clark/Dogwood	Minor Collector						Major Collector (4)	
Dogwood/Kloke	Major Collector						Major Collector (4)	
Wirt Road								
Wiest/Kaiser	Minor Collector						Minor Collector (2)	
Wixom Road								
Liebert/Drew	Minor Collector						Minor Collector (2)	
Wormwood Road								
Dearborn/Fisher	Minor Collector						Minor Collector (2)	
Worthington Road (S28)								
Huff/Highline	Major Collector						Major Collector (4)	
Yocum Road								
Proposed Dogwood/Lyerly	none						Major Collector (2)	
Lyerly/Kershaw	Minor Collector						Major Collector (4)	
Kershaw/Blair	Local						Major Collector (4)	
Young Road								
SR-111/Blair	Minor Collector						Minor Collector (2)	
Zenos Road								
Barbara Worth/Holtville (City)	Minor Collector						Minor Collector (2)	
State Route 78								
S.D.-Imperial County Line/Junction SR-86	State Hwy	N/A	920	8,104	1.64	13,500	Collector (4)	A
SR-111/SR-115N	State Hwy	N/A	3,950	10,592	1.64	17,500	Collector (4)	B
SR-115N/SR-115S	State Hwy	N/A	3,100	13,447	1.64	22,500	Collector (4)	B
115S/Glamis	State Hwy	N/A	1,950	7,340	1.64	12,500	Collector (4)	A
Glamis/Olgilby	State Hwy	N/A	1,650	4,909	1.64	8,500	Collector (4)	A
Olgilby/Palo Verde, Fourth	State Hwy	N/A	2,000	5,307	1.64	9,000	Collector (4)	A
Palo Verde, Fourth/Imperial County Line	State Hwy	N/A	2,000	5,307	1.64	9,000	Collector (4)	A

TABLE 3
IMPERIAL COUNTY PROJECTED STREET SEGMENT CONFIGURATIONS AND VOLUMES (continued)

Segment Location	2003 Classification	Year 2002 ADT Volume[a]	Year 2005 ADT Volume[b]	Year 2025 ADT Volume[c]	25 Year Total Growth Factor[d]	Year 2050 ADT Volume	Year 2050 Recommended Classification (# of Lanes)	2050 LOS[e]
State Route 86								
Imperial County Line/Desert Shores	State Hwy	N/A	12,900	21,138	1.28	27,500	Minor Arterial (4)	C
Desert Shores/Brawley Ave.	State Hwy	N/A	12,400	20,319	1.28	26,500	Collector (4)	C
Brawley Ave./S. Marina	State Hwy	N/A	13,400	21,957	1.28	28,500	Minor Arterial (4)	C
S. Marina/Air Park	State Hwy	N/A	12,100	19,827	1.64	33,000	Prime Arterial (6-divided)	B
Air Park/SR-78 West	State Hwy	N/A	10,800	17,697	1.64	29,500	Minor Arterial (4)	C
SR-78 West/Lack	State Hwy	N/A	10,800	17,690	1.64	29,500	Minor Arterial (4)	C
Lack/West Westmorland City Limits	State Hwy	N/A	10,200	19,650	1.64	32,500	Prime Arterial (6-divided)	B
E Westmorland C. Limits/W Brawley C. Limits	State Hwy	N/A	14,000	19,440	1.64	32,000	Prime Arterial (6-divided)	B
South Brawley City Limits/Legion	State Hwy	N/A	21,400	28,300	1.13	32,500	Prime Arterial (6-divided)	B
Legion/Keystone	State Hwy	N/A	19,100	27,940	1.13	32,000	Prime Arterial (6-divided)	B
Keystone/Imperial Ave.	State Hwy	N/A	14,700	27,980	1.13	32,000	Prime Arterial (6-divided)	B
I-8/McCabe	State Hwy	N/A	21,500	24,890	1.28	32,000	Prime Arterial (6-divided)	B
McCabe/Heber	State Hwy	N/A	7,100	26,100	1.28	33,500	Prime Arterial (6-divided)	B
Heber/Dogwood	State Hwy	N/A	7,500	26,100	1.28	33,500	Prime Arterial (6-divided)	B
Dogwood/SR-111	State Hwy	N/A	5,200	26,000	1.28	33,500	Prime Arterial (6-divided)	B
South Imperial City Limits/North El Centro City Limits	State Hwy	N/A	6,500	27,980	1.13	32,000	Prime Arterial (6-divided)	B
State Route 98								
Imperial Hwy/Drew	State Hwy	N/A	2,300	1,730	1.64	3,000	Local Collector (2)	B
Drew/Clark	State Hwy	N/A	3,800	5,350	1.64	9,000	Collector (4)	A
Clark/Dogwood	State Hwy	N/A	4,550	8,800	1.64	14,500	Collector (4)	B
Dogwood/West Calexico City Limits	State Hwy	N/A	9,800	24,180	1.64	31,500	Prime Arterial (6-divided)	B
East Calexico City Limits/Barbara Worth	State Hwy	N/A	24,400	26,000	1.64	33,500	Prime Arterial (6-divided)	B
Barbara Worth/Bonds Corner	State Hwy	N/A	16,300	26,000	1.64	33,500	Prime Arterial (6-divided)	B
Bonds Corner/E. Highline Canal	State Hwy	N/A	4,500	770	1.64	1,500	Local Collector (2)	A
E. Highline Canal/I-8	State Hwy	N/A	2,200	250	1.64	500	Local Collector (2)	A
State Route 111								
North Calexico City Limits	State Hwy	N/A	50,000	97,570	1.13	111,000	Freeway (8)	C
Heber/McCabe	State Hwy	N/A	33,500	98,650	1.13	112,000	Freeway (8)	C
McCabe/I-8	State Hwy	N/A	37,000	90,830	1.13	103,000	Freeway (8)	C
I-8/Evan Hewes Hwy	State Hwy	N/A	16,300	52,980	1.13	60,500	Expressway (6)	D
Evan Hewes/Aten	State Hwy	N/A	14,100	60,200	1.13	68,500	Expressway (6)	D
Aten/Worthington	State Hwy	N/A	11,300	58,160	1.13	66,000	Expressway (6)	D
Worthington/Keystone	State Hwy	N/A	10,600	58,710	1.13	67,000	Expressway (6)	D
Keystone/E. Junction 78	State Hwy	N/A	9,300	57,590	1.13	65,500	Expressway (6)	D
North Brawley City Limits/Rutherford	State Hwy	N/A	9,500	18,510	1.64	30,500	Prime Arterial (6-divided)	B
Rutherford/South Calipatria City Limits	State Hwy	N/A	6,600	18,560	1.64	30,500	Prime Arterial (6-divided)	B
North Calipatria City Limits/Sinclair	State Hwy	N/A	5,700	15,640	1.64	26,000	Minor Arterial (4)	C
Sinclair/Niland Ave	State Hwy	N/A	5,100	13,532	1.64	22,500	Collector (4)	B
Niland Ave/English	State Hwy	N/A	3,700	9,817	1.64	16,500	Collector (4)	B
English/Bombay Beach	State Hwy	N/A	2,300	6,103	1.64	10,500	Collector (4)	A
Bombay Beach/Imperial-Riverside County line	State Hwy	N/A	1,900	5,041	1.64	8,500	Collector (4)	A
State Route 115								
Junction I-8/East Holtville City Limits	State Hwy	N/A	1,850	4,140	1.64	7,000	Local Collector (2)	C
West Holtville City Limits/West Junction Evan Hewes Hwy	State Hwy	N/A	6,600	8,320	1.64	14,000	Collector (4)	B
West Junction Evan Hewes Hwy/SR-78	State Hwy	N/A	2,850	27,870	1.13	32,000	Prime Arterial (6-divided)	B
SR-78/Rutherford	State Hwy	N/A	990	13,450	1.64	22,500	Minor Arterial (4)	B
Rutherford/Wirt	State Hwy	N/A	1,650	9,720	1.64	16,000	Collector (4)	B
Wirt/East Calipatria City Limits	State Hwy	N/A	1,150	9,240	1.64	15,500	Collector (4)	B
State Route 186								
I-8/International Border	State Hwy	N/A					State Hwy	

Notes:
* See Table 1 regarding additional right-of-way for transit facility with roadway.
a. Volume from Imperial County Circulation and Scenic Highways Element Manual (Dec. 2003).
b. Volume from Caltrans, Imperial County, or Linscott Law & Greenspan, Engineers counts.
c. Volumes from Caltrans CalexGP+ Model and adjusted higher in some cases.
d. A 0.5%, 1.0%, or 2.0% annual growth rate was applied to the Year 2025 volumes to obtain Year 2050 volumes.
e. Capacity based on the Imperial County Classification Table (depending on the Year 2050 volume amount).

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Appendix C

Traffic Impact Significance Criteria from Imperial area EIRs

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4.6.2 Impact Significance Criteria

Significance Criteria

The significance criteria summarized in Table 4.6-2 by Linscott, Law and Greenspan Engineers is based upon the City of El Centro and the County of Imperial's goal for intersections and roadway segments to operate at LOS C or better. In general, a degradation in LOS from LOS C or better to LOS D or worse is considered a significant direct impact. A cumulative impact can occur if the intersection or segment LOS is already operating below City/County standards and the project increases the delay by more than 2 seconds or the v/c ratio by more than 0.02.

Table 4.6-2
Significance Criteria

Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
INTERSECTIONS			
LOS [1] C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS D or worse	-	Direct
LOS D	LOS E or F	-	Direct
LOS E	LOS F	-	Direct
Any LOS	Project does not degrade LOS and adds > 2.0 seconds of delay	LOS E or worse	Cumulative
Any LOS	Project does not degrade LOS and adds < 2.0 seconds of delay	Any LOS	None
SEGMENTS			
Existing	**Existing + Project**	**Existing + Project + Cumulative Projects**	**Impact Type**
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS D or worse	-	Direct [2]
LOS D	LOS E or F	-	Direct
LOS E	LOS F	-	Direct
Any LOS	LOS E or worse and v/c [3] > 0.02	LOS E or worse	Cumulative
Any LOS	LOS E or worse and v/c [3] < 0.02	Any LOS	None

Source: Linscott, Law & Greenspan, Engineers (July 2004)

Notes:

1. LOS: Level of Service
2. Exception: post-project segment operation is D and intersections along segment are D or better, no significant impact.
3. V/C: Volume to Capacity Ratio

In addition the project would have a significant impact if:

- It would substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

5.0 Significance Criteria

Table 5.1
Significance Criteria

Intersections			
Existing	**Existing + Project**	**Existing + Project + Cumulative Projects**	**Impact Type**
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS C or better and project adds < 2.0 seconds of delay	LOS D or worse	None
LOS C or better	LOS C or better and project adds > 2.0 seconds of delay	LOS D or worse	Cumulative
LOS C or better	LOS D or worse	LOS D or worse	Direct
LOS D	LOS D and project adds < 2.0 seconds of delay	LOS D or worse	None
LOS D	LOS D and project adds > 2.0 seconds of delay	LOS D or worse	Cumulative
LOS D	LOS E or F	LOS E or F	Direct
LOS E	LOS E and project adds < 2.0 seconds of delay	LOS E or F	None
LOS E	LOS E and project adds > 2.0 seconds of delay	LOS E or F	Cumulative
LOS E	LOS F	LOS F	Direct
LOS F	Project add < 2.0 seconds of delay	LOS F	None
LOS F	Project adds 2.0 to 9.9 seconds of delay	LOS F	Cumulative
LOS F	Project adds 10.0 or more seconds of delay	LOS F	Direct
Segments			
Existing	**Existing + Project**	**Existing + Project + Cumulative Projects**	**Impact Type**
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS or better and project increases V/C by < 0.02	LOS D or worse	None
LOS C or better	LOS C or better and project increase V/C by >0.02	LOS D or worse	Cumulative
LOS C or better	LOS D or worse	LOS D or worse	Direct[1]
LOS D	LOS D and project increases V/C by < 0.02	LOS D or worse	None
LOS D	LOS D and project increases V/C by > 0.02	LOS D or worse	Cumulative
LOS D	LOS E or F	LOS E or F	Direct
LOS E	LOS E and project increases V/C by < 0.02	LOS E or F	None
LOS E	LOS E and project increases V/C by > 0.02	LOS E or F	Cumulative
LOS E	LOS F	LOS F	Direct
LOS F	Project increases V/C by < 0.02	LOS F	None
LOS F	Project increases V/C by > 0.02 and < 0.09	LOS F	Cumulative
LOS F	Project increases V/C by > 0.09	LOS F	Direct

Notes: LOS = Level of Service; V/C = Volume to Capacity Ratio; [1] Exception: If Existing + Project segment operation is LOS D and intersections along segment are LOS D or better, then there is no significant impact.

In addition to the above listed projects, the Lerno/Verhaegen project was recently submitted and is currently starting the CEQA process. This project is listed for information purposes but cannot be analyzed in cumulative terms. The following is a brief description based on the limited information available for this project.

Lerno-Verhaegen Specific Plan is proposed to be a mixed-use development of 2,708 dwelling units. The project consists of 680 acres on the west side of the City of El Centro. The project includes a zone change, Tentative Map, an amendment of the City's General Plan and an annexation.

Individual traffic assignments were completed for each cumulative project. Figure 2-7 depicts the total cumulative project traffic volumes in the area. Figure 2-8 shows the existing + project + cumulative projects traffic volumes for the vicinity. Appendix D of this Mitigated Negative Declaration contains the individual cumulative project traffic assignments.

Significance Criteria

The significance criteria summarized in Table 2-7 by Linscott, Law and Greenspan, engineers is based upon the County of Imperial's goal for intersections and roadway segments to operate at LOS C or better. Intersections or segments operating at LOS D, E or F are unacceptable and therefore constitute a significant impact.

Table 2-7 – Significance Criteria

Existing	**Existing + Project**	**Existing + Project + Cumulative Projects**	**Impact Type**
INTERSECTIONS			
LOS [1] C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS D or worse	-	Direct
LOS D	LOS E or F	-	Direct
LOS E	LOS F	-	Direct
Any LOS	Project does not degrade LOS and adds > 2.0 seconds of delay	LOS E or worse	Cumulative
Any LOS	Project does not degrade LOS and adds < 2.0 seconds of delay	Any LOS	None
SEGMENTS			
Existing	**Existing + Project**	**Existing + Project + Cumulative Projects**	**Impact Type**
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS D or worse	-	Direct [2]
LOS D	LOS E or F	-	Direct
LOS E	LOS F	-	Direct
Any LOS	LOS E or worse and v/c [3] > 0.02	LOS E or worse	Cumulative
Any LOS	LOS E or worse and v/c [3] < 0.02	Any LOS	None

Source: LL&G, July 2004.

Notes:

1. LOS: Level of Service
2. Exception: post-project segment operation is D and intersections along segment are D or better, no significant impact.
3. V/C: Volume to Capacity Ratio

TABLE 5-1
SIGNIFICANCE CRITERIA

Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
INTERSECTIONS			
LOS [a] C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS D or worse	—	Direct
LOS D	LOS D and adds 2.0 seconds or more of delay	LOS D or worse	Cumulative
LOS D	LOS E or F	—	Direct
LOS E	LOS F	—	Direct
LOS F	LOS F and delay increases by ≥ 10.0 seconds	LOS F	Direct
Any LOS	Project does not degrade LOS and adds 2.0 to 9.9 seconds of delay	LOS E or worse	Cumulative
Any LOS	Project does not degrade LOS and adds < 2.0 seconds of delay	Any LOS	None

Existing	Existing + Project	Existing + Project + Cumulative Projects	Impact Type
SEGMENTS			
LOS C or better	LOS C or better	LOS C or better	None
LOS C or better	LOS C or better and v/c [b] > 0.02	LOS D or worse	Cumulative
LOS C or better	LOS D or worse	—	Direct
LOS D	LOS D and v/c > 0.02	LOS D or worse	Cumulative
LOS D	LOS E or F	—	Direct
LOS E	LOS F	—	Direct
LOS F	LOS F and v/c increases by > 0.09	LOS F	Direct
Any LOS	LOS E or worse and v/c 0.02 to 0.09	LOS E or worse	Cumulative
Any LOS	LOS E or worse and v/c < 0.02	Any LOS	None

Source: Linscott, Law & Greenspan, Engineers

Footnotes:

a. Level of Service

b. Volume to Capacity Ratio

Appendix D

Count Data

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Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Imperial
N/S: SR-111
E/W: Worthington Road
Weather: Clear

File Name : 01_CIM_SR-111_Worthington AM
Site Code : 14320141
Start Date : 3/3/2020
Page No : 1

Groups Printed- Total Volume

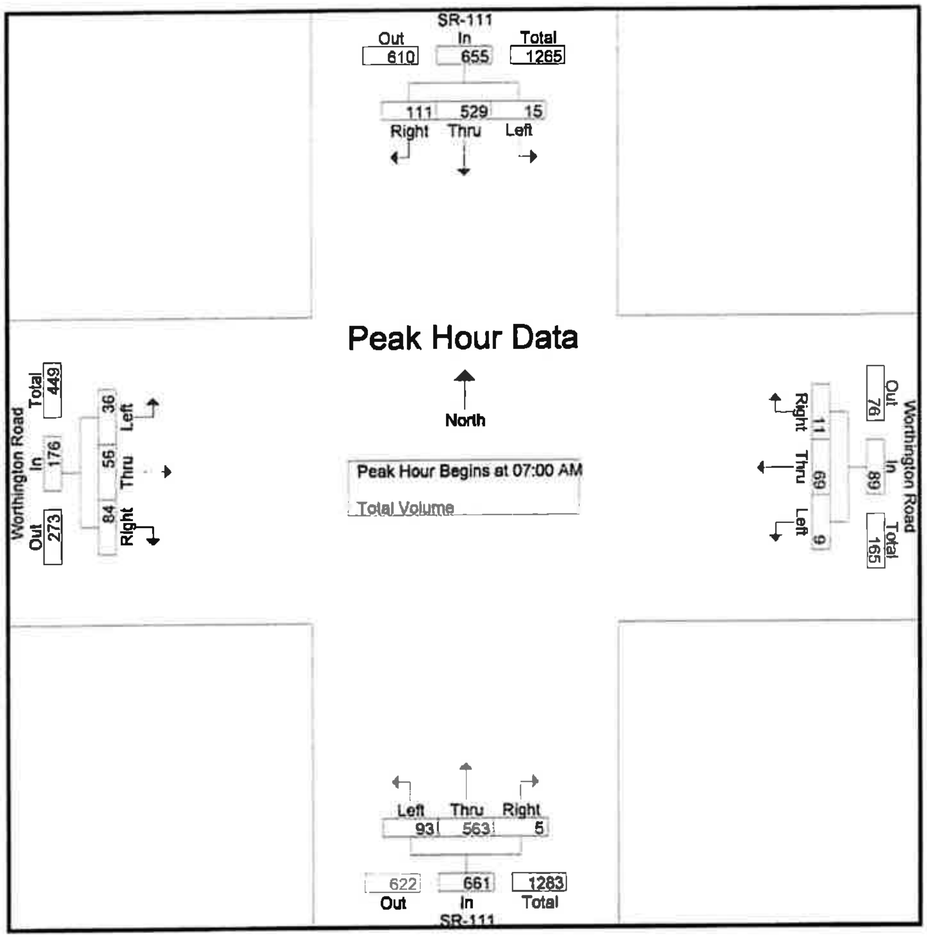
	SR-111 Southbound				Worthington Road Westbound				SR-111 Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	2	66	1	69	0	6	0	6	5	132	1	138	0	14	10	24	237
06:15 AM	1	72	4	77	3	9	4	16	10	134	5	149	0	22	11	33	275
06:30 AM	1	83	1	85	3	7	5	15	16	164	4	184	7	13	12	32	316
06:45 AM	2	75	4	81	1	11	2	14	16	126	1	143	7	13	7	27	265
Total	6	296	10	312	7	33	11	51	47	556	11	614	14	62	40	116	1093
07:00 AM	4	97	7	108	3	17	3	23	29	114	3	146	5	12	15	32	309
07:15 AM	4	127	21	152	4	23	4	31	15	153	2	170	11	17	18	46	399
07:30 AM	2	152	37	191	1	16	4	21	26	155	0	181	10	22	29	61	454
07:45 AM	5	153	46	204	1	13	0	14	23	141	0	164	10	5	22	37	419
Total	15	529	111	655	9	69	11	89	93	563	5	661	36	56	84	176	1581
08:00 AM	3	111	25	139	3	20	2	25	13	89	1	103	6	20	16	42	309
08:15 AM	1	162	13	176	2	12	4	18	13	93	4	110	4	9	22	35	339
08:30 AM	1	125	10	136	3	14	1	18	7	85	1	93	2	12	10	24	271
08:45 AM	2	128	19	149	2	9	3	14	12	93	2	107	2	3	11	16	286
Total	7	526	67	600	10	55	10	75	45	360	8	413	14	44	59	117	1205
Grand Total	28	1351	188	1567	26	157	32	215	185	1479	24	1688	64	162	183	409	3879
Apprch %	1.8	86.2	12		12.1	73	14.9		11	87.6	1.4		15.6	39.6	44.7		
Total %	0.7	34.8	4.8	40.4	0.7	4	0.8	5.5	4.8	38.1	0.6	43.5	1.6	4.2	4.7	10.5	

	SR-111 Southbound				Worthington Road Westbound				SR-111 Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	4	97	7	108	3	17	3	23	29	114	3	146	5	12	15	32	309
07:15 AM	4	127	21	152	4	23	4	31	15	153	2	170	11	17	18	46	399
07:30 AM	2	152	37	191	1	16	4	21	26	155	0	181	10	22	29	61	454
07:45 AM	5	153	46	204	1	13	0	14	23	141	0	164	10	5	22	37	419
Total Volume	15	529	111	655	9	69	11	89	93	563	5	661	36	56	84	176	1581
% App. Total	2.3	80.8	16.9		10.1	77.5	12.4		14.1	85.2	0.8		20.5	31.8	47.7		
PHF	.750	.864	.603	.803	.563	.750	.688	.718	.802	.908	.417	.913	.818	.636	.724	.721	.871

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Imperial
N/S: SR-111
E/W: Worthington Road
Weather: Clear

File Name : 01_CIM_SR-111_Worthington AM
Site Code : 14320141
Start Date : 3/3/2020
Page No : 2



Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:15 AM				07:00 AM				07:15 AM			
+0 mins.	2	152	37	191	4	23	4	31	29	114	3	146	11	17	18	46
+15 mins.	5	153	46	204	1	16	4	21	15	153	2	170	10	22	29	61
+30 mins.	3	111	25	139	1	13	0	14	26	155	0	181	10	5	22	37
+45 mins.	1	162	13	176	3	20	2	25	23	141	0	164	6	20	16	42
Total Volume	11	578	121	710	9	72	10	91	93	563	5	661	37	64	85	186
% App. Total	1.5	81.4	17		9.9	79.1	11		14.1	85.2	0.8		19.9	34.4	45.7	
PHF	.550	.892	.658	.870	.563	.783	.625	.734	.802	.908	.417	.913	.841	.727	.733	.762

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Imperial
N/S: SR-111
E/W: Worthington Road
Weather: Clear

File Name : 01_CIM_SR-111_Worthington PM
Site Code : 14320141
Start Date : 3/3/2020
Page No : 1

Groups Printed- Total Volume

	SR-111 Southbound				Worthington Road Westbound				SR-111 Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	0	191	17	208	2	11	2	15	10	130	2	142	10	12	10	32	397
03:15 PM	4	193	8	205	4	22	1	27	14	148	5	167	10	8	21	39	438
03:30 PM	0	230	12	242	7	22	1	30	31	106	1	138	6	12	26	44	454
03:45 PM	3	215	13	231	2	26	1	29	15	114	0	129	5	13	25	43	432
Total	7	829	50	886	15	81	5	101	70	498	8	576	31	45	82	158	1721
04:00 PM	1	242	9	252	3	16	1	20	29	113	0	142	6	18	20	44	458
04:15 PM	3	207	10	220	7	15	2	24	23	120	0	143	8	16	13	37	424
04:30 PM	6	159	1	166	15	13	4	32	12	128	0	140	4	22	17	43	381
04:45 PM	3	244	7	254	3	13	2	18	19	104	0	123	7	13	15	35	430
Total	13	852	27	892	28	57	9	94	83	465	0	548	25	69	65	159	1693
05:00 PM	2	158	8	168	1	20	3	24	12	101	0	113	2	15	21	38	343
05:15 PM	3	217	15	235	3	15	1	19	17	118	0	135	9	10	17	36	425
05:30 PM	2	157	19	178	4	17	6	27	21	98	0	119	4	7	25	36	360
05:45 PM	1	139	27	167	1	7	1	9	26	108	0	134	10	12	14	36	346
Total	8	671	69	748	9	59	11	79	76	425	0	501	25	44	77	146	1474
Grand Total	28	2352	146	2526	52	197	25	274	229	1388	8	1625	81	158	224	463	4888
Apprch %	1.1	93.1	5.8		19	71.9	9.1		14.1	85.4	0.5		17.5	34.1	48.4		
Total %	0.6	48.1	3	51.7	1.1	4	0.5	5.6	4.7	28.4	0.2	33.2	1.7	3.2	4.6	9.5	

	SR-111 Southbound				Worthington Road Westbound				SR-111 Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:15 PM																	
03:15 PM	4	193	8	205	4	22	1	27	14	148	5	167	10	8	21	39	438
03:30 PM	0	230	12	242	7	22	1	30	31	106	1	138	6	12	26	44	454
03:45 PM	3	215	13	231	2	26	1	29	15	114	0	129	5	13	25	43	432
04:00 PM	1	242	9	252	3	16	1	20	29	113	0	142	6	18	20	44	458
Total Volume	8	880	42	930	16	86	4	106	89	481	6	576	27	51	92	170	1782
% App. Total	0.9	94.6	4.5		15.1	81.1	3.8		15.5	83.5	1		15.9	30	54.1		
PHF	.500	.909	.808	.923	.571	.827	1.00	.883	.718	.813	.300	.862	.675	.708	.885	.966	.973

EEC ORIGINAL PKG

Counts Unlimited
PO Box 1178
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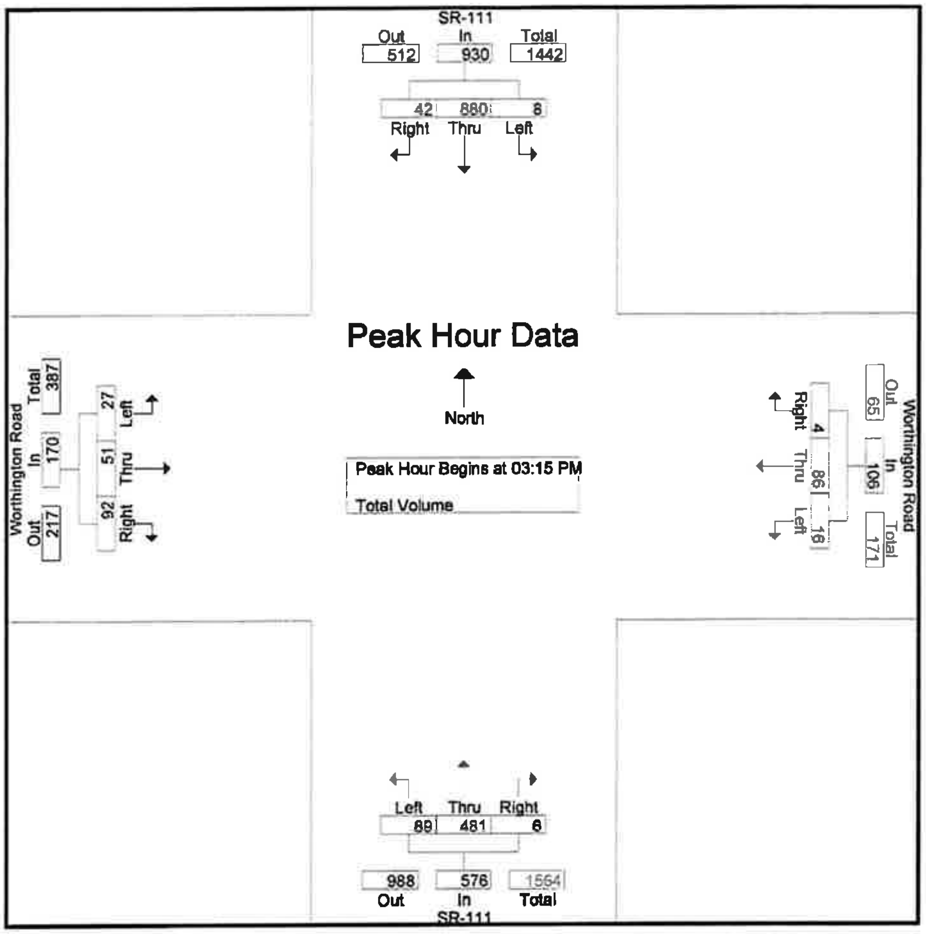
(951) 268-6268

County of Imperial
N/S: SR-111
E/W: Worthington Road
Weather: Clear

File Name : 01_CIM_SR-111_Worthington PM
Site Code : 14320141
Start Date : 3/3/2020
Page No : 2



Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:30 PM				03:15 PM				03:00 PM				03:15 PM			
+0 mins.	0	230	12	242	4	22	1	27	10	130	2	142	10	8	21	39
+15 mins.	3	215	13	231	7	22	1	30	14	148	5	167	6	12	26	44
+30 mins.	1	242	9	252	2	26	1	29	31	106	1	138	5	13	25	43
+45 mins.	3	207	10	220	3	16	1	20	15	114	0	129	6	18	20	44
Total Volume	7	894	44	945	16	86	4	106	70	498	8	576	27	51	92	170
% App. Total	0.7	94.6	4.7		15.1	81.1	3.8		12.2	86.5	1.4		15.9	30	54.1	
PHF	.583	.924	.846	.938	.571	.827	1.000	.883	.565	.841	.400	.862	.675	.708	.885	.966

Counts Unlimited
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Corona, CA 92878
(951) 268-6268

County of Imperial
N/S: Rose Lateral Two
E/W: Worthington Road
Weather: Clear

File Name : 02_CIM_Rose Lat2_Worthington AM
Site Code : 14320141
Start Date : 3/3/2020
Page No : 1

Groups Printed- Passenger Vehicles - Double Trailer with Hay - Double Trailer No Hay - Other Trucks with Hay - Shipping Containers

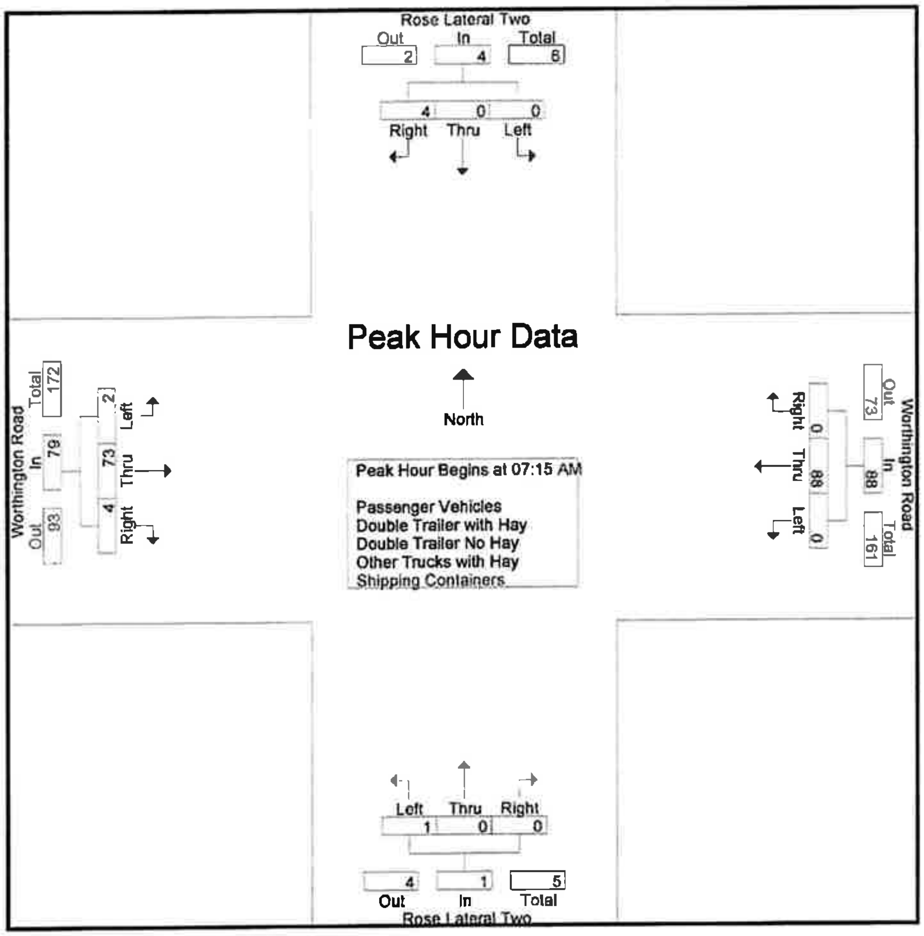
	Rose Lateral Two Southbound				Worthington Road Westbound				Rose Lateral Two Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	0	0	0	0	0	9	0	9	1	0	0	1	0	11	4	15	25
06:15 AM	0	0	0	0	0	13	0	13	1	0	0	1	0	23	4	27	41
06:30 AM	0	0	0	0	0	11	0	11	1	0	0	1	0	16	1	17	29
06:45 AM	0	0	1	1	0	11	0	11	2	0	0	2	0	13	0	13	27
Total	0	0	1	1	0	44	0	44	5	0	0	5	0	63	9	72	122
07:00 AM	0	0	0	0	0	19	0	19	2	0	0	2	1	17	1	19	40
07:15 AM	0	0	2	2	0	27	0	27	0	0	0	0	2	21	0	23	52
07:30 AM	0	0	2	2	0	24	0	24	0	0	0	0	0	23	1	24	50
07:45 AM	0	0	0	0	0	14	0	14	0	0	0	0	0	8	1	9	23
Total	0	0	4	4	0	84	0	84	2	0	0	2	3	69	3	75	165
08:00 AM	0	0	0	0	0	23	0	23	1	0	0	1	0	21	2	23	47
08:15 AM	0	0	0	0	1	18	0	19	0	0	0	0	0	15	1	16	35
08:30 AM	0	0	0	0	0	18	0	18	2	0	0	2	0	13	2	15	35
08:45 AM	0	0	0	0	0	9	0	9	2	0	0	2	0	7	0	7	18
Total	0	0	0	0	1	68	0	69	5	0	0	5	0	56	5	61	135
Grand Total	0	0	5	5	1	196	0	197	12	0	0	12	3	188	17	208	422
Apprch %	0	0	100		0.5	99.5	0		100	0	0		1.4	90.4	8.2		
Total %	0	0	1.2	1.2	0.2	46.4	0	46.7	2.8	0	0	2.8	0.7	44.5	4	49.3	
Passenger Vehicles	0	0	5	5	0	196	0	196	8	0	0	8	3	188	16	207	416
% Passenger Vehicles	0	0	100	100	0	100	0	99.5	66.7	0	0	66.7	100	100	94.1	99.5	98.6
Double Trailer with Hay	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
% Double Trailer with Hay	0	0	0	0	100	0	0	0.5	0	0	0	0	0	0	0	0	0.2
Double Trailer No Hay	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	4
% Double Trailer No Hay	0	0	0	0	0	0	0	0	33.3	0	0	33.3	0	0	0	0	0.9
Other Trucks with Hay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
% Other Trucks with Hay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.9	0.5	0.2
Shipping Containers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Shipping Containers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Rose Lateral Two Southbound				Worthington Road Westbound				Rose Lateral Two Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	2	2	0	27	0	27	0	0	0	0	2	21	0	23	52
07:30 AM	0	0	2	2	0	24	0	24	0	0	0	0	0	23	1	24	50
07:45 AM	0	0	0	0	0	14	0	14	0	0	0	0	0	8	1	9	23
08:00 AM	0	0	0	0	0	23	0	23	1	0	0	1	0	21	2	23	47
Total Volume	0	0	4	4	0	88	0	88	1	0	0	1	2	73	4	79	172
% App. Total	0	0	100		0	100	0		100	0	0		2.5	92.4	5.1		
PHF	.000	.000	.500	.500	.000	.815	.000	.815	.250	.000	.000	.250	.250	.793	.500	.823	.827

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Imperial
N/S: Rose Lateral Two
E/W: Worthington Road
Weather: Clear

File Name : 02_CIM_Rose Lat2_Worthington AM
Site Code : 14320141
Start Date : 3/3/2020
Page No : 2



Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	06:45 AM				07:15 AM				06:15 AM				06:45 AM			
+0 mins.	0	0	1	1	0	27	0	27	1	0	0	1	0	13	0	13
+15 mins.	0	0	0	0	0	24	0	24	1	0	0	1	1	17	1	19
+30 mins.	0	0	2	2	0	14	0	14	2	0	0	2	2	21	0	23
+45 mins.	0	0	2	2	0	23	0	23	2	0	0	2	0	23	1	24
Total Volume	0	0	5	5	0	88	0	88	6	0	0	6	3	74	2	79
% App. Total	0	0	100		0	100	0		100	0	0		3.8	93.7	2.5	
PHF	.000	.000	.625	.625	.000	.815	.000	.815	.750	.000	.000	.750	.375	.804	.500	.823

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County of Imperial
N/S: Rose Lateral Two
E/W: Worthington Road
Weather: Clear

File Name : 02_CIM_Rose Lat2_Worthington PM
Site Code : 14320141
Start Date : 3/3/2020
Page No : 1

Groups Printed- Passenger Vehicles - Double Trailer with Hay - Double Trailer No Hay - Other Trucks with Hay - Shipping Containers

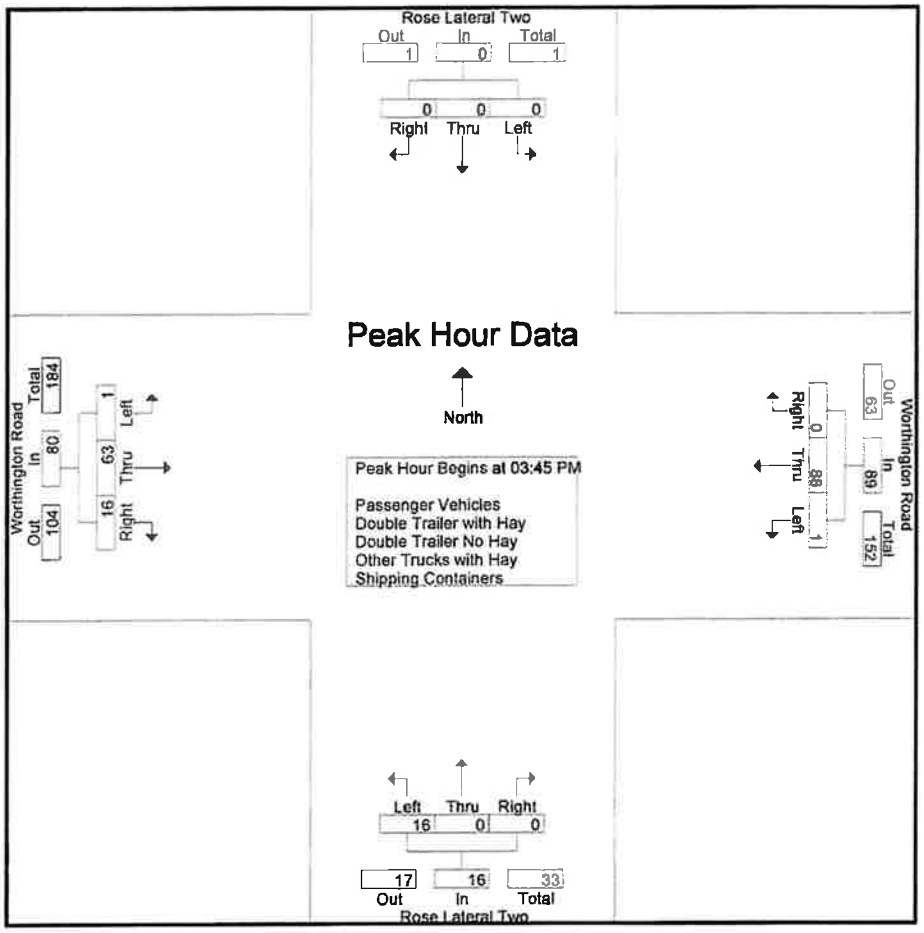
	Rose Lateral Two Southbound				Worthington Road Westbound				Rose Lateral Two Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	0	0	0	0	0	14	0	14	3	0	0	3	0	10	1	11	28
03:15 PM	0	0	0	0	1	27	0	28	2	0	0	2	0	10	5	15	45
03:30 PM	0	0	0	0	0	29	0	29	0	0	0	0	0	13	0	13	42
03:45 PM	0	0	0	0	0	25	0	25	1	0	0	1	0	18	2	20	46
Total	0	0	0	0	1	95	0	96	6	0	0	6	0	51	8	59	161
04:00 PM	0	0	0	0	0	21	0	21	0	0	0	0	1	12	5	18	39
04:15 PM	0	0	0	0	1	22	0	23	2	0	0	2	0	14	4	18	43
04:30 PM	0	0	0	0	0	20	0	20	13	0	0	13	0	19	5	24	57
04:45 PM	0	0	0	0	0	11	0	11	3	0	0	3	0	18	2	20	34
Total	0	0	0	0	1	74	0	75	18	0	0	18	1	63	16	80	173
05:00 PM	0	0	0	0	0	19	0	19	4	0	1	5	0	17	3	20	44
05:15 PM	0	0	0	0	0	19	0	19	8	0	0	8	1	12	2	15	42
05:30 PM	0	0	0	0	0	14	0	14	4	0	0	4	1	9	2	12	30
05:45 PM	0	0	0	0	0	6	0	6	2	0	0	2	0	13	0	13	21
Total	0	0	0	0	0	58	0	58	18	0	1	19	2	51	7	60	137
Grand Total	0	0	0	0	2	227	0	229	42	0	1	43	3	165	31	199	471
Apprch %	0	0	0		0.9	99.1	0		97.7	0	2.3		1.5	82.9	15.6		
Total %	0	0	0	0	0.4	48.2	0	48.6	8.9	0	0.2	9.1	0.6	35	6.6	42.3	
Passenger Vehicles	0	0	0	0	2	227	0	229	29	0	1	30	3	165	26	194	453
% Passenger Vehicles	0	0	0	0	100	100	0	100	69	0	100	69.8	100	100	83.9	97.5	96.2
Double Trailer with Hay	0	0	0	0	0	0	0	0	3	0	0	3	0	0	4	4	7
% Double Trailer with Hay	0	0	0	0	0	0	0	0	7.1	0	0	7	0	0	12.9	2	1.5
Double Trailer No Hay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Double Trailer No Hay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Trucks with Hay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Other Trucks with Hay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shipping Containers	0	0	0	0	0	0	0	0	10	0	0	10	0	0	1	1	11
% Shipping Containers	0	0	0	0	0	0	0	0	23.8	0	0	23.3	0	0	3.2	0.5	2.3

	Rose Lateral Two Southbound				Worthington Road Westbound				Rose Lateral Two Northbound				Worthington Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:45 PM																	
03:45 PM	0	0	0	0	0	25	0	25	1	0	0	1	0	18	2	20	46
04:00 PM	0	0	0	0	0	21	0	21	0	0	0	0	1	12	5	18	39
04:15 PM	0	0	0	0	1	22	0	23	2	0	0	2	0	14	4	18	43
04:30 PM	0	0	0	0	0	20	0	20	13	0	0	13	0	19	5	24	57
Total Volume	0	0	0	0	1	88	0	89	16	0	0	16	1	63	16	80	185
% App. Total	0	0	0		1.1	98.9	0		100	0	0		1.2	78.8	20		
PHF	.000	.000	.000	.000	.250	.880	.000	.890	.308	.000	.000	.308	.250	.829	.800	.833	.811

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Imperial
N/S: Rose Lateral Two
E/W: Worthington Road
Weather: Clear

File Name : 02_CIM_Rose Lat2_Worthington PM
Site Code : 14320141
Start Date : 3/3/2020
Page No : 2



Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:00 PM				03:15 PM				04:30 PM				04:15 PM			
+0 mins.	0	0	0	0	1	27	0	28	13	0	0	13	0	14	4	18
+15 mins.	0	0	0	0	0	29	0	29	3	0	0	3	0	19	5	24
+30 mins.	0	0	0	0	0	25	0	25	4	0	1	5	0	18	2	20
+45 mins.	0	0	0	0	0	21	0	21	8	0	0	8	0	17	3	20
Total Volume	0	0	0	0	1	102	0	103	28	0	1	29	0	68	14	82
% App. Total	0	0	0		1	99	0		96.6	0	3.4		0	82.9	17.1	
PHF	.000	.000	.000	.000	.250	.879	.000	.888	.538	.000	.250	.558	.000	.895	.700	.854

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

County of Imperial
Worthington Road
E/ State Route 111

File Name 001
Site Code: 143-20141
24 Hour Directional Volume Count

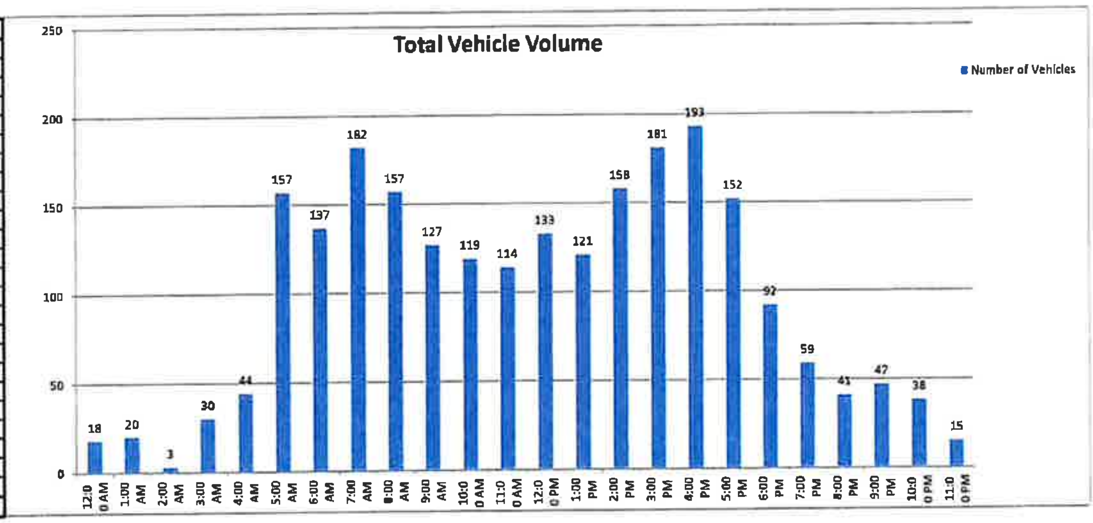
Date: 3/3/2020	Eastbound				Westbound					
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	5	18			2	22				
12:15	1	24			5	11				
12:30	0	20			3	14				
12:45	2	15	8	77	0	9	10	56	18	133
1:00	1	14			3	9				
1:15	3	11			2	16				
1:30	5	13			4	18				
1:45	0	20	9	58	2	20	11	63	20	121
2:00	0	21			0	21				
2:15	0	11			0	22				
2:30	1	26			0	18				
2:45	2	20	3	78	0	19	0	80	3	158
3:00	5	14			7	22				
3:15	5	18			4	27				
3:30	4	16			3	29				
3:45	2	32	16	80	0	23	14	101	30	181
4:00	0	20			3	17				
4:15	6	22			3	25				
4:30	9	38			7	31				
4:45	9	22	24	102	7	18	20	91	44	193
5:00	6	22			11	24				
5:15	17	19			13	31				
5:30	30	17			24	15				
5:45	36	15	89	73	20	9	68	79	157	152
6:00	21	12			11	18				
6:15	30	13			12	10				
6:30	23	16			13	8				
6:45	16	9	90	50	11	6	47	42	137	92
7:00	27	11			21	8				
7:15	29	11			26	6				
7:30	24	6			26	6				
7:45	16	8	96	36	13	3	86	23	182	59
8:00	30	8			26	2				
8:15	23	6			17	1				
8:30	18	8			23	6				
8:45	10	8	81	30	10	2	76	11	157	41
9:00	9	12			11	6				
9:15	23	7			12	3				
9:30	17	9			22	3				
9:45	16	3	65	31	17	4	62	16	127	47
10:00	16	8			13	2				
10:15	14	4			17	8				
10:30	10	7			6	4				
10:45	27	4	67	23	16	1	52	15	119	38
11:00	17	1			12	0				
11:15	8	1			10	1				
11:30	12	8			12	0				
11:45	28	1	65	11	15	3	49	4	114	15
Totals	613	649			495	581				
Combined Totals		1262				1076				
ADT										2338
AM Peak Hour	530	AM			715	AM				
Volume	117				91					
P.H.F.	0.813				0.875					
PM Peak Hour		345	PM			430	PM			
Volume		112				104				
P.H.F.		0.737				0.839				
Percentage	48.6%	51.4%			46.0%	54.0%				

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

24 Hour Volume Plot

Worthington Road
E/ State Route 111
3/3/2020

Start Time	3/3/2020
12:00 AM	18
1:00 AM	20
2:00 AM	3
3:00 AM	30
4:00 AM	44
5:00 AM	157
6:00 AM	137
7:00 AM	182
8:00 AM	157
9:00 AM	127
10:00 AM	119
11:00 AM	114
12:00 PM	133
1:00 PM	121
2:00 PM	158
3:00 PM	181
4:00 PM	193
5:00 PM	152
6:00 PM	92
7:00 PM	59
8:00 PM	41
9:00 PM	47
10:00 PM	38
11:00 PM	15
Total	2338



Volumes represent the combined totals for both directions

EEC ORIGINAL PKG

CALTRANS 2017 VOLUMES

Dist	Route	County		Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
11	111	IMP	R	12.874	WORTHINGTON ROAD	1300	17400	16900	1400	17100	15500

EEC ORIGINAL PKG

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Appendix E

Existing Intersection LOS Calculations

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	✥			✥		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	36	56	84	9	69	11	93	563	5	15	529	111
Future Volume (veh/h)	36	56	84	9	69	11	93	563	5	15	529	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	39	61	91	10	75	12	101	612	0	16	575	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	241	84	125	62	151	22	131	1961		26	1779	
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.08	0.64	0.00	0.02	0.58	0.00
Sat Flow, veh/h	1279	661	987	52	1193	176	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	39	0	152	97	0	0	101	612	0	16	575	0
Grp Sat Flow(s),veh/h/ln	1279	0	1648	1422	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	6.4	0.1	0.0	0.0	4.1	6.5	0.0	0.7	7.0	0.0
Cycle Q Clear(g_c), s	2.4	0.0	6.4	6.5	0.0	0.0	4.1	6.5	0.0	0.7	7.0	0.0
Prop In Lane	1.00		0.60	0.10		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	241	0	208	235	0	0	131	1961		26	1779	
V/C Ratio(X)	0.16	0.00	0.73	0.41	0.00	0.00	0.77	0.31		0.61	0.32	
Avail Cap(c_a), veh/h	460	0	491	525	0	0	397	1961		156	1779	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.6	0.0	30.4	29.2	0.0	0.0	32.8	5.7	0.0	35.4	7.7	0.0
Incr Delay (d2), s/veh	0.3	0.0	4.8	1.2	0.0	0.0	9.2	0.4	0.0	20.2	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	2.7	1.6	0.0	0.0	1.9	1.3	0.0	0.4	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.9	0.0	35.2	30.3	0.0	0.0	42.0	6.2	0.0	55.6	8.2	0.0
LnGrp LOS	C	A	D	C	A	A	D	A		E	A	
Approach Vol, veh/h		191			97			713	A		591	A
Approach Delay, s/veh		33.9			30.3			11.2			9.5	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	53.0		13.6	9.9	48.7		13.6				
Change Period (Y+Rc), s	4.5	6.5		4.5	4.5	6.5		4.5				
Max Green Setting (Gmax), s	6.5	46.5		21.5	16.5	36.5		21.5				
Max Q Clear Time (g_c+I1), s	2.7	8.5		8.4	6.1	9.0		8.5				
Green Ext Time (p_c), s	0.0	3.9		0.8	0.1	3.5		0.3				

Intersection Summary			
HCM 6th Ctrl Delay			14.5
HCM 6th LOS			B

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	0.4											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	2	73	4	0	88	0	1	0	0	0	0	4
Future Vol, veh/h	2	73	4	0	88	0	1	0	0	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	79	4	0	96	0	1	0	0	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	96	0	0	83	0	0	183	181	81	181	183	96
Stage 1	-	-	-	-	-	-	85	85	-	96	96	-
Stage 2	-	-	-	-	-	-	98	96	-	85	87	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1479	-	-	1495	-	-	772	708	971	774	706	952
Stage 1	-	-	-	-	-	-	916	819	-	903	810	-
Stage 2	-	-	-	-	-	-	901	810	-	916	817	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1479	-	-	1495	-	-	768	707	971	773	705	952
Mov Cap-2 Maneuver	-	-	-	-	-	-	768	707	-	773	705	-
Stage 1	-	-	-	-	-	-	915	818	-	902	810	-
Stage 2	-	-	-	-	-	-	897	810	-	915	816	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	9.7	8.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	768	1479	-	-	1495	-	-	952
HCM Lane V/C Ratio	0.001	0.001	-	-	-	-	-	0.005
HCM Control Delay (s)	9.7	7.4	0	-	0	-	-	8.8
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	✥			✥		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	27	51	92	16	86	4	89	481	6	8	880	42
Future Volume (veh/h)	27	51	92	16	86	4	89	481	6	8	880	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	29	55	100	17	93	4	97	523	0	9	957	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	219	74	134	62	145	6	125	2032		16	1842	
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.07	0.67	0.00	0.01	0.60	0.00
Sat Flow, veh/h	1268	580	1055	70	1139	44	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	29	0	155	114	0	0	97	523	0	9	957	0
Grp Sat Flow(s),veh/h/ln	1268	0	1636	1253	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	7.2	0.5	0.0	0.0	4.3	5.4	0.0	0.4	14.3	0.0
Cycle Q Clear(g_c), s	2.2	0.0	7.2	7.7	0.0	0.0	4.3	5.4	0.0	0.4	14.3	0.0
Prop In Lane	1.00		0.65	0.15		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	219	0	208	212	0	0	125	2032		16	1842	
V/C Ratio(X)	0.13	0.00	0.75	0.54	0.00	0.00	0.78	0.26		0.57	0.52	
Avail Cap(c_a), veh/h	340	0	364	372	0	0	276	2032		99	1842	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.0	0.0	33.1	32.2	0.0	0.0	35.9	5.3	0.0	38.8	9.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	5.3	2.1	0.0	0.0	10.0	0.3	0.0	28.5	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	3.1	2.1	0.0	0.0	2.0	1.1	0.0	0.3	3.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	0.0	38.4	34.4	0.0	0.0	45.9	5.6	0.0	67.3	10.0	0.0
LnGrp LOS	C	A	D	C	A	A	D	A		E	B	
Approach Vol, veh/h		184			114			620	A		966	A
Approach Delay, s/veh		37.3			34.4			11.9			10.6	
Approach LOS		D			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	59.0		14.5	10.1	54.1		14.5				
Change Period (Y+Rc), s	4.5	6.5		4.5	4.5	6.5		4.5				
Max Green Setting (Gmax), s	4.5	52.5		17.5	12.5	44.5		17.5				
Max Q Clear Time (g_c+I1), s	2.4	7.4		9.2	6.3	16.3		9.7				
Green Ext Time (p_c), s	0.0	3.3		0.6	0.1	6.6		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			15.0									
HCM 6th LOS			B									

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	1	63	16	1	88	0	16	0	0	0	0	0
Future Vol, veh/h	1	63	16	1	88	0	16	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	68	17	1	96	0	17	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	96	0	0	85	0	0	177	177	77	177	185	96
Stage 1	-	-	-	-	-	-	79	79	-	98	98	-
Stage 2	-	-	-	-	-	-	98	98	-	79	87	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1479	-	-	1493	-	-	779	711	976	779	704	952
Stage 1	-	-	-	-	-	-	922	823	-	901	808	-
Stage 2	-	-	-	-	-	-	901	808	-	922	817	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1479	-	-	1493	-	-	777	710	976	777	703	952
Mov Cap-2 Maneuver	-	-	-	-	-	-	777	710	-	777	703	-
Stage 1	-	-	-	-	-	-	921	822	-	900	807	-
Stage 2	-	-	-	-	-	-	900	807	-	921	816	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	9.7	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	777	1479	-	-	1493	-	-	-
HCM Lane V/C Ratio	0.022	0.001	-	-	0.001	-	-	-
HCM Control Delay (s)	9.7	7.4	0	-	7.4	0	-	0
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Appendix F

Hay Kingdom Trip Data, Trip Generation Calculations, and Project Details

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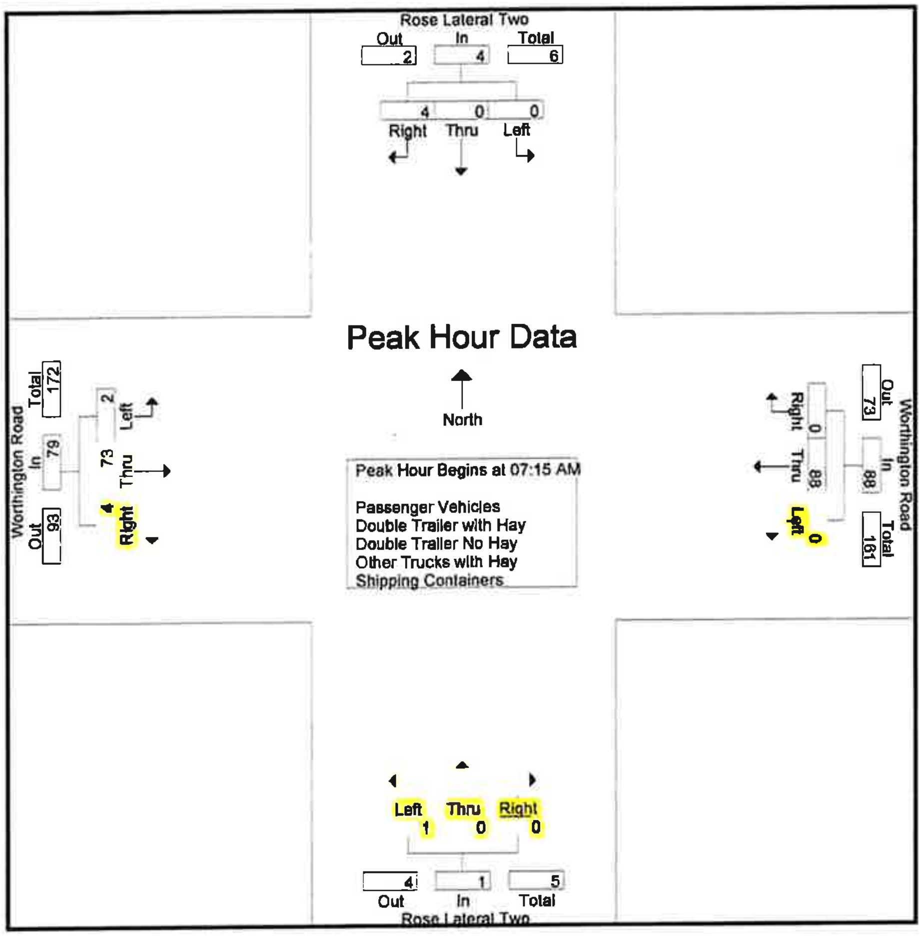
Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Imperial
N/S: Rose Lateral Two
E/W: Worthington Road
Weather: Clear

File Name : 02_CIM_Rose Lat2_Worthington AM
Site Code : 14320141
Start Date : 3/3/2020
Page No : 2



Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

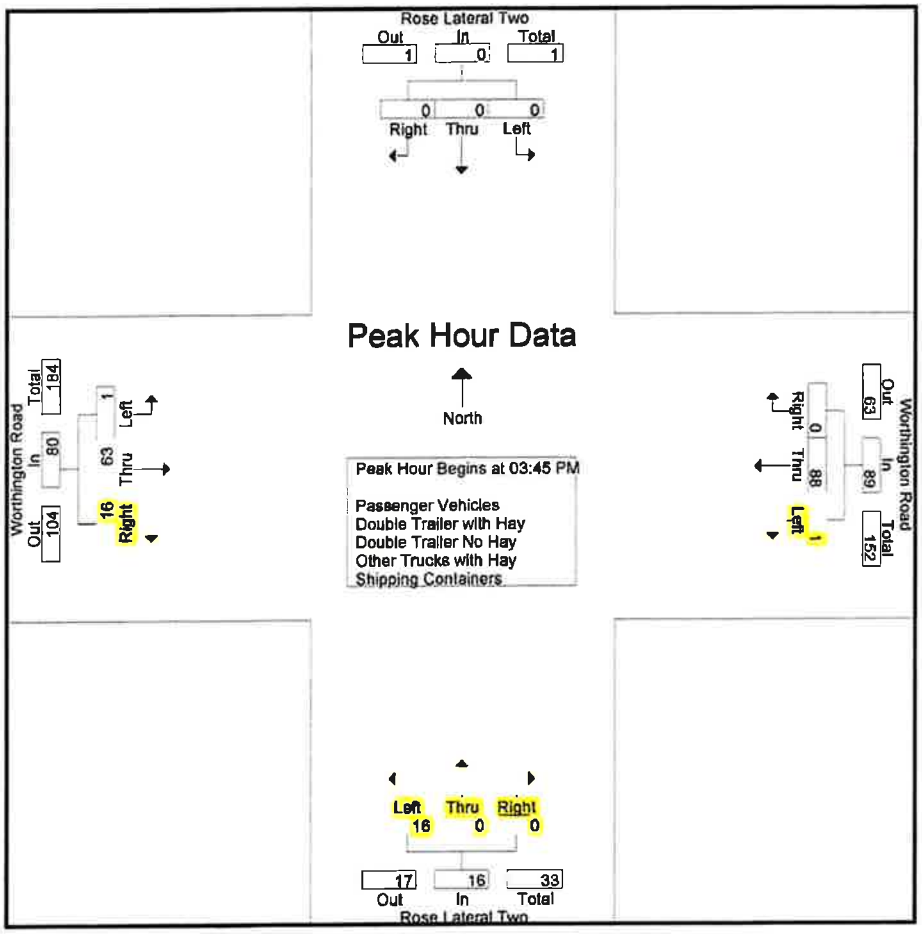
	06:45 AM				07:15 AM				06:15 AM				06:45 AM			
+0 mins.	0	0	1	1	0	27	0	27	1	0	0	1	0	13	0	13
+15 mins.	0	0	0	0	0	24	0	24	1	0	0	1	1	17	1	19
+30 mins.	0	0	2	2	0	14	0	14	2	0	0	2	2	21	0	23
+45 mins.	0	0	2	2	0	23	0	23	2	0	0	2	0	23	1	24
Total Volume	0	0	5	5	0	88	0	88	6	0	0	6	3	74	2	79
% App. Total	0	0	100		0	100	0		100	0	0		3.8	93.7	2.5	
PHF	.000	.000	.625	.625	.000	.815	.000	.815	.750	.000	.000	.750	.375	.804	.500	.823

EEC ORIGINAL PKG

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Imperial
N/S: Rose Lateral Two
E/W: Worthington Road
Weather: Clear

File Name : 02_CIM_Rose Lat2_Worthington PM
Site Code : 14320141
Start Date : 3/3/2020
Page No : 2



Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:00 PM				03:15 PM				04:30 PM				04:15 PM			
+0 mins.	0	0	0	0	1	27	0	28	13	0	0	13	0	14	4	18
+15 mins.	0	0	0	0	0	29	0	29	3	0	0	3	0	19	5	24
+30 mins.	0	0	0	0	0	25	0	25	4	0	1	5	0	18	2	20
+45 mins.	0	0	0	0	0	21	0	21	8	0	0	8	0	17	3	20
Total Volume	0	0	0	0	1	102	0	103	28	0	1	29	0	68	14	82
% App. Total	0	0	0		1	99	0		96.6	0	3.4		0	82.9	17.1	
PHF	.000	.000	.000	.000	.250	.879	.000	.888	.538	.000	.250	.558	.000	.895	.700	.854

Hay Kingdom Daily Trips and Tons of Processed Hay

Date	Total Project Vehicles Entering and Leaving Site	Processed Hay (Tons) Provided by client
July 31, 2019		
Inbound	141	
Outbound	149	
Total	290	595
August 1, 2019		
Inbound	139	
Outbound	148	
Total	287	642

Hay Kingdom Site Specific Trip Rate Calculations

Daily trip rate calcuated from site specific daily volumes collected on:

Date	Daily Volume	Tons	Rate		
7/31/2019	290	595	290/595=	0.487395	ADT/Ton
8/1/2019	287	642	287/642=	0.44704	ADT/Ton
			Average=	0.467	

Peak hour of adjacent street traffic from site specific data

	AM	
	IN	OUT
Actual Counts:	4	1
Split:	0.80	0.20
As % of 470.55 tons shipped on 3/3/20:	1%	
	PM	
	IN	OUT
Actual Counts:	17	16
Split:	0.52	0.48
As % of 470.55 tons shipped on 3/3/20:	7%	

Introduction

Hay Kingdom, Inc., is requesting a new Conditional Use Permit (CUP) that would amend existing CUP #04-0003 that was approved on June 4, 2004. The Hay Kingdom facility is a hay storage and compressing operation located on a single parcel (Assessor's Parcel Number [APN] 044-500-079-000) at 393 East Worthington Road, Imperial, CA in unincorporated Imperial County (**Figure 1**). The parcel is irregular in shape and is bordered on the west by the Rose Canal and State Route (SR) 111. The northern boundary is bordered by a tail drain ditch, the McCall Drain #5 and East Worthington Road and the eastern boundary is bordered by the Rose Lateral 2.

The facility has been operating under consecutive 3-year time extensions to the original CUP. The last three-year extension expired on June 4, 2019. However, Hay Kingdom requested and was granted a one-year time extension based on meeting all the conditions in its compliance report. Hay Kingdom was granted a new CUP to expand its operations in June 2019 based on fulfillment of a requirement to study a deceleration lane, construct the lane if needed, and dedicate the ultimate right-of-way to the County within a year.

Figure 1
Project Location Map

Existing Facilities

Hay Kingdom is owned and managed by Michael and James Lin. The facility is located on approximately 57 acres. The hay press barn (with 3 presses) occupies approximately ±30,280 square feet (less than one acre) while the rest of the site is devoted primarily to hay barns and stacking areas. The site also has a truck scale, septic tank and leach lines, truck dock/shop building, parking areas, 1.5-acre stormwater basin, overhead utilities and a 0.95-acre fire water reservoir (**Figure 2**). A 1,000-gallon aboveground diesel tank is located approximately 60-feet from the hay press and is used for fueling trucks.

Table 1 summarizes existing operations currently taking place at Hay Kingdom.

TABLE 1
EXISTING OPERATIONS

Hay Pressed (tons/day)	530 tons per day
Presses	3
Raw Hay Stored On-Site and at Stack yard	70,000 tons
Annual Raw Hay Processed	120,000 tons
Double trailer Truck Round Trips to site	15
Container Truck Trips out	15
Employee, client, vendor, passenger car round-trips	68
Working hours	6 days*
Employees	38
Dust Collector	12,000 cubic feet per minute

Source: WRA 2020.
*The hours of operation are two shifts and the working hours depend on the overtime needed to meet the production. The regular schedule as follows: Morning shift starts at 6 a.m. and ends at 4:30 p.m. The night shift starts at 6 p.m. and ends at 4:30 a.m.

Existing and Proposed Utilities

Water

Hay Kingdom receives its water from the Imperial Irrigation District (IID) Rose Canal via an existing delivery gate. Water from the Rose Canal is stored in a reservoir located along the western boundary of the site. Water from the point of entry (POE) system is used for the employees bathrooms and kitchen. A 5-gallon per minute potable water treatment plant is currently being planned for Hay Kingdom. A new monitored potable water treatment system is needed because the facility has exceeded the State's threshold of 25 employees (i.e. the facility currently has approximately 38 employees) more than 6 months of the year. The water cisterns, sand filters and pumps comprising the existing POE are located on the north end of the facility.

Fire Prevention

Fire prevention on-site is available through nine dry fire hydrants located throughout the facility. Water to feed the hydrants is held in the reservoir on the west side of the site.

Wastewater

Sanitary wastewater for employees is treated with on-site septic system including several 50-foot long leach lines, reserve area and an existing septic tank located on the northern portion of the facility, to the east of the existing office shop. A new 20-foot x 24-foot restroom facility, septic field and reserve field is proposed west of the existing truck parking and container area.

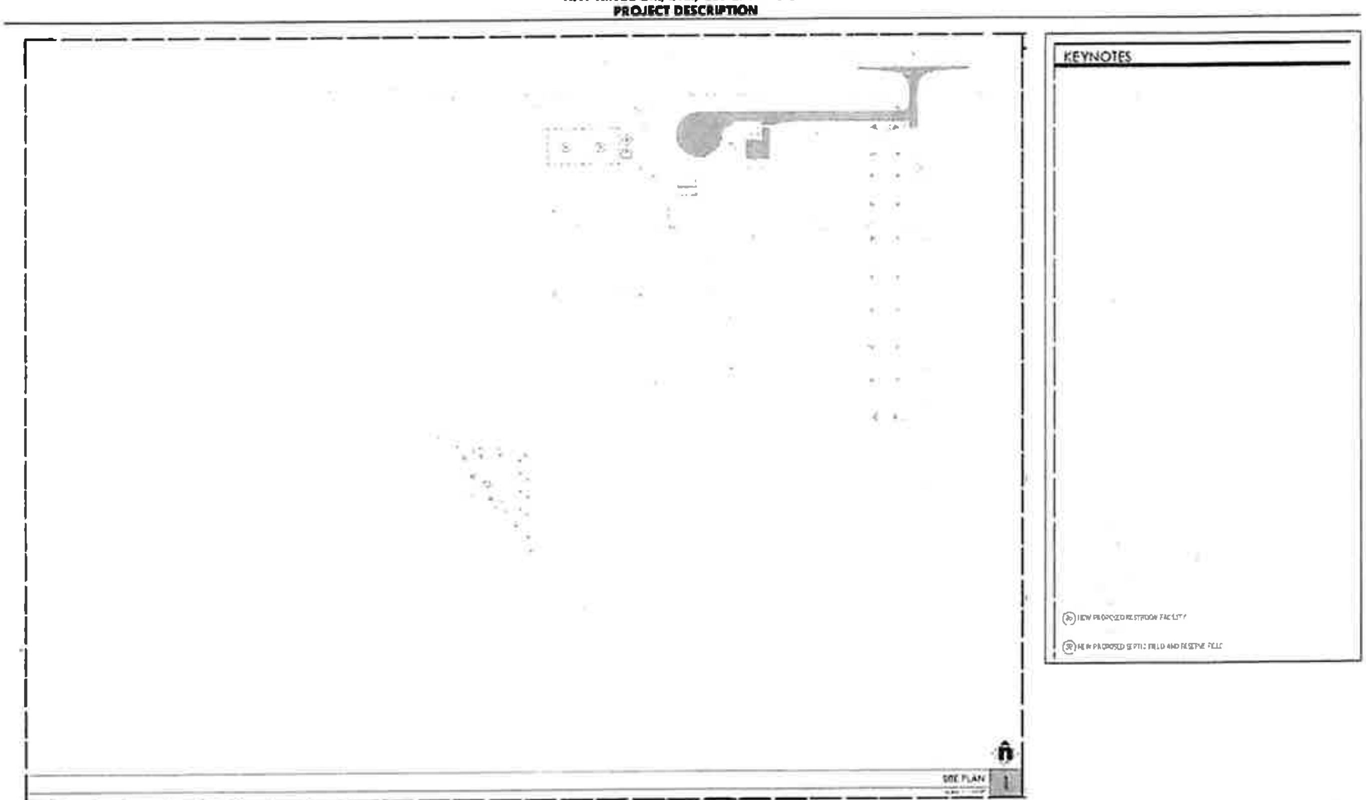


Figure 2
Project Site Plan

EEC ORIGINAL PKG

Electricity

Utilities at the facility include 480-volt electrical service from IID. A transformer is located on the west side of the hay compress building. An overhead power line extends south into the site from the north side of Worthington Road connecting to an existing service pole on the north side of truck parking and container area fed off of an IID distribution overhead line that extends east-west along Worthington Road.

Telephone

The facility has two landlines for phone service.

Production

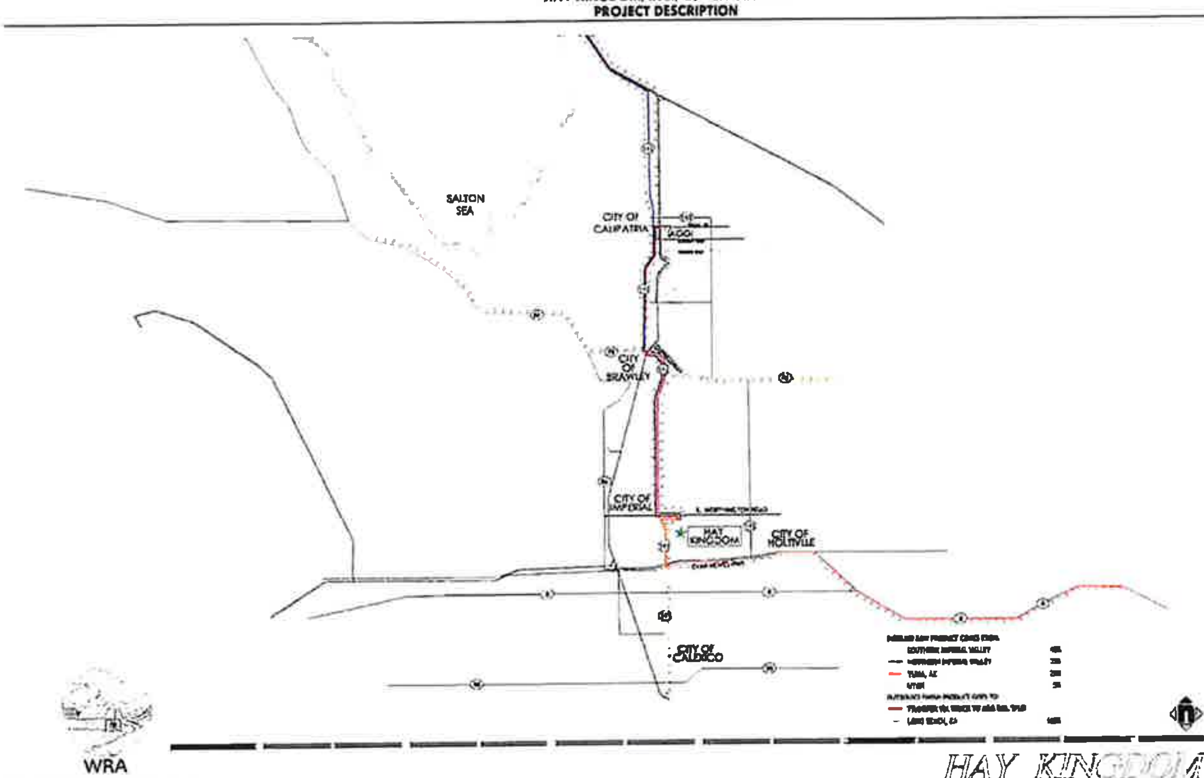
Hay Kingdom is permitted to press 530 tons of hay per day under its existing CUP. The facility currently operates six days per week, with two shifts: 6:00 a.m. to 4:30 p.m. and 6:00 p.m. to 4:30 a.m. As part of the new CUP, Hay Kingdom is proposing to increase its hay production to 1,100 tons per day (just over a two-fold increase). The amount of raw hay stored on-site and in the stackyard is proposed to remain at existing levels of 70,000 tons per day. The amount of annual raw hay processed is proposed to more than double from the existing 120,000 tons per annum to 250,000 tons per annum. Production would increase to 24-hours per day, 7 days a week, when necessary due to equipment maintenance issues.

Employees

Hay Kingdom currently employs 38 workers. Under the proposed expansion, the facility would increase the number of workers to 79.

Trucking

Trucks bring raw product to the facility from the northern and southern Imperial Valley, Yuma Arizona, and Utah. Finish product is hauled by trucks approximately 20 miles north along SR 111 to the All American Grain Rail Spur at 305 Yocum Road, Calipatria. Alternatively, hay is trucked to the Port of Long Beach via State Route 111 to State Route 86 (**Figure 3**). Trucks enter and exit the site from the main project driveway in the northeast corner of the site along East Worthington Road. An emergency secondary access is located further to the south along the western boundary of the site.



WRA
WATER, RENEWABLES
& AGRICULTURE

Figure 3
Inbound/Outbound Truck Route Map Site Plan

EEC ORIGINAL PKG

Overall Increase in Operations

Table 2 summarizes and compares existing and proposed operations that would occur under the new CUP. The change (increase) in each area is shown in the far-right column.

TABLE 2
EXISTING OPERATIONS

	Existing	Proposed	Change
Hay Pressed (tons/day)	530 tons per day	1,100 tons per day	+570 tons per day
Presses	3 presses	4 presses	+ 1 presses
Raw Hay Stored On-Site and at Stack Yard	70,000 tons	70,000 tons	No Change
Annual Raw Hay Processed	120,000 tons	250,000 tons	+130,000 tons
Double Trailer Truck Round Trips to site	15	100 peak/24 low	+85 peak/+9 low
Container Truck Trips out	15	60	+45 trips
Employee, client, vendor, passenger car round trips	86	200	+114 trips
Working hours	6 a.m. - 4:30 p.m. & 6 p.m. to 4:30 a.m./ 6 days a week	24 hours/ 7 days a week	1 additional day/ +24-hours per week
Employees	38 employees	80 employees	+42 employees
Dust Collector	12,000 cubic feet per minute		No change

Source: WRA 2020.

Permits

Hay Kingdom currently has an Authority to Construct/Permit to Operate (ATC/PTO) from the Imperial County Air Pollution Control District. A new ATC/PTO would be issued for the new CUP. A Building Permit would also be issued from the Imperial County Planning & Development Services Department and a Septic Permit would be issued from Imperial County Environmental Health Services.

Appendix G

Existing + Project Intersection LOS Calculations

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	56	84	10	69	11	93	563	7	17	529	111
Future Volume (veh/h)	36	56	84	10	69	11	93	563	7	17	529	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	39	61	91	11	75	12	101	612	0	18	575	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	241	84	125	62	148	22	131	1958		29	1780	
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.08	0.64	0.00	0.02	0.58	0.00
Sat Flow, veh/h	1279	661	987	57	1167	171	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	39	0	152	98	0	0	101	612	0	18	575	0
Grp Sat Flow(s),veh/h/ln	1279	0	1648	1394	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	6.4	0.1	0.0	0.0	4.1	6.5	0.0	0.7	7.0	0.0
Cycle Q Clear(g_c), s	2.4	0.0	6.4	6.5	0.0	0.0	4.1	6.5	0.0	0.7	7.0	0.0
Prop In Lane	1.00		0.60	0.11		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	241	0	208	232	0	0	131	1958		29	1780	
V/C Ratio(X)	0.16	0.00	0.73	0.42	0.00	0.00	0.77	0.31		0.62	0.32	
Avail Cap(c_a), veh/h	459	0	490	520	0	0	397	1958		156	1780	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.7	0.0	30.4	29.2	0.0	0.0	32.9	5.8	0.0	35.3	7.7	0.0
Incr Delay (d2), s/veh	0.3	0.0	4.8	1.2	0.0	0.0	9.3	0.4	0.0	19.3	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	2.7	1.6	0.0	0.0	1.9	1.3	0.0	0.4	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	0.0	35.3	30.5	0.0	0.0	42.1	6.2	0.0	54.6	8.2	0.0
LnGrp LOS	C	A	D	C	A	A	D	A		D	A	
Approach Vol, veh/h		191			98			713	A		593	A
Approach Delay, s/veh		34.0			30.5			11.3			9.6	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	53.0		13.6	9.9	48.8		13.6				
Change Period (Y+Rc), s	4.5	6.5		4.5	4.5	6.5		4.5				
Max Green Setting (Gmax), s	6.5	46.5		21.5	16.5	36.5		21.5				
Max Q Clear Time (g_c+I1), s	2.7	8.5		8.4	6.1	9.0		8.5				
Green Ext Time (p_c), s	0.0	3.9		0.8	0.1	3.5		0.3				

Intersection Summary			
HCM 6th Ctrl Delay			14.6
HCM 6th LOS			B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	2	73	8	0	88	0	2	0	0	0	0	4
Future Vol, veh/h	2	73	8	0	88	0	2	0	0	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	79	9	0	96	0	2	0	0	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	96	0	0	88	0	0	186	184	84	184	188	96
Stage 1	-	-	-	-	-	-	88	88	-	96	96	-
Stage 2	-	-	-	-	-	-	98	96	-	88	92	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1479	-	-	1489	-	-	768	705	967	770	701	952
Stage 1	-	-	-	-	-	-	912	816	-	903	810	-
Stage 2	-	-	-	-	-	-	901	810	-	912	813	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1479	-	-	1489	-	-	764	704	967	769	700	952
Mov Cap-2 Maneuver	-	-	-	-	-	-	764	704	-	769	700	-
Stage 1	-	-	-	-	-	-	911	816	-	902	810	-
Stage 2	-	-	-	-	-	-	897	810	-	911	812	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	9.7	8.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	764	1479	-	-	1489	-	-	952
HCM Lane V/C Ratio	0.003	0.001	-	-	-	-	-	0.005
HCM Control Delay (s)	9.7	7.4	0	-	0	-	-	8.8
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	✥			✥		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	27	51	92	27	86	12	89	481	19	16	880	42
Future Volume (veh/h)	27	51	92	27	86	12	89	481	19	16	880	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	29	55	100	29	93	13	97	523	0	17	957	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	222	83	162	73	141	17	124	1977		27	1807	
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.07	0.65	0.00	0.02	0.59	0.00
Sat Flow, veh/h	1257	580	1055	131	982	119	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	29	0	155	135	0	0	97	523	0	17	957	0
Grp Sat Flow(s),veh/h/ln	1257	0	1636	1231	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	7.3	2.1	0.0	0.0	4.4	5.9	0.0	0.8	15.1	0.0
Cycle Q Clear(g_c), s	2.5	0.0	7.3	9.3	0.0	0.0	4.4	5.9	0.0	0.8	15.1	0.0
Prop In Lane	1.00		0.65	0.21		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	222	0	235	231	0	0	124	1977		27	1807	
V/C Ratio(X)	0.13	0.00	0.66	0.58	0.00	0.00	0.78	0.26		0.62	0.53	
Avail Cap(c_a), veh/h	313	0	354	348	0	0	269	1977		97	1807	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.7	0.0	32.8	33.0	0.0	0.0	36.9	6.0	0.0	39.6	9.8	0.0
Incr Delay (d2), s/veh	0.3	0.0	3.1	2.3	0.0	0.0	10.1	0.3	0.0	20.9	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	3.0	2.7	0.0	0.0	2.1	1.3	0.0	0.5	3.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.0	0.0	35.9	35.4	0.0	0.0	47.0	6.3	0.0	60.5	10.9	0.0
LnGrp LOS	C	A	D	D	A	A	D	A		E	B	
Approach Vol, veh/h		184			135			620	A		974	A
Approach Delay, s/veh		35.1			35.4			12.7			11.7	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.8	59.0		16.1	10.3	54.5		16.1
Change Period (Y+Rc), s	4.5	6.5		4.5	4.5	6.5		4.5
Max Green Setting (Gmax), s	4.5	52.5		17.5	12.5	44.5		17.5
Max Q Clear Time (g_c+I1), s	2.8	7.9		9.3	6.4	17.1		11.3
Green Ext Time (p_c), s	0.0	3.3		0.6	0.1	6.5		0.3

Intersection Summary		
HCM 6th Ctrl Delay		16.0
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	1	63	37	1	88	0	35	0	0	0	0	0
Future Vol, veh/h	1	63	37	1	88	0	35	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	68	40	1	96	0	38	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	96	0	0	108	0	0	188	188	88	188	208	96
Stage 1	-	-	-	-	-	-	90	90	-	98	98	-
Stage 2	-	-	-	-	-	-	98	98	-	90	110	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1479	-	-	1464	-	-	766	701	962	766	684	952
Stage 1	-	-	-	-	-	-	910	815	-	901	808	-
Stage 2	-	-	-	-	-	-	901	808	-	910	799	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1479	-	-	1464	-	-	764	700	962	764	683	952
Mov Cap-2 Maneuver	-	-	-	-	-	-	764	700	-	764	683	-
Stage 1	-	-	-	-	-	-	909	814	-	900	807	-
Stage 2	-	-	-	-	-	-	900	807	-	909	798	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	10	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	764	1479	-	-	1464	-	-	-
HCM Lane V/C Ratio	0.05	0.001	-	-	0.001	-	-	-
HCM Control Delay (s)	10	7.4	0	-	7.5	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	-

Appendix H

Existing + Project + Cumulative Intersection LOS Calculations

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	✥			✥		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	38	59	88	9	72	12	98	591	5	16	555	117
Future Volume (veh/h)	38	59	88	9	72	12	98	591	5	16	555	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	41	64	96	10	78	13	107	642	0	17	603	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	240	87	130	61	156	24	138	1948		28	1755	
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.08	0.64	0.00	0.02	0.58	0.00
Sat Flow, veh/h	1274	659	989	49	1190	183	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	41	0	160	101	0	0	107	642	0	17	603	0
Grp Sat Flow(s),veh/h/ln	1274	0	1648	1422	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	6.8	0.1	0.0	0.0	4.4	7.0	0.0	0.7	7.6	0.0
Cycle Q Clear(g_c), s	2.7	0.0	6.8	6.9	0.0	0.0	4.4	7.0	0.0	0.7	7.6	0.0
Prop In Lane	1.00		0.60	0.10		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	240	0	217	241	0	0	138	1948		28	1755	
V/C Ratio(X)	0.17	0.00	0.74	0.42	0.00	0.00	0.77	0.33		0.61	0.34	
Avail Cap(c_a), veh/h	449	0	487	520	0	0	395	1948		155	1755	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.6	0.0	30.4	29.1	0.0	0.0	32.8	6.0	0.0	35.6	8.2	0.0
Incr Delay (d2), s/veh	0.3	0.0	4.9	1.2	0.0	0.0	8.8	0.5	0.0	19.8	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	2.9	1.6	0.0	0.0	2.0	1.5	0.0	0.4	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.9	0.0	35.2	30.3	0.0	0.0	41.7	6.4	0.0	55.3	8.7	0.0
LnGrp LOS	C	A	D	C	A	A	D	A		E	A	
Approach Vol, veh/h		201			101			749	A		620	A
Approach Delay, s/veh		34.0			30.3			11.5			10.0	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	53.0		14.1	10.3	48.4		14.1
Change Period (Y+Rc), s	4.5	6.5		4.5	4.5	6.5		4.5
Max Green Setting (Gmax), s	6.5	46.5		21.5	16.5	36.5		21.5
Max Q Clear Time (g_c+I1), s	2.7	9.0		8.8	6.4	9.6		8.9
Green Ext Time (p_c), s	0.0	4.2		0.8	0.1	3.7		0.3

Intersection Summary		
HCM 6th Ctrl Delay		14.8
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	2	77	4	0	92	0	1	0	0	0	0	4
Future Vol, veh/h	2	77	4	0	92	0	1	0	0	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	84	4	0	100	0	1	0	0	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	100	0	0	88	0	0	192	190	86	190	192	100
Stage 1	-	-	-	-	-	-	90	90	-	100	100	-
Stage 2	-	-	-	-	-	-	102	100	-	90	92	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1474	-	-	1489	-	-	761	699	964	763	698	947
Stage 1	-	-	-	-	-	-	910	815	-	899	806	-
Stage 2	-	-	-	-	-	-	897	806	-	910	813	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1474	-	-	1489	-	-	757	698	964	762	697	947
Mov Cap-2 Maneuver	-	-	-	-	-	-	757	698	-	762	697	-
Stage 1	-	-	-	-	-	-	909	814	-	898	806	-
Stage 2	-	-	-	-	-	-	893	806	-	909	812	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	9.8	8.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	757	1474	-	-	1489	-	-	947
HCM Lane V/C Ratio	0.001	0.001	-	-	-	-	-	0.005
HCM Control Delay (s)	9.8	7.4	0	-	0	-	-	8.8
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	54	97	17	90	4	93	505	6	8	924	44
Future Volume (veh/h)	28	54	97	17	90	4	93	505	6	8	924	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	30	59	105	18	98	4	101	549	0	9	1004	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	219	78	139	61	150	5	129	2018		16	1819	
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.07	0.66	0.00	0.01	0.60	0.00
Sat Flow, veh/h	1262	589	1048	69	1129	41	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	30	0	164	120	0	0	101	549	0	9	1004	0
Grp Sat Flow(s),veh/h/ln	1262	0	1637	1239	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	7.6	0.6	0.0	0.0	4.5	5.9	0.0	0.4	15.7	0.0
Cycle Q Clear(g_c), s	2.4	0.0	7.6	8.3	0.0	0.0	4.5	5.9	0.0	0.4	15.7	0.0
Prop In Lane	1.00		0.64	0.15		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	219	0	218	217	0	0	129	2018		16	1819	
V/C Ratio(X)	0.14	0.00	0.75	0.55	0.00	0.00	0.78	0.27		0.57	0.55	
Avail Cap(c_a), veh/h	330	0	361	365	0	0	274	2018		99	1819	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.8	0.0	33.1	32.2	0.0	0.0	36.0	5.5	0.0	39.1	9.6	0.0
Incr Delay (d2), s/veh	0.3	0.0	5.2	2.2	0.0	0.0	9.7	0.3	0.0	28.5	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	3.3	2.2	0.0	0.0	2.1	1.2	0.0	0.3	3.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	0.0	38.3	34.4	0.0	0.0	45.8	5.8	0.0	67.7	10.8	0.0
LnGrp LOS	C	A	D	C	A	A	D	A		E	B	
Approach Vol, veh/h		194			120			650	A		1013	A
Approach Delay, s/veh		37.2			34.4			12.0			11.3	
Approach LOS		D			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	59.0		15.0	10.4	53.8		15.0				
Change Period (Y+Rc), s	4.5	6.5		4.5	4.5	6.5		4.5				
Max Green Setting (Gmax), s	4.5	52.5		17.5	12.5	44.5		17.5				
Max Q Clear Time (g_c+I1), s	2.4	7.9		9.6	6.5	17.7		10.3				
Green Ext Time (p_c), s	0.0	3.5		0.6	0.1	6.9		0.3				

Intersection Summary			
HCM 6th Ctrl Delay			15.5
HCM 6th LOS			B

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	0.9											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	1	66	16	1	92	0	16	0	0	0	0	0
Future Vol, veh/h	1	66	16	1	92	0	16	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	72	17	1	100	0	17	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	100	0	0	89	0	0	185	185	81	185	193	100
Stage 1	-	-	-	-	-	-	83	83	-	102	102	-
Stage 2	-	-	-	-	-	-	102	102	-	83	91	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1474	-	-	1488	-	-	769	704	971	769	697	947
Stage 1	-	-	-	-	-	-	918	820	-	897	805	-
Stage 2	-	-	-	-	-	-	897	805	-	918	814	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1474	-	-	1488	-	-	767	703	971	767	696	947
Mov Cap-2 Maneuver	-	-	-	-	-	-	767	703	-	767	696	-
Stage 1	-	-	-	-	-	-	917	819	-	896	804	-
Stage 2	-	-	-	-	-	-	896	804	-	917	813	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	9.8	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	767	1474	-	-	1488	-	-	-
HCM Lane V/C Ratio	0.023	0.001	-	-	0.001	-	-	-
HCM Control Delay (s)	9.8	7.4	0	-	7.4	0	-	0
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	✣			✣		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	38	59	88	10	72	12	98	591	7	18	555	117
Future Volume (veh/h)	38	59	88	10	72	12	98	591	7	18	555	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	41	64	96	11	78	13	107	642	0	20	603	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	240	87	130	62	153	23	138	1943		32	1756	
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.08	0.64	0.00	0.02	0.58	0.00
Sat Flow, veh/h	1274	659	989	53	1164	178	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	41	0	160	102	0	0	107	642	0	20	603	0
Grp Sat Flow(s),veh/h/ln	1274	0	1648	1394	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	6.8	0.1	0.0	0.0	4.4	7.1	0.0	0.8	7.6	0.0
Cycle Q Clear(g_c), s	2.7	0.0	6.8	6.9	0.0	0.0	4.4	7.1	0.0	0.8	7.6	0.0
Prop In Lane	1.00		0.60	0.11		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	240	0	217	238	0	0	138	1943		32	1756	
V/C Ratio(X)	0.17	0.00	0.74	0.43	0.00	0.00	0.77	0.33		0.63	0.34	
Avail Cap(c_a), veh/h	448	0	486	514	0	0	394	1943		155	1756	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.7	0.0	30.5	29.2	0.0	0.0	32.9	6.1	0.0	35.5	8.2	0.0
Incr Delay (d2), s/veh	0.3	0.0	4.9	1.2	0.0	0.0	8.8	0.5	0.0	18.7	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	2.9	1.7	0.0	0.0	2.0	1.5	0.0	0.5	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	0.0	35.3	30.4	0.0	0.0	41.8	6.5	0.0	54.2	8.7	0.0
LnGrp LOS	C	A	D	C	A	A	D	A		D	A	
Approach Vol, veh/h		201			102			749	A		623	A
Approach Delay, s/veh		34.1			30.4			11.6			10.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	5.8	53.0	14.1	10.3	48.5	14.1
Change Period (Y+Rc), s	4.5	6.5	4.5	4.5	6.5	4.5
Max Green Setting (Gmax), s	6.5	46.5	21.5	16.5	36.5	21.5
Max Q Clear Time (g_c+I1), s	2.8	9.1	8.8	6.4	9.6	8.9
Green Ext Time (p_c), s	0.0	4.2	0.8	0.1	3.7	0.3

Intersection Summary	
HCM 6th Ctrl Delay	14.9
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	2	77	8	0	92	0	2	0	0	0	0	4
Future Vol, veh/h	2	77	8	0	92	0	2	0	0	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	84	9	0	100	0	2	0	0	0	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	100	0	0	93	0	0	195	193	89	193	197	100
Stage 1	-	-	-	-	-	-	93	93	-	100	100	-
Stage 2	-	-	-	-	-	-	102	100	-	93	97	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1474	-	-	1483	-	-	758	697	961	760	693	947
Stage 1	-	-	-	-	-	-	907	812	-	899	806	-
Stage 2	-	-	-	-	-	-	897	806	-	907	809	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1474	-	-	1483	-	-	754	696	961	759	692	947
Mov Cap-2 Maneuver	-	-	-	-	-	-	754	696	-	759	692	-
Stage 1	-	-	-	-	-	-	906	811	-	898	806	-
Stage 2	-	-	-	-	-	-	893	806	-	906	808	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	9.8	8.8
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	754	1474	-	-	1483	-	-	947
HCM Lane V/C Ratio	0.003	0.001	-	-	-	-	-	0.005
HCM Control Delay (s)	9.8	7.4	0	-	0	-	-	8.8
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	✥			✥		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	28	54	97	28	90	12	93	505	19	16	924	44
Future Volume (veh/h)	28	54	97	28	90	12	93	505	19	16	924	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	30	59	105	30	98	13	101	549	0	17	1004	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	221	88	157	73	147	17	129	1963		27	1784	
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.07	0.64	0.00	0.02	0.59	0.00
Sat Flow, veh/h	1252	589	1048	127	978	112	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	30	0	164	141	0	0	101	549	0	17	1004	0
Grp Sat Flow(s),veh/h/ln	1252	0	1637	1217	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	7.7	2.2	0.0	0.0	4.7	6.4	0.0	0.8	16.6	0.0
Cycle Q Clear(g_c), s	2.7	0.0	7.7	9.9	0.0	0.0	4.7	6.4	0.0	0.8	16.6	0.0
Prop In Lane	1.00		0.64	0.21		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	221	0	245	236	0	0	129	1963		27	1784	
V/C Ratio(X)	0.14	0.00	0.67	0.60	0.00	0.00	0.78	0.28		0.62	0.56	
Avail Cap(c_a), veh/h	303	0	352	341	0	0	267	1963		96	1784	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.6	0.0	32.7	33.0	0.0	0.0	37.1	6.3	0.0	39.9	10.4	0.0
Incr Delay (d2), s/veh	0.3	0.0	3.1	2.4	0.0	0.0	9.8	0.4	0.0	21.0	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	3.2	2.8	0.0	0.0	2.2	1.5	0.0	0.5	4.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.9	0.0	35.9	35.4	0.0	0.0	46.9	6.6	0.0	60.9	11.7	0.0
LnGrp LOS	C	A	D	D	A	A	D	A		E	B	
Approach Vol, veh/h		194			141			650	A		1021	A
Approach Delay, s/veh		35.1			35.4			12.9			12.5	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	59.0		16.7	10.6	54.2		16.7				
Change Period (Y+Rc), s	4.5	6.5		4.5	4.5	6.5		4.5				
Max Green Setting (Gmax), s	4.5	52.5		17.5	12.5	44.5		17.5				
Max Q Clear Time (g_c+I1), s	2.8	8.4		9.7	6.7	18.6		11.9				
Green Ext Time (p_c), s	0.0	3.5		0.6	0.1	6.8		0.3				

Intersection Summary		
HCM 6th Ctrl Delay		16.4
HCM 6th LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	1	66	37	1	92	0	35	0	0	0	0	0
Future Vol, veh/h	1	66	37	1	92	0	35	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	72	40	1	100	0	38	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	100	0	0	112	0	0	196	196	92	196	216	100
Stage 1	-	-	-	-	-	-	94	94	-	102	102	-
Stage 2	-	-	-	-	-	-	102	102	-	94	114	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1474	-	-	1459	-	-	757	694	957	757	677	947
Stage 1	-	-	-	-	-	-	906	811	-	897	805	-
Stage 2	-	-	-	-	-	-	897	805	-	906	796	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1474	-	-	1459	-	-	755	693	957	755	676	947
Mov Cap-2 Maneuver	-	-	-	-	-	-	755	693	-	755	676	-
Stage 1	-	-	-	-	-	-	905	810	-	896	804	-
Stage 2	-	-	-	-	-	-	896	804	-	905	794	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	10	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	755	1474	-	-	1459	-	-	-
HCM Lane V/C Ratio	0.05	0.001	-	-	0.001	-	-	-
HCM Control Delay (s)	10	7.4	0	-	7.5	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	-

Appendix I

Growth Factor Support Data

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LAND USE ELEMENT
of the Imperial County
GENERAL PLAN

Prepared by:

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County of Imperial
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Planning & Development Services Director

Approved By:

Board of Supervisors

October 17, 2006

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II. EXISTING CONDITIONS AND TRENDS

A. Preface

Knowledge, experience and reasoned expectations of future conditions determines the scope of the issues that the Land Use Element must address. This chapter includes a generalized description of existing physical, cultural, and land use features within the County, from both a historic and expected future perspective.

B. Land Use/Population

Imperial County is, and will continue for the foreseeable future to be, a predominantly agricultural area, **although in 2003 a significant increase in urbanization began to show.** Presently, approximately one-fifth (534,328) of the nearly 3 million acres of the County is irrigated for agricultural purposes. In addition, approximately 50 percent of County lands are largely undeveloped and under federal ownership. The developed area where the County's incorporated cities, 'nincorporated communities, and supporting facilities are situated comprise less than one percent of the land (see Table 1).

Imperial County Planning & Development Services Department bases its population estimates on building permits and housing unit change. From this annual compilation, the Population Research Unit of the California Department of Finance (DOF) estimates the annual change in population. According to the Department of Finance's January 1, 2006, estimates, the population for the unincorporated area is 36,166 with the total population for Imperial County being 166,585. This compares to the 1990 census results of 27,339 for the unincorporated area with the total population for the County being 109,303 and the 2000 census results of 32,772 for the unincorporated area and 147,361 for the entire County (see Table 2). According to DOF 2006 figures, the average household size county-wide is approximately 3.32 persons per household, with the average in cities being 3.42 persons per household and the average in the unincorporated area being 2.96 persons per household.

Population in the unincorporated areas of the County tends to concentrate in agricultural areas and in recreation/retirement communities. Agricultural related communities include the townsites of Heber, Niland and Seeley in the Imperial Valley. Along the Colorado River, in the eastern portion of the County, small population clusters exist within the townsites of Palo Verde and Winterhaven. Recreation/retirement communities include Ocotillo/Nomirage located in the southwest portion of the County, and Hot Mineral Spa and Bombay Beach, on the northeastern shore of the Salton Sea. The West Shores communities of Salton City, Salton Sea Beach, and Desert Shores are also largely retirement and recreation communities, though increasingly their populations are becoming more diversified. These communities experience a noticeable increase in population during the winter months when visitors converge to the area to avoid cold/wet winters in other parts of the country.

E-2. California County Population Estimates and Components of Change
Revised July 1, 2006 and Provisional July 1, 2007
Table 1.

	Total Population		Change 2006-2007		Components of Change					
County	Revised July 1, 2006	Provisional July 1, 2007	Number	Percent	Births	Deaths	Natural Increase	Net Migration	Net Immigration	Net Domestic Migration
Alameda	1,513,859	1,530,620	16,761	1.11	20,906	9,384	11,522	5,239	10,033	-4,794
Alpine	1,254	1,261	7	0.56	16	9	7	0	2	-2
Amador	38,083	38,320	237	0.62	291	418	-127	364	19	345
Butte	217,548	219,101	1,553	0.71	2,584	2,148	436	1,117	312	805
Calaveras	45,663	45,950	287	0.63	390	429	-39	326	32	294
Colusa	21,551	21,945	394	1.83	400	142	258	136	108	28
Contra Costa	1,031,012	1,044,201	13,189	1.28	13,584	6,836	6,748	6,441	4,168	2,273
Del Norte	29,009	29,207	198	0.68	374	290	84	114	25	89
El Dorado	176,969	178,689	1,720	0.97	1,981	1,250	731	989	290	699
Fresno	906,365	923,052	16,687	1.84	17,110	5,951	11,159	5,528	4,365	1,163
Glenn	28,628	29,018	390	1.36	455	249	206	184	99	85
Humboldt	131,876	132,364	488	0.37	1,605	1,255	350	138	77	61
Imperial	168,979	174,322	5,343	3.16	3,280	914	2,366	2,977	2,373	604
Inyo	18,221	18,253	32	0.18	242	239	3	29	28	1
Kern	790,246	809,903	19,657	2.49	15,446	5,406	10,040	9,617	3,114	6,503
Kings	149,883	153,268	3,385	2.26	2,742	841	1,901	1,484	564	920
Lake	63,618	63,821	203	0.32	737	850	-113	316	155	161
Lassen	35,521	36,223	702	1.98	268	209	59	643	19	624
Los Angeles	10,247,672	10,294,280	46,608	0.45	152,479	60,800	91,679	-45,071	69,567	-114,638
Madera	146,064	149,916	3,852	2.64	2,565	921	1,644	2,208	505	1,703
Marin	254,000	256,310	2,310	0.91	2,625	1,787	838	1,472	534	938
Mariposa	18,187	18,356	169	0.93	148	176	-28	197	13	184
Mendocino	89,264	89,669	405	0.45	1,137	857	280	125	238	-113
Merced	248,258	252,544	4,286	1.73	4,867	1,435	3,432	854	1,271	-417
Modoc	9,690	9,747	57	0.59	77	114	-37	94	3	91
Mono	14,019	14,055	36	0.26	167	47	120	-84	43	-127
Monterey	421,463	425,356	3,893	0.92	7,371	2,431	4,940	-1,047	2,490	-3,537
Napa	134,186	135,554	1,368	1.02	1,760	1,266	494	874	615	259
Nevada	99,248	99,587	339	0.34	773	982	-209	548	95	453
Orange	3,075,341	3,098,183	22,842	0.74	44,582	17,389	27,193	-4,351	17,584	-21,935
Placer	322,953	329,818	6,865	2.13	3,897	2,257	1,640	5,225	699	4,526
Plumas	21,013	20,891	-122	-0.58	174	226	-52	-70	29	-99
Riverside	2,004,174	2,070,315	66,141	3.30	35,144	13,539	21,605	44,536	7,898	36,638
Sacramento	1,396,496	1,415,117	18,621	1.33	21,703	9,716	11,987	6,634	5,424	1,210
San Benito	57,128	57,493	365	0.64	886	275	611	-246	245	-491
San Bernardino	2,011,404	2,039,467	28,063	1.40	35,351	12,227	23,124	4,939	6,907	-1,968
San Diego	3,077,877	3,120,088	42,211	1.37	46,460	20,298	26,162	16,049	13,067	2,982
San Francisco	806,210	817,537	11,327	1.40	8,683	6,105	2,578	8,749	9,192	-443
San Joaquin	671,115	680,183	9,068	1.35	11,880	4,392	7,488	1,580	3,572	-1,992
San Luis Obispo	264,972	267,154	2,182	0.82	2,740	2,082	658	1,524	431	1,093
San Mateo	726,260	734,453	8,193	1.13	9,667	4,626	5,041	3,152	4,820	-1,668
Santa Barbara	421,337	425,710	4,373	1.04	5,998	2,884	3,114	1,259	1,884	-625
Santa Clara	1,790,272	1,820,176	29,904	1.67	26,347	8,454	17,893	12,011	12,867	-856
Santa Cruz	262,150	265,183	3,033	1.16	3,583	1,666	1,917	1,116	1,340	-224
Shasta	180,129	181,380	1,251	0.69	2,213	1,838	375	876	107	769
Sierra	3,464	3,400	-64	-1.85	14	37	-23	-41	1	-42
Siskiyou	45,618	45,695	77	0.17	532	533	-1	78	43	35
Solano	421,815	423,970	2,155	0.51	5,909	2,668	3,241	-1,086	1,637	-2,723
Sonoma	477,615	482,034	4,419	0.93	5,874	3,836	2,038	2,381	1,226	1,155
Stanislaus	515,660	523,095	7,435	1.44	8,918	3,598	5,320	2,115	1,959	156
Sutter	92,715	95,516	2,801	3.02	1,634	725	909	1,892	871	1,021
Tehama	61,369	62,093	724	1.18	839	641	198	526	109	417
Trinity	13,959	14,012	53	0.38	124	153	-29	82	6	76
Tulare	422,594	430,974	8,380	1.98	8,633	2,668	5,965	2,415	2,106	309
Tuolumne	56,882	56,910	28	0.05	497	620	-123	151	42	109
Ventura	818,803	826,550	7,747	0.95	12,442	5,120	7,322	425	3,575	-3,150
Yolo	193,262	197,530	4,268	2.21	2,689	1,121	1,568	2,700	949	1,751
Yuba	70,053	71,612	1,559	2.23	1,376	554	822	737	184	553
California	37,332,976	37,771,431	438,455	1.17	565,169	237,884	327,285	111,170	199,931	-88,761

EEC ORIGINAL PKG

POPULATION PROJECTIONS BY RACE/ETHNICITY FOR CALIFORNIA AND ITS COUNTIES 2000-2050
REPORT 06 P-1

TABLE 1	TOTAL POPULATION					
	2000	2010	2020	2030	2040	2050
ALAMEDA	1,453,078	1,550,133	1,663,481	1,791,721	1,923,505	2,047,658
ALPINE	1,261	1,369	1,453	1,462	1,411	1,377
AMADOR	35,357	40,337	47,593	54,788	61,550	68,487
BUTTE	204,065	230,116	281,442	334,842	387,743	441,596
CALAVERAS	40,870	47,750	56,318	64,572	72,230	80,424
COLUSA	19,027	23,787	29,588	34,488	38,131	41,662
CONTRA COSTA	956,497	1,075,931	1,237,544	1,422,840	1,609,257	1,812,242
DEL NORTE	27,680	30,983	36,077	42,420	49,029	56,218
EL DORADO	158,621	189,308	221,140	247,570	280,720	314,126
FRESNO	804,508	983,478	1,201,792	1,429,228	1,670,542	1,928,411
GLENN	26,764	30,880	37,959	45,181	54,000	63,586
HUMBOLDT	126,839	134,785	142,167	147,217	150,121	152,333
IMPERIAL	143,763	189,675	239,149	283,693	334,951	387,763
INYO	18,181	19,183	20,495	22,132	23,520	25,112
KERN	665,519	871,728	1,086,113	1,352,627	1,707,239	2,106,024
KINGS	130,202	164,535	205,707	250,516	299,770	352,750
LAKE	58,724	67,530	77,912	87,066	96,885	106,887
LASSEN	34,108	37,918	42,394	47,240	51,596	55,989
LOS ANGELES	9,578,960	10,514,663	11,214,237	11,920,289	12,491,606	13,061,787
MADERA	124,696	162,114	212,874	273,456	344,455	413,569
MARIN	248,449	253,682	260,305	273,151	287,153	307,868
MARIPOSA	17,150	19,108	21,743	23,981	26,169	28,091
MENDOCINO	86,736	93,166	102,017	111,151	121,780	134,358
MERCED	211,481	273,935	348,690	439,905	541,161	652,355
MODOC	9,628	10,809	13,134	16,250	20,064	24,085
MONO	13,013	14,833	18,080	22,894	29,099	36,081
MONTEREY	404,031	433,283	476,642	529,145	584,878	646,590
NAPA	125,146	142,767	165,786	191,734	219,156	251,630
NEVADA	92,532	102,649	114,451	123,940	130,404	136,113
ORANGE	2,863,834	3,227,836	3,520,265	3,705,322	3,849,650	3,987,625
PLACER	252,223	347,543	428,535	512,509	625,964	751,208
PLUMAS	20,868	21,824	22,934	24,530	26,279	28,478
RIVERSIDE	1,559,039	2,239,053	2,904,848	3,507,498	4,103,182	4,730,922
SACRAMENTO	1,233,575	1,451,866	1,622,306	1,803,872	1,989,221	2,176,508
SAN BENITO	53,927	64,230	83,792	103,340	123,406	145,570
SAN BERNARDINO	1,721,942	2,177,596	2,581,371	2,958,939	3,309,292	3,662,193
SAN DIEGO	2,836,303	3,199,706	3,550,714	3,950,757	4,241,399	4,508,728
SAN FRANCISCO	781,209	818,163	844,466	854,675	858,532	854,852
SAN JOAQUIN	569,083	741,417	965,094	1,205,198	1,477,473	1,783,973
SAN LUIS OBISPO	248,322	269,734	293,540	316,613	338,760	364,748
SAN MATEO	711,031	736,667	761,455	786,069	807,587	819,125
SANTA BARBARA	401,115	434,497	459,498	484,570	509,920	534,447
SANTA CLARA	1,693,128	1,837,361	1,992,805	2,192,501	2,412,411	2,624,670
SANTA CRUZ	256,695	268,016	287,480	304,465	318,413	333,083
SHASTA	164,794	191,722	224,386	260,179	295,281	331,724
SIERRA	3,701	3,628	3,508	3,290	3,356	3,547
SISKIYOU	44,634	47,109	51,283	55,727	60,656	66,588
SOLANO	396,995	441,061	503,248	590,166	697,206	815,524
SONOMA	461,618	495,412	546,151	606,346	676,179	761,177
STANISLAUS	451,190	559,708	699,144	857,893	1,014,365	1,191,344
SUTTER	79,632	102,326	141,159	182,401	229,620	282,894
TEHAMA	56,130	65,593	79,484	93,477	108,345	124,475
TRINITY	13,155	15,172	18,236	22,136	26,030	30,209
TULARE	369,873	466,893	599,117	742,969	879,480	1,026,755
TUOLUMNE	54,863	58,721	64,161	67,510	70,325	73,291
VENTURA	758,884	855,876	956,392	1,049,758	1,135,684	1,229,737
YOLO	170,190	206,100	245,052	275,360	301,934	327,982
YUBA	60,598	80,411	109,216	137,322	168,040	201,327
CALIFORNIA	34,105,437	39,135,676	44,135,923	49,240,891	54,226,115	59,507,876

Department of Finance
Demographic Research Unit
2007

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COUNTY OF IMPERIAL

2000-2005 HOUSING ELEMENT

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The exception of this low density aspect can be found in the several small rural unincorporated communities such as Heber, Seeley, Niland, Salton City and Palo Verde that have the basic infrastructure (to a lesser extent) associated with the incorporated cities. These small rural communities tend to be isolated from the cities. Beyond these small rural communities and located in the agricultural lands and the desert open space areas of the unincorporated County, there is a relatively small and geographically dispersed population that lacks the infrastructure associated with either the incorporated cities or the small rural communities.

The majority of the growth that occurs in the County tends to happen in the incorporated cities or in the areas surrounding the cities. The County has essentially established urban buffer areas around all the cities and communities located in agricultural areas (Please see the "Urban Areas" illustrated in the County General Plan Land Use Map provided in Appendix A of this Element). It is these buffer areas where growth outside of the incorporated cities tends to occur. Development in these areas is accomplished through the connection of services from a neighboring city, annexation into the city, or the establishment of new services to support the development. Growth outside of the "urban area" tends to be on a single lot basis. With the exception of a few small districts, neither major subdivisions nor major developments typically occur in the unincorporated areas outside of the "urban areas" due to the County's rural character, lack of available infrastructure and the agricultural based activities.

2. County Growth Trends

The best available source of demographic information is the federal census, which is conducted once every ten years. The Population Research Unit of the California Department of Finance is the best source for annual population estimates. One problem with the federal census is that it does not take into account the seasonal population changes. Imperial County attracts many seasonal migratory workers and retired people, especially during the months of November through February.

Population Characteristics

Based on the 1990 census, the total population of Imperial County increased from 92,500 to 109,303 between 1980 and 1990, an increase of 16,803 persons or 18.2 percent. The unincorporated area increased from 24,459 to 27,339 persons in the same period of time. This 11.8 percent increase represents a population growth of 2,880 persons in the unincorporated area and highlights the lower population growth in the unincorporated areas when compared to the County as a whole. Based on April 1998 SCAG estimates, the year 2000 population of Imperial County is 148,980, with an estimated 39,422 people living in unincorporated areas.

There are a number of potential factors that may support an accelerated population growth in the near future. These factors include: growth of the geothermal industry in the County; additional prisons; an additional USA/Mexico border crossing; the possible expansion of the U.S. Naval Air Facility; and a possible regional airport.

Household Characteristics

A household is any group of people living together in a residence, whether related or unrelated. A survey of household characteristics is useful to determine household size trends, income, overcrowding or under-utilization of housing, and the number of special needs households such as large families and female-headed households.

According to the 1997 Housing Survey there were an estimated 4,388 households in the unincorporated portions of the County in 1997. Approximately 24.5 percent of the households were renter-occupied, while the remaining 75.5 percent were owner-occupied.

The average household size was estimated to be 3.45 persons per household. Further, larger households with five or more persons per household comprised 29.7 percent of the community, while three or four person households constituted 36.8 percent of the households in the unincorporated County.

As depicted in Table 1, approximately 66 percent of the owner- and renter-occupied households in the unincorporated County have annual incomes below 80 percent of the area median income, meaning 2/3 of the households are considered lower income households. In addition, Table 1 also shows that a majority of renter households have annual incomes less than 50 percent of the median income, or 60 percent of the renter households are considered very low income.

Community Development Division
Southern California Association of Governments

SCAG

2004 Regional Transportation Plan/ Growth Vision:

SOCIO-ECONOMIC FORECAST REPORT

June 2004

Counties and Subregions

Imperial County Subregion

Population and Households

Imperial County shares a border with Mexico and is primarily agricultural. The county currently has about 1 percent of the SCAG regional population and about 1 percent of the households. The 2000 July figure shows that the population is 147,000 with 39,500 households.

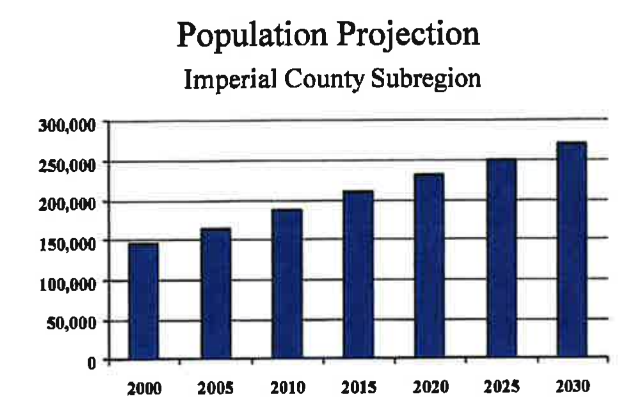


Figure 24

Imperial County's population is projected to be 270,000 in 2030, an 84 percent increase from its 2000 population. The number of households is projected to be 84,000 in 2030, up 112 percent from 2000. Based on the SCAG adopted 2004 RTP Socioeconomic Forecast, the Imperial County population and households are expected to grow at a faster pace than the regional average. Population is projected to grow at an annual rate of 2.8 percent and households are projected to grow at annual rate of 3.7 percent.

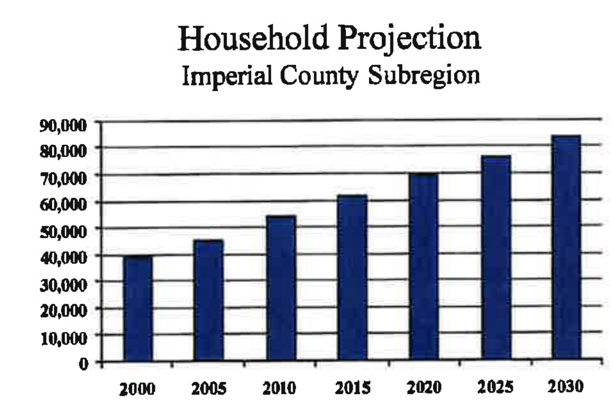


Figure 25

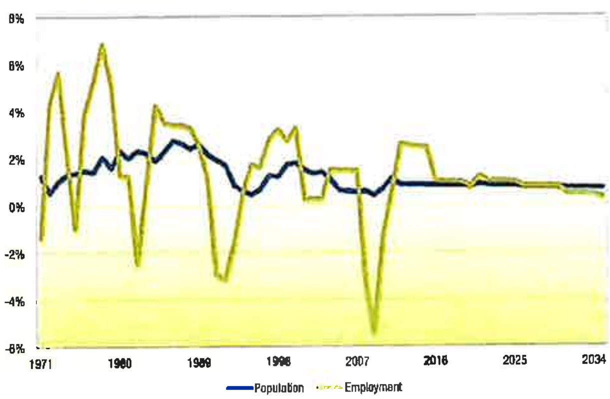
The County's rapid growth rate is primarily a result of the large Hispanic population in the county. In 2000, seventy two percent of the Imperial County population was Hispanic. Hispanics have the highest fertility rate,

GROWTH FORECAST

REGIONAL TRANSPORTATION PLAN
2012–2035 RTP
Towards a Sustainable Future

Southern California Association of Governments
ADOPTED APRIL 2012

FIGURE 13 Percent Change of Population and Employment, SCAG Region, 1970–2035



POPULATION

The slower population growth pattern experienced in the last decade is expected to continue into the future. Between 2010 and 2035, the annual population growth rate will be only 0.9 percent, which is lower than the growth rate for the past 20 years. The region will grow mainly through natural increase (see **FIGURES 16–18**).

The most salient demographic characteristics of the projected population in the region will be the aging of population and shifts in ethnic distribution (see **TABLE 5** and **FIGURES 14–15**). With the aging of the baby boomer generation (born between 1946 and 1964), the median age of the population is projected to increase from 34.2 in 2010 to 36.7 in 2035. The share of the population 65 years old and over is projected to increase from 11 percent in 2010 to 18 percent in 2035, while the share of the population less than 65 years old decreases from 89 percent in 2010 to 82 percent in 2035. In particular, the share of the population of the working age 16–64 has its share sharply decline from 65 percent to 60 percent during the projection period. This implies a future shortage of workers. With the increasing share of the older population and the decreasing share of the working age population, the aged dependency ratio (i.e., the number of aged people per hundred people of working age) is projected to increase from 17 percent in 2010 to 30 percent in 2035 (an increase of 13 percent during the period).

The other characteristic of the projected population is the racial/ethnic diversity (see **TABLE 5**). The region already has a high level of racial/ethnic diversity in 2010 with a Hispanic population of 45 percent, a non-Hispanic White population of 34 percent, a non-Hispanic Asian population and others of 14 percent, and a non-Hispanic Black population of 7 percent. The region's racial/ethnic composition is projected to exhibit a rapid change toward a majority Hispanic population of 56 percent in 2035, while the share of the non-Hispanic White population is projected to drop sharply to 22 percent.

Appendix J

Year 2025 Intersection LOS Calculations

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	64	96	10	79	13	106	642	6	17	603	127
Future Volume (veh/h)	41	64	96	10	79	13	106	642	6	17	603	127
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	45	70	104	11	86	14	115	698	0	18	655	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	239	93	138	60	165	25	148	1927		29	1718	
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.09	0.63	0.00	0.02	0.56	0.00
Sat Flow, veh/h	1264	663	985	46	1175	176	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	45	0	174	111	0	0	115	698	0	18	655	0
Grp Sat Flow(s),veh/h/ln	1264	0	1649	1397	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	7.5	0.1	0.0	0.0	4.8	8.0	0.0	0.8	8.8	0.0
Cycle Q Clear(g_c), s	3.3	0.0	7.5	7.6	0.0	0.0	4.8	8.0	0.0	0.8	8.8	0.0
Prop In Lane	1.00		0.60	0.10		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	239	0	231	250	0	0	148	1927		29	1718	
V/C Ratio(X)	0.19	0.00	0.75	0.44	0.00	0.00	0.78	0.36		0.62	0.38	
Avail Cap(c_a), veh/h	431	0	482	508	0	0	390	1927		154	1718	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.6	0.0	30.4	29.0	0.0	0.0	33.0	6.4	0.0	35.9	8.9	0.0
Incr Delay (d2), s/veh	0.4	0.0	4.9	1.2	0.0	0.0	8.4	0.5	0.0	19.5	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	3.2	1.8	0.0	0.0	2.2	1.7	0.0	0.4	2.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	0.0	35.3	30.3	0.0	0.0	41.4	7.0	0.0	55.4	9.6	0.0
LnGrp LOS	C	A	D	C	A	A	D	A		E	A	
Approach Vol, veh/h		219			111			813	A		673	A
Approach Delay, s/veh		34.0			30.3			11.8			10.8	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	53.0		14.8	10.8	48.0		14.8
Change Period (Y+Rc), s	4.5	6.5		4.5	4.5	6.5		4.5
Max Green Setting (Gmax), s	6.5	46.5		21.5	16.5	36.5		21.5
Max Q Clear Time (g_c+I1), s	2.8	10.0		9.5	6.8	10.8		9.6
Green Ext Time (p_c), s	0.0	4.6		0.9	0.2	4.0		0.4

Intersection Summary	
HCM 6th Ctrl Delay	15.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	83	4	0	100	0	1	0	0	0	0	5
Future Vol, veh/h	2	83	4	0	100	0	1	0	0	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	90	4	0	109	0	1	0	0	0	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	109	0	0	94	0	0	208	205	92	205	207	109
Stage 1	-	-	-	-	-	-	96	96	-	109	109	-
Stage 2	-	-	-	-	-	-	112	109	-	96	98	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1463	-	-	1481	-	-	743	686	957	746	684	937
Stage 1	-	-	-	-	-	-	903	810	-	889	799	-
Stage 2	-	-	-	-	-	-	886	799	-	903	808	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1463	-	-	1481	-	-	738	685	957	745	683	937
Mov Cap-2 Maneuver	-	-	-	-	-	-	738	685	-	745	683	-
Stage 1	-	-	-	-	-	-	902	809	-	888	799	-
Stage 2	-	-	-	-	-	-	881	799	-	902	807	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	9.9	8.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	738	1463	-	-	1481	-	-	937
HCM Lane V/C Ratio	0.001	0.001	-	-	-	-	-	0.006
HCM Control Delay (s)	9.9	7.5	0	-	0	-	-	8.9
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	58	105	18	98	5	101	548	7	9	1003	48
Future Volume (veh/h)	31	58	105	18	98	5	101	548	7	9	1003	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	34	63	114	20	107	5	110	596	0	10	1090	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	218	84	151	62	159	7	140	1992		17	1776	
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.08	0.65	0.00	0.01	0.58	0.00
Sat Flow, veh/h	1250	582	1054	70	1111	46	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	34	0	177	132	0	0	110	596	0	10	1090	0
Grp Sat Flow(s),veh/h/ln	1250	0	1636	1227	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	8.3	0.9	0.0	0.0	5.0	6.8	0.0	0.5	18.7	0.0
Cycle Q Clear(g_c), s	3.0	0.0	8.3	9.2	0.0	0.0	5.0	6.8	0.0	0.5	18.7	0.0
Prop In Lane	1.00		0.64	0.15		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	218	0	235	228	0	0	140	1992		17	1776	
V/C Ratio(X)	0.16	0.00	0.75	0.58	0.00	0.00	0.78	0.30		0.58	0.61	
Avail Cap(c_a), veh/h	311	0	357	352	0	0	271	1992		97	1776	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.8	0.0	33.0	32.2	0.0	0.0	36.2	6.0	0.0	39.6	10.9	0.0
Incr Delay (d2), s/veh	0.3	0.0	4.9	2.3	0.0	0.0	9.2	0.4	0.0	26.9	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	3.5	2.5	0.0	0.0	2.3	1.5	0.0	0.3	4.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	0.0	37.9	34.5	0.0	0.0	45.5	6.4	0.0	66.5	12.5	0.0
LnGrp LOS	C	A	D	C	A	A	D	A		E	B	
Approach Vol, veh/h		211			132			706	A		1100	A
Approach Delay, s/veh		36.8			34.5			12.5			13.0	
Approach LOS		D			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	59.0		16.0	11.0	53.3		16.0				
Change Period (Y+Rc), s	4.5	6.5		4.5	4.5	6.5		4.5				
Max Green Setting (Gmax), s	4.5	52.5		17.5	12.5	44.5		17.5				
Max Q Clear Time (g_c+I1), s	2.5	8.8		10.3	7.0	20.7		11.2				
Green Ext Time (p_c), s	0.0	3.8		0.6	0.1	7.4		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			16.5									
HCM 6th LOS			B									

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

EEC ORIGINAL PKG

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	1	72	16	1	100	0	16	0	0	0	0	0
Future Vol, veh/h	1	72	16	1	100	0	16	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	78	17	1	109	0	17	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	109	0	0	95	0	0	200	200	87	200	208	109
Stage 1	-	-	-	-	-	-	89	89	-	111	111	-
Stage 2	-	-	-	-	-	-	111	111	-	89	97	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1463	-	-	1480	-	-	752	691	963	752	684	937
Stage 1	-	-	-	-	-	-	911	815	-	887	798	-
Stage 2	-	-	-	-	-	-	887	798	-	911	809	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1463	-	-	1480	-	-	750	690	963	750	683	937
Mov Cap-2 Maneuver	-	-	-	-	-	-	750	690	-	750	683	-
Stage 1	-	-	-	-	-	-	910	814	-	886	797	-
Stage 2	-	-	-	-	-	-	886	797	-	910	808	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	9.9	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	750	1463	-	-	1480	-	-	-
HCM Lane V/C Ratio	0.023	0.001	-	-	0.001	-	-	-
HCM Control Delay (s)	9.9	7.5	0	-	7.4	0	-	0
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Appendix K

Year 2025 + Project Intersection LOS Calculations

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	✥			✥		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	41	64	96	11	79	13	106	642	8	19	603	127
Future Volume (veh/h)	41	64	96	11	79	13	106	642	8	19	603	127
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	45	70	104	12	86	14	115	698	0	21	655	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	239	93	138	61	161	24	148	1922		33	1720	
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.09	0.63	0.00	0.02	0.56	0.00
Sat Flow, veh/h	1264	663	985	50	1150	171	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	45	0	174	112	0	0	115	698	0	21	655	0
Grp Sat Flow(s),veh/h/ln	1264	0	1649	1371	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	7.5	0.2	0.0	0.0	4.8	8.1	0.0	0.9	8.8	0.0
Cycle Q Clear(g_c), s	3.3	0.0	7.5	7.6	0.0	0.0	4.8	8.1	0.0	0.9	8.8	0.0
Prop In Lane	1.00		0.60	0.11		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	239	0	231	246	0	0	148	1922		33	1720	
V/C Ratio(X)	0.19	0.00	0.75	0.46	0.00	0.00	0.78	0.36		0.64	0.38	
Avail Cap(c_a), veh/h	430	0	481	502	0	0	389	1922		153	1720	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.7	0.0	30.5	29.1	0.0	0.0	33.0	6.5	0.0	35.9	8.9	0.0
Incr Delay (d2), s/veh	0.4	0.0	4.9	1.3	0.0	0.0	8.4	0.5	0.0	18.6	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	3.2	1.8	0.0	0.0	2.2	1.8	0.0	0.5	2.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	0.0	35.4	30.4	0.0	0.0	41.5	7.1	0.0	54.5	9.5	0.0
LnGrp LOS	C	A	D	C	A	A	D	A		D	A	
Approach Vol, veh/h		219			112			813	A		676	A
Approach Delay, s/veh		34.1			30.4			11.9			10.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	5.9	53.0	14.8	10.8	48.1	14.8
Change Period (Y+Rc), s	4.5	6.5	4.5	4.5	6.5	4.5
Max Green Setting (Gmax), s	6.5	46.5	21.5	16.5	36.5	21.5
Max Q Clear Time (g_c+I1), s	2.9	10.1	9.5	6.8	10.8	9.6
Green Ext Time (p_c), s	0.0	4.6	0.9	0.2	4.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Vol, veh/h	2	83	8	0	100	0	2	0	0	0	0	5
Future Vol, veh/h	2	83	8	0	100	0	2	0	0	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	90	9	0	109	0	2	0	0	0	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	109	0	0	99	0	0	211	208	95	208	212	109
Stage 1	-	-	-	-	-	-	99	99	-	109	109	-
Stage 2	-	-	-	-	-	-	112	109	-	99	103	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1463	-	-	1475	-	-	740	684	953	743	680	937
Stage 1	-	-	-	-	-	-	900	807	-	889	799	-
Stage 2	-	-	-	-	-	-	886	799	-	900	804	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1463	-	-	1475	-	-	735	683	953	742	679	937
Mov Cap-2 Maneuver	-	-	-	-	-	-	735	683	-	742	679	-
Stage 1	-	-	-	-	-	-	899	806	-	888	799	-
Stage 2	-	-	-	-	-	-	881	799	-	899	803	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	9.9	8.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	735	1463	-	-	1475	-	-	937
HCM Lane V/C Ratio	0.003	0.001	-	-	-	-	-	0.006
HCM Control Delay (s)	9.9	7.5	0	-	0	-	-	8.9
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	✥			✥		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	31	58	105	29	98	13	101	548	20	17	1003	48
Future Volume (veh/h)	31	58	105	29	98	13	101	548	20	17	1003	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	34	63	114	32	107	14	110	596	0	18	1090	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	221	93	169	73	156	18	140	1936		28	1741	
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.08	0.64	0.00	0.02	0.57	0.00
Sat Flow, veh/h	1240	582	1054	123	970	110	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	34	0	177	153	0	0	110	596	0	18	1090	0
Grp Sat Flow(s),veh/h/ln	1240	0	1636	1204	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	8.4	2.6	0.0	0.0	5.1	7.3	0.0	0.8	19.7	0.0
Cycle Q Clear(g_c), s	3.3	0.0	8.4	11.0	0.0	0.0	5.1	7.3	0.0	0.8	19.7	0.0
Prop In Lane	1.00		0.64	0.21		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	221	0	263	246	0	0	140	1936		28	1741	
V/C Ratio(X)	0.15	0.00	0.67	0.62	0.00	0.00	0.79	0.31		0.63	0.63	
Avail Cap(c_a), veh/h	284	0	347	329	0	0	263	1936		95	1741	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.5	0.0	32.6	33.0	0.0	0.0	37.3	6.8	0.0	40.4	11.8	0.0
Incr Delay (d2), s/veh	0.3	0.0	3.2	2.6	0.0	0.0	9.3	0.4	0.0	20.8	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	3.5	3.1	0.0	0.0	2.4	1.7	0.0	0.5	5.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.8	0.0	35.9	35.6	0.0	0.0	46.6	7.2	0.0	61.2	13.5	0.0
LnGrp LOS	C	A	D	D	A	A	D	A		E	B	
Approach Vol, veh/h		211			153			706	A		1108	A
Approach Delay, s/veh		35.1			35.6			13.4			14.3	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.9	59.0		17.8	11.1	53.7		17.8
Change Period (Y+Rc), s	4.5	6.5		4.5	4.5	6.5		4.5
Max Green Setting (Gmax), s	4.5	52.5		17.5	12.5	44.5		17.5
Max Q Clear Time (g_c+I1), s	2.8	9.3		10.4	7.1	21.7		13.0
Green Ext Time (p_c), s	0.0	3.8		0.6	0.1	7.3		0.3

Intersection Summary	
HCM 6th Ctrl Delay	17.5
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	72	37	1	100	0	35	0	0	0	0	0
Future Vol, veh/h	1	72	37	1	100	0	35	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	78	40	1	109	0	38	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	109	0	0	118	0	0	211	211	98	211	231	109
Stage 1	-	-	-	-	-	-	100	100	-	111	111	-
Stage 2	-	-	-	-	-	-	111	111	-	100	120	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1463	-	-	1452	-	-	740	681	950	740	664	937
Stage 1	-	-	-	-	-	-	899	806	-	887	798	-
Stage 2	-	-	-	-	-	-	887	798	-	899	791	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1463	-	-	1452	-	-	739	680	950	739	663	937
Mov Cap-2 Maneuver	-	-	-	-	-	-	739	680	-	739	663	-
Stage 1	-	-	-	-	-	-	898	805	-	886	797	-
Stage 2	-	-	-	-	-	-	886	797	-	898	790	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	10.1	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	739	1463	-	-	1452	-	-	-
HCM Lane V/C Ratio	0.051	0.001	-	-	0.001	-	-	-
HCM Control Delay (s)	10.1	7.5	0	-	7.5	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	-

Appendix L

Year 2025 + Project + Cumulative Intersection LOS Calculations

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	✣			✣		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	43	67	100	10	82	14	111	670	6	18	629	133
Future Volume (veh/h)	43	67	100	10	82	14	111	670	6	18	629	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	47	73	109	11	89	15	121	728	0	20	684	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	238	96	143	60	170	26	155	1912		32	1696	
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.09	0.63	0.00	0.02	0.56	0.00
Sat Flow, veh/h	1260	661	987	44	1170	182	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	47	0	182	115	0	0	121	728	0	20	684	0
Grp Sat Flow(s),veh/h/ln	1260	0	1648	1395	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	7.9	0.2	0.0	0.0	5.0	8.7	0.0	0.8	9.5	0.0
Cycle Q Clear(g_c), s	3.6	0.0	7.9	8.0	0.0	0.0	5.0	8.7	0.0	0.8	9.5	0.0
Prop In Lane	1.00		0.60	0.10		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	238	0	239	256	0	0	155	1912		32	1696	
V/C Ratio(X)	0.20	0.00	0.76	0.45	0.00	0.00	0.78	0.38		0.63	0.40	
Avail Cap(c_a), veh/h	420	0	478	502	0	0	387	1912		153	1696	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.6	0.0	30.4	29.0	0.0	0.0	33.0	6.8	0.0	36.1	9.4	0.0
Incr Delay (d2), s/veh	0.4	0.0	5.0	1.2	0.0	0.0	8.2	0.6	0.0	18.9	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	3.3	1.9	0.0	0.0	2.3	1.9	0.0	0.5	2.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	0.0	35.4	30.2	0.0	0.0	41.2	7.3	0.0	55.0	10.1	0.0
LnGrp LOS	C	A	D	C	A	A	D	A		E	B	
Approach Vol, veh/h		229			115			849	A		704	A
Approach Delay, s/veh		34.1			30.2			12.2			11.4	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.8	53.0		15.2	11.1	47.7		15.2
Change Period (Y+Rc), s	4.5	6.5		4.5	4.5	6.5		4.5
Max Green Setting (Gmax), s	6.5	46.5		21.5	16.5	36.5		21.5
Max Q Clear Time (g_c+I1), s	2.8	10.7		9.9	7.0	11.5		10.0
Green Ext Time (p_c), s	0.0	4.8		0.9	0.2	4.2		0.4

Intersection Summary	
HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+			+			+	
Traffic Vol, veh/h	2	87	4	0	104	0	1	0	0	0	0	5
Future Vol, veh/h	2	87	4	0	104	0	1	0	0	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	95	4	0	113	0	1	0	0	0	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	113	0	0	99	0	0	217	214	97	214	216	113
Stage 1	-	-	-	-	-	-	101	101	-	113	113	-
Stage 2	-	-	-	-	-	-	116	113	-	101	103	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1458	-	-	1475	-	-	733	678	951	736	677	932
Stage 1	-	-	-	-	-	-	898	806	-	885	796	-
Stage 2	-	-	-	-	-	-	881	796	-	898	804	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1458	-	-	1475	-	-	728	677	951	735	676	932
Mov Cap-2 Maneuver	-	-	-	-	-	-	728	677	-	735	676	-
Stage 1	-	-	-	-	-	-	897	805	-	884	796	-
Stage 2	-	-	-	-	-	-	876	796	-	897	803	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	10	8.9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	728	1458	-	-	1475	-	-	932
HCM Lane V/C Ratio	0.001	0.001	-	-	-	-	-	0.006
HCM Control Delay (s)	10	7.5	0	-	0	-	-	8.9
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	✣			✣		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	32	61	110	19	102	5	105	572	7	9	1047	50
Future Volume (veh/h)	32	61	110	19	102	5	105	572	7	9	1047	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	35	66	120	21	111	5	114	622	0	10	1138	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	217	87	157	62	163	7	145	1978		17	1755	
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.08	0.65	0.00	0.01	0.58	0.00
Sat Flow, veh/h	1246	580	1055	69	1096	44	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	35	0	186	137	0	0	114	622	0	10	1138	0
Grp Sat Flow(s),veh/h/ln	1246	0	1636	1209	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	8.8	1.0	0.0	0.0	5.2	7.3	0.0	0.5	20.4	0.0
Cycle Q Clear(g_c), s	3.3	0.0	8.8	9.8	0.0	0.0	5.2	7.3	0.0	0.5	20.4	0.0
Prop In Lane	1.00		0.65	0.15		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	217	0	244	232	0	0	145	1978		17	1755	
V/C Ratio(X)	0.16	0.00	0.76	0.59	0.00	0.00	0.79	0.31		0.58	0.65	
Avail Cap(c_a), veh/h	301	0	354	344	0	0	269	1978		97	1755	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.7	0.0	33.0	32.1	0.0	0.0	36.4	6.3	0.0	39.9	11.6	0.0
Incr Delay (d2), s/veh	0.3	0.0	5.7	2.4	0.0	0.0	9.1	0.4	0.0	26.9	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	3.8	2.6	0.0	0.0	2.4	1.6	0.0	0.3	5.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.0	0.0	38.8	34.5	0.0	0.0	45.4	6.7	0.0	66.8	13.5	0.0
LnGrp LOS	C	A	D	C	A	A	D	A		E	B	
Approach Vol, veh/h		221			137			736	A		1148	A
Approach Delay, s/veh		37.5			34.5			12.7			13.9	
Approach LOS		D			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	59.0		16.6	11.2	53.1		16.6
Change Period (Y+Rc), s	4.5	6.5		4.5	4.5	6.5		4.5
Max Green Setting (Gmax), s	4.5	52.5		17.5	12.5	44.5		17.5
Max Q Clear Time (g_c+I1), s	2.5	9.3		10.8	7.2	22.4		11.8
Green Ext Time (p_c), s	0.0	4.0		0.6	0.1	7.6		0.3

Intersection Summary	
HCM 6th Ctrl Delay	17.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	1	75	16	1	104	0	16	0	0	0	0	0
Future Vol, veh/h	1	75	16	1	104	0	16	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	82	17	1	113	0	17	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	113	0	0	99	0	0	208	208	91	208	216	113
Stage 1	-	-	-	-	-	-	93	93	-	115	115	-
Stage 2	-	-	-	-	-	-	115	115	-	93	101	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1458	-	-	1475	-	-	743	684	958	743	677	932
Stage 1	-	-	-	-	-	-	907	812	-	883	795	-
Stage 2	-	-	-	-	-	-	883	795	-	907	806	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1458	-	-	1475	-	-	742	683	958	742	676	932
Mov Cap-2 Maneuver	-	-	-	-	-	-	742	683	-	742	676	-
Stage 1	-	-	-	-	-	-	906	811	-	882	794	-
Stage 2	-	-	-	-	-	-	882	794	-	906	805	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	10	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	742	1458	-	-	1475	-	-	-
HCM Lane V/C Ratio	0.023	0.001	-	-	0.001	-	-	-
HCM Control Delay (s)	10	7.5	0	-	7.4	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	✥			✥		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	43	67	100	11	82	14	111	670	8	20	629	133
Future Volume (veh/h)	43	67	100	11	82	14	111	670	8	20	629	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	47	73	109	12	89	15	121	728	0	22	684	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	238	96	143	60	166	26	155	1909		34	1697	
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.09	0.63	0.00	0.02	0.56	0.00
Sat Flow, veh/h	1260	681	987	47	1145	177	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	47	0	182	116	0	0	121	728	0	22	684	0
Grp Sat Flow(s),veh/h/ln	1260	0	1648	1369	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	7.9	0.2	0.0	0.0	5.1	8.7	0.0	0.9	9.5	0.0
Cycle Q Clear(g_c), s	3.6	0.0	7.9	8.1	0.0	0.0	5.1	8.7	0.0	0.9	9.5	0.0
Prop In Lane	1.00		0.60	0.10		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	238	0	239	252	0	0	155	1909		34	1697	
V/C Ratio(X)	0.20	0.00	0.76	0.46	0.00	0.00	0.78	0.38		0.64	0.40	
Avail Cap(c_a), veh/h	420	0	477	497	0	0	387	1909		152	1697	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	28.7	0.0	30.5	29.1	0.0	0.0	33.1	6.8	0.0	36.1	9.4	0.0
Incr Delay (d2), s/veh	0.4	0.0	5.0	1.3	0.0	0.0	8.2	0.6	0.0	18.4	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	3.3	1.9	0.0	0.0	2.3	1.9	0.0	0.5	2.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.1	0.0	35.5	30.4	0.0	0.0	41.3	7.4	0.0	54.6	10.1	0.0
LnGrp LOS	C	A	D	C	A	A	D	A		D	B	
Approach Vol, veh/h		229			116			849	A		706	A
Approach Delay, s/veh		34.2			30.4			12.2			11.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	53.0		15.3	11.1	47.8		15.3
Change Period (Y+Rc), s	4.5	6.5		4.5	4.5	6.5		4.5
Max Green Setting (Gmax), s	6.5	46.5		21.5	16.5	36.5		21.5
Max Q Clear Time (g_c+I1), s	2.9	10.7		9.9	7.1	11.5		10.1
Green Ext Time (p_c), s	0.0	4.8		0.9	0.2	4.2		0.4

Intersection Summary	
HCM 6th Ctrl Delay	15.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		+			+			+			+	
Traffic Vol, veh/h	2	87	8	0	104	0	2	0	0	0	0	5
Future Vol, veh/h	2	87	8	0	104	0	2	0	0	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	2	95	9	0	113	0	2	0	0	0	0	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	113	0	0	104	0	0	220	217	100	217	221	113
Stage 1	-	-	-	-	-	-	104	104	-	113	113	-
Stage 2	-	-	-	-	-	-	116	113	-	104	108	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1458	-	-	1469	-	-	730	676	947	733	672	932
Stage 1	-	-	-	-	-	-	894	803	-	885	796	-
Stage 2	-	-	-	-	-	-	881	796	-	894	800	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1458	-	-	1469	-	-	725	675	947	732	671	932
Mov Cap-2 Maneuver	-	-	-	-	-	-	725	675	-	732	671	-
Stage 1	-	-	-	-	-	-	893	802	-	884	796	-
Stage 2	-	-	-	-	-	-	876	796	-	893	789	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	10	8.9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	725	1458	-	-	1469	-	-	932
HCM Lane V/C Ratio	0.003	0.001	-	-	-	-	-	0.006
HCM Control Delay (s)	10	7.5	0	-	0	-	-	8.9
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

EEC ORIGINAL PKG

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	✣			✣		↰	↑↑	↱	↰	↑↑	↱
Traffic Volume (veh/h)	32	61	110	30	102	13	105	572	20	17	1047	50
Future Volume (veh/h)	32	61	110	30	102	13	105	572	20	17	1047	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1826	1826	1826	1826	1826	1826	1604	1826	1826	1604	1826
Adj Flow Rate, veh/h	35	66	120	33	111	14	114	622	0	18	1138	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	5	20	5	5	20	5
Cap, veh/h	220	97	176	72	160	17	145	1922		28	1719	
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.08	0.63	0.00	0.02	0.56	0.00
Sat Flow, veh/h	1236	580	1055	120	961	105	1739	3047	1547	1739	3047	1547
Grp Volume(v), veh/h	35	0	186	158	0	0	114	622	0	18	1138	0
Grp Sat Flow(s),veh/h/ln	1236	0	1636	1186	0	0	1739	1523	1547	1739	1523	1547
Q Serve(g_s), s	0.0	0.0	8.9	2.7	0.0	0.0	5.4	7.9	0.0	0.9	21.6	0.0
Cycle Q Clear(g_c), s	3.5	0.0	8.9	11.6	0.0	0.0	5.4	7.9	0.0	0.9	21.6	0.0
Prop In Lane	1.00		0.65	0.21		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	220	0	272	250	0	0	145	1922		28	1719	
V/C Ratio(X)	0.16	0.00	0.68	0.63	0.00	0.00	0.79	0.32		0.63	0.66	
Avail Cap(c_a), veh/h	275	0	344	320	0	0	261	1922		94	1719	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.4	0.0	32.6	33.0	0.0	0.0	37.4	7.1	0.0	40.7	12.6	0.0
Incr Delay (d2), s/veh	0.3	0.0	3.9	2.6	0.0	0.0	9.2	0.4	0.0	20.9	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	3.7	3.2	0.0	0.0	2.5	1.9	0.0	0.5	6.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.7	0.0	36.5	35.6	0.0	0.0	46.6	7.6	0.0	61.6	14.6	0.0
LnGrp LOS	C	A	D	D	A	A	D	A		E	B	
Approach Vol, veh/h		221			158			736	A		1156	A
Approach Delay, s/veh		35.6			35.6			13.6			15.4	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	59.0		18.3	11.4	53.4		18.3				
Change Period (Y+Rc), s	4.5	6.5		4.5	4.5	6.5		4.5				
Max Green Setting (Gmax), s	4.5	52.5		17.5	12.5	44.5		17.5				
Max Q Clear Time (g_c+I1), s	2.9	9.9		10.9	7.4	23.6		13.6				
Green Ext Time (p_c), s	0.0	4.0		0.6	0.1	7.4		0.3				

Intersection Summary			
HCM 6th Ctrl Delay			18.2
HCM 6th LOS			B

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

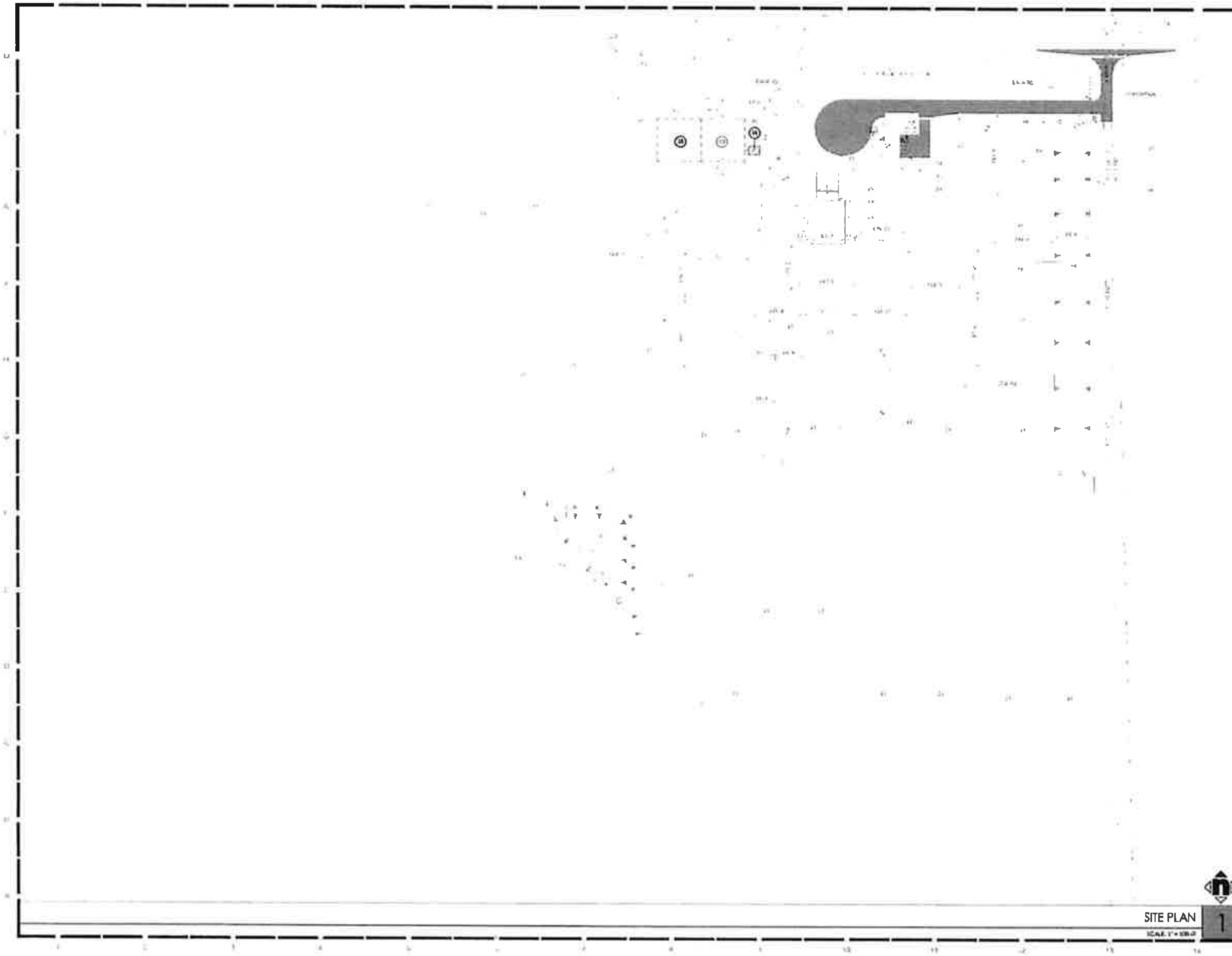
Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	1	75	37	1	104	0	35	0	0	0	0	0
Future Vol, veh/h	1	75	37	1	104	0	35	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	5	5	5	5	5	5	5	5
Mvmt Flow	1	82	40	1	113	0	38	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	113	0	0	122	0	0	219	219	102	219	239	113
Stage 1	-	-	-	-	-	-	104	104	-	115	115	-
Stage 2	-	-	-	-	-	-	115	115	-	104	124	-
Critical Hdwy	4.15	-	-	4.15	-	-	7.15	6.55	6.25	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.245	-	-	2.245	-	-	3.545	4.045	3.345	3.545	4.045	3.345
Pot Cap-1 Maneuver	1458	-	-	1447	-	-	731	674	945	731	657	932
Stage 1	-	-	-	-	-	-	894	803	-	883	795	-
Stage 2	-	-	-	-	-	-	883	795	-	894	788	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1458	-	-	1447	-	-	730	673	945	730	656	932
Mov Cap-2 Maneuver	-	-	-	-	-	-	730	673	-	730	656	-
Stage 1	-	-	-	-	-	-	893	802	-	882	794	-
Stage 2	-	-	-	-	-	-	882	794	-	893	787	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	10.2	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	730	1458	-	-	1447	-	-	-
HCM Lane V/C Ratio	0.052	0.001	-	-	0.001	-	-	-
HCM Control Delay (s)	10.2	7.5	0	-	7.5	0	-	0
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	-



KEYNOTES

- (36) NEW PROPOSED RESTROOM FACILITY
- (38) NEW PROPOSED SEPTIC FIELD AND RESERVE FIELD

WRA
WATER, RENEWABLES & AGRICULTURE

REVISIONS

△
△
△
△

PROJECT

HAYKINGDOM

DRAWING

SITE PLAN

A 1.1

TOTAL SHEETS

EEC ORIGINAL PKG

Updated Air Quality/GHG Impact Assessment

(Revised August 2020)

EEC ORIGINAL PKG

Air Quality/GHG Impact Assessment

Hay Kingdom Project

Imperial County

Prepared for:

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418 Parkwood Lane, Suite 200
Encinitas, CA 92024

Prepared by:

OB-1
AIR ANALYSES

June 2020 (revised August 2020)

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EEC ORIGINAL PKG

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APPENDICES

Acronyms and Abbreviations

µg/m^3	micrograms per cubic meter
AAG	All American Grain
AAQS	ambient air quality standard
AB	Assembly Bill
ADAM	CARB's Aerometric Data Analysis and Management System
APN	Assessor's Parcel Number
APS	auxiliary power systems
AQMP	Imperial County Air Quality Management Plan
AQIA	Air Quality Impact Assessment
AR4	IPCC's 4th assessment report
ATC	Authority to Construct
BACM	best available control measure
BACT	Best Available Control Technology
Basin	Salton Sea Air Basin
BAU	business as usual
CAA	Federal Clean Air Act Amendments
CAAQS	California Ambient Air Quality Standards
CalEEMod™	California Emissions Estimator Model
CAPCOA	California Air Pollution Control Officers Association
CAQAR	Comprehensive Air Quality Analysis Report
CARB	California Air Resources Board
CAT	Climate Action Team
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFC	chlorofluorocarbon
CH_4	methane
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CTI	California Toxic Inventory
CUP	Conditional Use Permit

Acronyms and Abbreviations

DPM	diesel particulate matter
EIR	Environmental Impact Report
EMFAC	CARB's emission factors model for on-road mobile sources
EPA	United States Environmental Protection Agency
ESRL	Earth System Research Laboratory
FCAA	Federal Clean Air Act
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutant
HDD	heavy-duty diesel
HFC	hydrofluorocarbon
HRA	Health Risk Assessment
ICAPCD	Imperial County Air Pollution Control District
IPCC	International Panel on Climate Change
ITS	Intelligent Transportation Systems
M	million
MEI	Maximum Exposed Individual
MSAT	Mobile Source Air Toxics
$MtCO_2e$	million tonnes of carbon dioxide equivalents
NAAQS	National Ambient Air Quality Standards
NO	nitric oxide
N_2O	nitrous oxide
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NO_X	nitrogen oxides
OFFROAD	CARB's emission factors model for off-road mobile sources
PFC	perfluorocarbon
PM	particulate matter
PM_{10}	respirable particulate matter of 10 micrometers or less in size
$PM_{2.5}$	fine particulate matter of 2.5 micrometers or less in size
ppb	parts per billion
ppm	parts per million
RFP	reasonable further progress
ROG	reactive organic gases
SF_6	sulfur hexafluoride

Acronyms and Abbreviations

SIP	State Implementation Plan
SR	State Route
SSAB	Salton Sea Air Basin
t	abbreviation for tonne (or metric ton)
TAC	toxic air contaminants
tCO_2e	tonne of carbon dioxide equivalents
TIA	Traffic Impact Analysis
TRU	Transportation Refrigeration Unit
UNFCCC	United Nations Framework Convention on Climate Change
VMT	Vehicle miles travelled
VOC	volatile organic compounds
WRI	World Resources Institute

Section 1.0 – INTRODUCTION

1.1. Report Purpose

The purpose of this Air Quality Impact Assessment (AQIA) is to estimate air quality impacts from the request of a new Conditional Use Permit (CUP) that would amend an existing CUP (#04-0003) for The Hay Kingdom facility, a hay storage and compressing facility located about 3.8 miles east of the City of Imperial in Imperial County, California (see Figure 1). This AQIA was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000 *et seq.*). The methodology follows the CEQA Air Quality Handbook[1] prepared by the Imperial County Air Pollution Control District (ICAPCD) for quantification of emissions and evaluation of potential impacts to air resources.

Figure 1 - Project Vicinity

1.2. Project Location

Hay Kingdom (or Project) as proposed is a request for a new CUP for its hay storage and compressing facility located at 393 East Worthington Road, in unincorporated Imperial County (APN# 044-500-079). The Project is bordered on the north by the McCall Drain #5 and East Worthington Road; bordered on the west by Rose Canal and State Route (SR) 111; and on the east it is bordered by the Rose Lateral 2 (see Figure 2).

[1] *CEQA Air Quality Handbook: Guidelines for the Implementation of the California Air Quality Act of 1970 as amended.* Imperial County Air Pollution Control District. Final, December 12, 2017.

EEC ORIGINAL PKG

Figure 2 - Project Location

1.3. Project Purpose

The facility has been operating under consecutive 3-year time extensions to the original CUP. The last three-year extension expired on June 4, 2019. However, Hay Kingdom requested and was granted a one-year time extension based on meeting all the conditions in its compliance report. The Project is the amendment of existing CUP #04-0003 to expand operations.

1.4. Project Definition

The Project is defined as the difference between the Proposed conditions as represented as the whole of facility operations after amendments are in place minus the existing conditions as represented by the conditions of the facility as is entitled based on the County's CUP.

1.5. Existing Operations

The existing hay press occupies approximately ±30,280 square feet (0.695 acres) of the 57-acre parcel. The remainder of the parcel is devoted primarily to hay barns and stacking areas. The site also has a truck scale, septic tank and leach lines, truck dock/shop building, parking areas, 1.5-acre stormwater basin, overhead utilities and a 0.95-acre fire water reservoir.

Existing operations include 530 tons per day of hay pressed; 70,000 tons of raw hay stored onsite, and 120,000 tons per year of raw hay processed that used 3 presses. The operations required 15 round trips with double-trailer trucks to the site and 15 container trucks from the site and used 38 employees for facility operations.

1.6. Proposed Amendments

Under the existing CUP, the Hay Kingdom is permitted to press 530 tons of hay per day, which is accomplished by operating 6 days per week, with two shifts. As part of the new CUP, Hay Kingdom is proposing to increase its hay production to 1,100 tons per day, accomplished by operating 7 days per week, 24 hours per day. Whereas the amount of raw hay stored on-site and in the stackyard is proposed to remain at existing levels of 70,000 tons per day, the amount of annual raw hay processed is proposed to more than double from the existing 120,000 tons per annum to 250,000 tons per annum. One new hay press is proposed. Additionally, under the proposed expansion, the facility would increase the number of workers to 80.

Currently, trucks bring raw product to the facility from the northern and southern Imperial Valley; Wilcox, Arizona; and Beaverton, Utah. Finish product is hauled by trucks approximately 20 miles north along SR 111 to the All American Grain (AAG) rail spur at 305 Yocum Road, Calipatria. No changes are proposed for source and destination locations.

The Hay Kingdom is proposing increasing inbound trucks to 100 per day during peak season and 24 per day during off season. Hay Kingdom also proposes an increase to 60 outbound trips per day during the peak season.

Section 2.0 – EXISTING CONDITIONS

2.1. Climate/Meteorology

Meteorology is the study of weather and climate. Weather refers to the state of the atmosphere at a given time and place regarding temperature, air pressure, humidity, cloudiness, and precipitation. The term "weather" refers to conditions over short periods; conditions over long periods, generally at least 30 to 50 years, are referred to as climate. Climate, in a narrow sense, is usually defined as the "average weather," or more rigorously as the statistical description in terms of the mean and variability of relevant quantities over a period ranging from months to thousands or millions of years. These quantities are most often surface variables such as temperature, precipitation, and wind.

Climatic conditions in Imperial County are governed by the large-scale sinking and warming of air in the semi-permanent tropical high-pressure center of the Pacific Ocean. The high-pressure ridge blocks out most mid-latitude storms except in winter when the high is weakest and farthest south. The coastal mountains prevent the intrusion of any cool, damp air found in California coastal environs. Because of the weakened storms and barrier, Imperial County experiences clear skies, extremely hot summers, mild winters, and little rainfall. The flat terrain of the valley and the strong temperature differentials created by intense solar heating, produce moderate winds and deep thermal convection.

The combination of subsiding air, protective mountains, and distance from the ocean all combine to limit precipitation severely. Rainfall is highly variable with precipitation from a single heavy storm sometimes exceeding the entire annual total during a later drought condition.

Imperial County enjoys a year-round climate characterized by a temperate fall, winter, and spring and a harsh summer. Humidity often combines with the valley's normal high temperatures to produce a moist, tropical atmosphere that frequently seems hotter than the thermometer suggests. The sun shines, on the average, more in the Imperial County that anywhere else in the United States.

2.1.1 Temperature and Precipitation

The nearest National Weather Service Cooperative Observer Program weather station to the Project is the station in El Centro, located approximately 13 miles south-southwest of the Project. At the El Centro[2] station, average recorded rainfall during the Period of Record (1932 to 2016) measured 2.64 inches, with 71 percent of precipitation occurring between October and March and 45 percent in just December, January, and February. Monthly average maximum temperatures at this station vary annually by 38.1 degrees Fahrenheit (°F); 108.0 °F at the hottest to 69.9 °F at the coldest and monthly average minimum temperatures vary by 36.2 °F annually, i.e. from 40.1 °F to 76.3 °F. In fact, this station shows that the months of June, July, August, and September have monthly maximum temperatures greater than 100 °F

2.1.2 Humidity

Humidity in Imperial County is typically low throughout the year, ranging from 28 percent in summer to 52 percent in winter. The large daily oscillation of temperature produces a corresponding large variation in the relative humidity. Nocturnal humidity rises to 50-60 percent but drop to about 10 percent during the day.

2 Western U.S. Climate Historical Summaries. Western Regional Climate Center. http://www.wrcc.dri.edu/Climsum.html. Accessed May 2020.

Summer weather patterns are dominated by intense heat induced low-pressure areas that form over the interior desert.

2.1.3 Wind

The wind direction follows two general patterns. The first pattern occurs seasonally from fall through spring, where prevailing winds are from the west and northwest. Most of these winds originate in the Los Angeles Basins. The Imperial County area occasionally experiences periods of high winds. Wind speeds exceeding 31 mph occur most frequently in April and May. On an annual basis, strong winds, those exceeding 31 mph, are observed 0.6% of the time, where speeds of less than 6.8 mph account for more than one-half of the observed winds. Wind statistics indicate prevailing winds are from the west-northwest through southwest; however, a secondary flow pattern from the southeast is also evident.

2.1.4 Inversions

Air pollutant concentrations are primarily determined by the amount of pollutant emissions in an area and the degree to which these pollutants are dispersed in the atmosphere. The stability of the atmosphere is one of the key factors affecting pollutant dispersion. Atmospheric stability regulates the amount of vertical and horizontal air exchange, or mixing, that can occur within a given air basin. Horizontal mixing is a result of winds, as discussed above, but vertical mixing also affects the degree of stability in the atmosphere. An interruption of vertical mixing is called inversions.

In the atmosphere, air temperatures normally decrease as altitude increases. At varying distances above the earth's surface, however, a reversal of this gradient can occur. This condition, termed an inversion, is simply a warm layer of air above a layer of cooler air, and it has the effect of limiting the vertical dispersion of pollutants. The height of the inversion determines the size of the vertical mixing volume trapped below. Inversion strength or intensity is measured by the thickness of the layer and the difference in temperature between the base and the top of the inversion. The strength of the inversion determines how easily it can be broken by winds or solar heating.

Imperial County experiences surface inversions almost every day of the year. Due to strong surface heating, these inversions are usually broken allowing pollutants to disperse more easily. Weak, surface inversions are caused by radiational cooling of air in contact with the cold surface of the earth at night. In valleys and low-lying areas, this condition is intensified by the addition of cold air flowing down slope from the hills and pooling on the valley floor.

The presence of the Pacific high-pressure cell can cause the air to warm to a temperature higher than the air below. This highly stable atmospheric condition, termed a subsidence inversion can act as a nearly impenetrable lid to the vertical mixing of pollutants. The strength of these inversions makes them difficult to disrupt. Consequently, they can persist for one or more days, causing air stagnation and the buildup of pollutants. Highest or worst-case ozone levels are often associated with the presence of this type of inversion.

2.2. Local Air Quality Conditions

2.2.1 Criteria Air Pollutants

As required by the Federal Clean Air Act (FCAA), the U. S. Environmental Protection Agency (EPA) has identified criteria pollutants and established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide, suspended particulate matter (PM), and lead. Suspended PM has standards for both PM with an aerodynamic diameter of 10 microns or less (respirable PM, or PM_{10}) and PM with an aerodynamic diameter of 2.5 microns or less (fine PM, or $PM_{2.5}$). The California Air Resources Board (CARB) has established separate standards for the State, i.e. the California Ambient Air Quality Standards (CAAQS). CARB established CAAQS for all the federal pollutants and sulfates, hydrogen sulfide, and visibility-reducing particles.

For some of the pollutants, the identified air quality standards are expressed in more than one averaging time to address the typical exposures found in the environment. For example, CO is expressed as a one-hour averaging time and an eight-hour averaging time. Regulations have set NAAQS and CAAQS limits in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). **Table 1** summarizes the State and federal ambient air quality standards for all criteria pollutants.

Table 1 – National and State Ambient Air Quality Standards[3]

Air Pollutant	Averaging Time	California Standard	National Standard
Ozone (O_3)	1-hour 8-hour	0.09 ppm 0.070 ppm	— 0.070 ppm
Respirable particulate matter (PM_{10})	24-hour Mean	50 $\mu g/m^3$ 20 $\mu g/m^3$	150 $\mu g/m^3$ —
Fine particulate matter ($PM_{2.5}$)	24-hour Mean	— 12 $\mu g/m^3$	35 $\mu g/m^3$ 12.0 $\mu g/m^3$
Carbon monoxide (CO)	1-hour 8-hour	20 ppm 9.0 ppm	35 ppm 9 ppm
Nitrogen dioxide (NO_2)	1-hour Mean	0.18 ppm 0.030 ppm	100 ppb 0.053 ppm
Sulfur dioxide (SO_2)	1-hour 24-hour	0.25 ppm 0.04 ppm	75 ppb —
Lead	30-day Rolling 3-month	1.5 $\mu g/m^3$ —	— 0.15 $\mu g/m^3$
Sulfates	24-hour	25 $\mu g/m^3$	**No Federal Standard**
Hydrogen sulfide	1-hour	0.03 ppm	
Vinyl chloride	24-hour	0.01 ppm	
Visibility-reducing particles	8-hour	Extinction coefficient of 0.23 per kilometer, visibility of ten miles or more due to particles when relative humidity is less than 70%.	

Abbreviations:
ppm = parts per million *ppb = parts per billion* *30-day = 30-day average*
$\mu g/m^3$ = micrograms per cubic meter *Mean = Annual Arithmetic Mean*

[3] Ambient Air Quality Standards. California Air Quality Board. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed November 2019.

2.2.1.1 Pollutants of Concern

Ozone

Ozone is not emitted directly to the atmosphere but is formed by photochemical reactions between reactive organic gases (ROG), or volatile organic compounds[4] (VOC), and oxides of nitrogen (NO_X) in the presence of sunlight. The long, hot, humid days of summer are particularly contributing to ozone formation; thus, ozone levels are of concern primarily during the months of May through September.

- Reactive organic gases (ROG) are defined as any compound of carbon, excluding CO, carbon dioxide (CO_2), carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participate in atmospheric photochemical reactions. It should be noted that there are no State or national ambient air quality standard for ROG because ROGs are not classified as criteria pollutants. They are regulated, however, because a reduction in ROG emissions reduces certain chemical reactions that contribute to the formulation of ozone. ROGs are also transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} and lower visibility.
- Nitrogen oxides (NO_X) serve as integral participants in the process of photochemical smog production. The two major forms of NO_X are nitric oxide (NO) and NO_2. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown irritating gas formed by the combination of NO and oxygen. NO_X is an ozone precursor. A precursor is a directly emitted air contaminant that, when released into the atmosphere, forms, causes to be formed, or contributes to the formation of a secondary air contaminant for which an Ambient Air Quality Standard (AAQS) has been adopted, or whose presence in the atmosphere will contribute to the violation of one or more AAQSs. When NO_X and ROG are released in the atmosphere, they can chemically react with one another in the presence of sunlight to form ozone.

Ozone is a strong chemical oxidant that adversely impacts human health through effects on respiratory function. Ozone can also damage forests and crops. Ozone is not emitted directly by industrial sources or motor vehicles but instead, is formed in atmosphere. Tropospheric[5] ozone is formed by a complex series of chemical reactions involving NO_X, the result of combustion processes and evaporative ROGs such as industrial solvents, toluene, xylene, and hexane as well as the various hydrocarbons that are evaporated from the gasoline used by motor vehicles or emitted through the tailpipe following combustion. Additionally, ROGs are emitted by natural sources such as trees and crops. Ozone formation is promoted by strong sunlight, warm temperatures, and winds. High concentrations tend to be a problem in the Imperial County only during the hot summer months when these conditions frequently occur.

Particulate matter (PM)

PM is a general term used to describe a complex group of airborne solid, liquid, or semi-volatile materials of various size and composition. Primary PM is emitted directly into the atmosphere from both human activities (including agricultural operations, industrial processes, construction and demolition activities, and entrainment of road dust into the air) and non-anthropogenic activities (such as windblown dust and ash resulting from

[4] Emissions of organic gases are typically reported only as aggregate organics, either as VOC or as ROG. These terms are meant to reflect what specific compounds have been included or excluded from the aggregate estimate. Although EPA defines VOC to exclude both methane and ethane, and CARB defines ROG to exclude only methane, in practice it is assumed that VOC and ROG are essentially synonymous.

[5] The troposphere is the atmospheric layer closest to the Earth's surface. Ozone produced here is an air pollutant that is harmful to breathe, and it damages crops, trees and other vegetation.

forest fires). Secondary PM is formed in the atmosphere from predominantly gaseous combustion by-product precursors, such as sulfur oxides and NO_X, and ROGs. The overwhelming majority of airborne PM in Imperial County is primary PM. The major source of primary PM is fugitive windblown dust, with other contributions from entrained road dust, farming, and construction activities.

Particle size is a critical characteristic of PM that primarily determines the location of PM deposition along the respiratory system (and associated health effects) as well as the degradation of visibility through light scattering. In the United States, federal and state agencies have established two types of PM air quality standards as shown in **Table 1**. PM_{10} corresponds to the fraction of PM no greater than 10 microns in aerodynamic diameter and is commonly called respirable particulate matter, while $PM_{2.5}$ refers to the subset of PM_{10} of aerodynamic diameter smaller than 2.5 microns, which is commonly called fine particulate matter.

PM air pollution has undesirable and detrimental environmental effects. PM affects vegetation, both directly (e.g. deposition of nitrates and sulfates may cause direct foliar damage) and indirectly (e.g. coating of plants upon gravitational settling reduces light absorption). PM also accumulates to form regional haze, which reduces visibility due to scattering of light.

PM_{10} is respirable, with fine and ultrafine particles[6] reaching the alveoli deep in the lungs, and larger particles depositing principally in the nose and throat area. PM_{10} deposition in the lungs results in irritation that triggers a range of inflammation responses, such as mucus secretion and bronchoconstriction, and exacerbates pulmonary dysfunctions, such as asthma, emphysema, and chronic bronchitis. Sufficiently small particles ($PM_{2.5}$ and ultrafines) may penetrate the bloodstream and impact functions such as blood coagulation, cardiac autonomic control, and mobilization of inflammatory cells from the bone marrow. Individuals susceptible to higher health risks from exposure to PM_{10} airborne pollution include children, the elderly, smokers, and people of all ages with low pulmonary/cardiovascular function. For these individuals, adverse health effects of PM_{10} pollution include coughing, wheezing, shortness of breath, phlegm, bronchitis, and aggravation of lung or heart disease, leading for example to increased risks of hospitalization and mortality from asthma attacks and heart attacks.

2.2.1.2 Other Criteria Pollutants

The standards for other criteria pollutants are either being met or are unclassified in the Salton Sea Air Basin (Basin or SSAB), and the latest pollutant trends suggest that these standards will not be exceeded in the foreseeable future.

2.2.2 Pollutant Transport

As stated above, ozone is a "secondary" pollutant, formed in the atmosphere by reactions between NO_X and ROG. These reactions are driven by sunlight and proceed at varying rates. Transport is the movement of ozone or the pollutants that form ozone from one area (known as the upwind area) to another area (known as the downwind area). Pollutant transport is a complex phenomenon. Sometimes transport is a straightforward matter of wind blowing from one area to another at ground level, carrying ozone with it, but usually it is not that simple. Transport is three-dimensional; it can take place at the surface, or high above the ground. Meteorologists use the terms "surface" and "aloft" to distinguish these two cases. Often, winds can blow in different directions at different heights above the ground. To complicate matters further, winds can shift during

6 Ultrafine particles are nanoscale, less than 100 nanometers. Regulations do not currently exist for this size class of ambient air pollution particles, which are far smaller than the regulated PM_{10} and $PM_{2.5}$ particle classes and are believed to have several more aggressive health implications than those classes of larger particulates.

the day, pushing a polluted air mass first one way, then another. Finally, because ozone and ozone forming emissions from an upwind area can mix with locally generated ozone and locally generated emissions, it is often difficult to determine the origin of the emission causing high pollution levels. Political boundaries do not prevent transport of pollutants. Transport over distances of several hundred miles has often been documented in California.

The accurate determination of the impacts of transport requires detailed technical analyses in conjunction with modeling studies. The Imperial County 2017 State Implementation Plan for Ozone[7] (2017 Plan) identifies how the transport of emissions and pollutants from Mexico and the coastal areas of Southern California influences ozone violations within Imperial County. Although the Imperial County is currently in attainment of the 1997 8-hour ozone NAAQS, it is important to note that any future analysis of air emissions impacting Imperial County must take into consideration the influence of transport from three distinct sources, that of the South Coast Air Basin via the Coachella Valley to the north, the San Diego Air Basin to the west and the international city of Mexicali, Mexico to the south.

2.2.3 Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. California defines a TAC as an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. Assembly Bill (AB) 1807[8] sets forth a procedure for the identification and control of TAC in the State. There are almost 200 compounds that have been designated as TACs in California. The ten TACs posing the greatest known health risk in California, based primarily on ambient air quality data, are acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, formaldehyde, methylene chloride, para-dichlorobenzene, perchloroethylene, and diesel particulate matter (DPM).

Since no safe levels of TACs can be determined, there are no ambient standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure.

Since 2004, CARB has maintained the California Toxic Inventory (CTI), which provides emissions estimates by stationary point and aggregated point; areawide; on-road gasoline and on road diesel; off-road mobile gasoline; off-road mobile diesel; and off-road mobile other; and natural sources. Stationary sources include point sources provided by facility operators and/or districts pursuant to the Air Toxics "Hot Spots" Program (AB 2588), and aggregated point sources estimated by CARB and/or districts. Areawide sources are those that do not have specific locations and are spread out over large areas such as consumer products and unpaved roads. Mobile sources consist of on road vehicles such as passenger cars and trucks, motorcycles, busses, and heavy-duty trucks. Off-road sources include trains, ships, and boats. Natural sources like wildfires are also included.

The top three contributors of the potential cancer risk come primarily from motor vehicles - DPM, 1,3 butadiene, and benzene. Cleaner motor vehicles and fuels are reducing the risks from these priority toxic air pollutants. The remaining toxic air pollutants, such as hexavalent chromium and perchloroethylene, while not appearing to contribute as much to the overall risks, can present high risks to people living close to a source.

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7 *Imperial County 2017 State Implementation Plan for the 2008 8-hour Ozone Standard*. Imperial County Air Pollution Control District. September 12, 2017.

8 Enacted in September 1983. Health and Safety Code section 39650 et seq., Food and Agriculture Code Section 14021 et seq.

CARB has control measures that are either already on the books, in development, or under evaluation for most of the remaining top ten, where actions are suitable through our motor vehicle, consumer products, or industrial source programs. Of these top ten, carbon tetrachloride is unique in that most of the health risk from this toxic air pollutant is not attributable to specific sources, but rather to background concentrations. Emissions from the top ten TACs in Imperial County in 2010 are presented in **Table 2.**

Table 2 – 2010 TAC Emissions[9] in Imperial County (tons per year)

Toxic Air Contaminant	SP	AP	A	OD	OG	OMG	OMD	OMO	N	Total
Diesel particulate matter (DPM)	7.608	3.906	0.000	136.542			17.299			165.356
1,3-Butadiene	0.000	0.022	7.835	0.322	6.523	5.025	0.760	1.423	0.137	22.048
Benzene	52.548	2.779	0.134	3.393	31.156	21.806	8.002	1.502		121.319
Acetaldehyde	0.183	0.861	1.203	12.468	4.678	5.933	29.406	3.570	856.92	915.219
Hexavalent Chromium	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.004
para-Dichlorobenzene	0.000		5.883							5.883
Formaldehyde	0.795	5.512	1.559	24.952	17.192	18.162	58.851	10.277		137.302
Methylene Chloride	0.096	1.786	7.905							9.787
Perchloroethylene	0.000	11.522	6.697							18.220
Carbon Tetrachloride									>0.001	>0.001

Note: *SP = stationary point*; *AP = aggregated point*; *A = areawide*; *OD = on-road diesel*; *OG = on-road gasoline*; *OMO = off-road mobile diesel*; *OMD = off-road mobile gasoline*; *OMO = off-road mobile other*; *N = natural*

Diesel Particulate matter (DPM)

According to The California Almanac of Emissions and Air Quality 2013 Edition, most of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is DPM, which is typically considered a subset of $PM_{2.5}$ because the size of diesel particles are typically 2.5 microns and smaller. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources. For more detail on DPM and toxics, see Appendix B.

2.2.4 Sensitive Receptors

Some members of the population are especially sensitive to air pollutant emissions and should be given special consideration when evaluating air quality impacts from projects. These people include children, the elderly, and persons with preexisting respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather are defined as sensitive receptors by ICAPCD.

9 *California Toxics Inventory – Draft 2010 CTI Summary Table*. California Air Resources Board. (November 2013. http://www.arb.ca.gov/toxics/cti/cti.htm. Accessed June 2016.

Residential areas are considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods, resulting in sustained exposure to any pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as most of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

A single residential farmhouse is adjacent to the Project site to the east and two residential farmhouses are just across East Worthington form the northeast corner of the property. The Imperial Valley College (308 East Aten Road, Imperial) is approximately 2.3 miles south.

2.3. Greenhouse Gases

Constituent gases that trap heat in the Earth's atmosphere are called greenhouse gases (GHGs), analogous to the way a greenhouse retains heat. GHGs play a critical role in the Earth's radiation budget by trapping infrared radiation emitted from the Earth's surface, which would otherwise have escaped into space. Prominent GHGs contributing to this process include CO_2, methane (CH_4), nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). Without the natural heat-trapping effect of GHG, the earth's surface would be about 34 °F cooler[10]. This is a natural phenomenon, known as the "Greenhouse Effect," is responsible for maintaining a habitable climate. However, anthropogenic emissions of these GHGs in excess of natural ambient concentrations are responsible for the enhancement of the "Greenhouse Effect", and have led to a trend of unnatural warming of the Earth's natural climate known as global warming or climate change, or more accurately Global Climate Disruption. Emissions of these gases that induce global climate disruption are attributable to human activities associated with industrial/manufacturing, utilities, transportation, residential, and agricultural sectors.

The global warming potential (GWP) is the potential of a gas or aerosol to trap heat in the atmosphere. Individual GHG compounds have varying GWP and atmospheric lifetimes. The reference gas for the GWP is CO_2; CO_2 has a GWP of one. The calculation of the CO_2 equivalent (CO_2e) is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent metric. CH_4's warming potential of 25 indicates that CH_4 has a 25 times greater warming affect than CO_2 on a molecular basis. The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that period. The period usually used for GWPs is 100 years. GWPs for the three GHGs produced by the Project are presented in **Table 3**. A CO_2e is the mass emissions of an individual GHG multiplied by its GWP. GHGs are often presented in units called tonnes (t) (i.e. metric tons) of CO_2e (tCO_2e).

Carbon Dioxide (CO_2) is a colorless, odorless gas consisting of molecules made up of two oxygen atoms and one carbon atom. CO_2 is produced when an organic carbon compound (such as wood) or fossilized organic matter, (such as coal, oil, or natural gas) is burned in the presence of oxygen. CO_2 is removed from the atmosphere by CO_2 "sinks", such as absorption by seawater and photosynthesis by ocean-dwelling plankton and land plants, including forests and grasslands. However, seawater is also a source of CO_2 to the atmosphere, along with land plants, animals, and soils, when CO_2 is released during respiration. Whereas the natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean, humankind has altered the natural carbon cycle by burning coal, oil, natural gas,

10 *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*. California Environmental Protection Agency, Climate Action Team. March 2006.

and wood. Since the industrial revolution began in the mid-1700s, each of these activities has increased in scale and distribution. Prior to the industrial revolution, concentrations CO_2 were stable at a range of 275 to 285 ppm[11]. The National Oceanic and Atmospheric Administration (NOAA's) Earth System Research Laboratory (ESRL)[12] indicates that global concentration of CO_2 were 413.22 ppm in February 2020. This concentration of CO_2 exceeds by far the natural range over the last 650,000 years (180 to 300 ppm) as determined from ice cores.

Table 3 – Global Warming Potentials[13]

Pollutant	GWP for 100-year time horizon	
	Second assessment report[14]	4th assessment report (AR4)[15]
Carbon dioxide (CO_2)	1	1
Methane (CH_4)	21	25
Nitrous oxide (N_2O)	310	298

Note: Current protocol is to use the 4th assessment values, however, the second assessment report values are also provided since they are the values used by many inventories and public documents.

Methane (CH_4) is a colorless, odorless non-toxic gas consisting of molecules made up of four hydrogen atoms and one carbon atom. CH_4 is combustible, and it is the main constituent of natural gas-a fossil fuel. CH_4 is released when organic matter decomposes in low oxygen environments. Natural sources include wetlands, swamps and marshes, termites, and oceans. Human sources include the mining of fossil fuels and transportation of natural gas, digestive processes in ruminant animals such as cattle, rice paddies and the buried waste in landfills. Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH_4. Other anthropogenic sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide (N_2O) is a colorless, non-flammable gas with a sweetish odor, commonly known as "laughing gas", and sometimes used as an anesthetic. N_2O is naturally produced in the oceans and in rainforests. Man-made sources of N_2O include the use of fertilizers in agriculture, nylon and nitric acid production, cars with catalytic converters and the burning of organic matter. Concentrations of N_2O also began to rise at the beginning of the industrial revolution.

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11 *Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007.* Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

12 *Trends in Atmospheric Carbon Dioxide. Earth System Research Laboratory.* National Oceanic and Atmospheric Administration. http://www.esrl.noaa.gov/gmd/ccgg/trends/global.html. Accessed June 2020.

13 *Global Warming Potentials. Greenhouse Gas Protocol.* World Resources Institute and World Business Council on Sustainable Development. http://www.ghgprotocol.org/files/ghgp/tools/Global-Warming-Potential-Values.pdf. Accessed May 2015.

14 *Second Assessment Report. Climate Change 1995: WG I - The Science of Climate Change.* Intergovernmental Panel on Climate Change. 1996

15 *Climate Change 2007: The Physical Science Basis.* Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. 2007

Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically un-reactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source but were first synthesized in 1928. It was used for refrigerants, aerosol propellants, and cleaning solvents. Because of the discovery that they can destroy stratospheric ozone, an ongoing global effort to halt their production was undertaken and has been extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years. The Project is not expected to emit any CFCs.

Hydrofluorocarbons (HFCs) are synthesized chemicals that are used as a substitute for CFCs. Out of all the GHGs, HFCs are one of three groups with the highest GWP. HFCs are synthesized for applications such as automobile air conditioners and refrigerants. The Project is not expected to emit any HFCs.

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface can destroy the compounds. Because of this, PFCs have exceptionally long lifetimes, between 10,000 and 50,000 years. The two main sources of PFCs are primary aluminum production and semiconductor manufacture. The Project is not expected to emit any PFCs.

Sulfur Hexafluoride (SF_6) is an extremely potent greenhouse gas. SF_6 is very persistent, with an atmospheric lifetime of more than a thousand years. Thus, a relatively small amount of SF_6 can have a significant long-term impact on global climate change. SF_6 is human-made, and the primary user of SF_6 is the electric power industry. Because of its inertness and dielectric properties, it is the industry's preferred gas for electrical insulation, current interruption, and arc quenching (to prevent fires) in the transmission and distribution of electricity. SF_6 is used extensively in high voltage circuit breakers and switchgear, and in the magnesium metal casting industry. The Project is not expected to emit SF_6.

2.3.1 GHG Emission Levels

Per the World Resources Institute[16] (WRI) in 2014, total worldwide GHG emissions were estimated to be 44,204 million (M) t of CO_2e ($MtCO_2e$) and GHG emissions per capita worldwide was 6.13 tCO_2e. These emissions exclude GHG emissions associated with the land use, land-use change, and forestry sector, and bunker fuels. The WRI reports that in 2014, total GHG emissions in the U.S. were 6,371 $MtCO_2e$, with average GHG emissions per capita of 20.00 tCO_2e and total GHG emissions in California were 454.5 $MtCO_2e$ in 2014, with average GHG emissions per capita of 11.75 tCO_2e.

California has a larger percentage of its total GHG emissions coming from the transportation sector (56%) than the U.S. emissions (31%) and a smaller percentage of its total GHG emissions from the electricity generation sector, i.e. California has 13 percent, but the U.S. has 43 percent.

2.3.2 Potential Environmental Effects

Worldwide, average temperatures are likely to increase by 3 °F to 7 °F by the end of the 21st century[17]. However, a global temperature increase does not directly translate to a uniform increase in temperature in all locations on the earth. Regional climate changes are dependent on multiple variables, such as topography. One

16 CAIT Climate Data Explorer. Historical Emissions. World Resources Institute. http:// http://cait2.wri.org/historical/. Accessed May 2019.

17 *Climate Change 2007: Impacts, Adaptation, and Vulnerability.* Website http://www.ipcc.ch/ipccreports/ar4-wg2.htm. Accessed March 2013.

region of the Earth may experience increased temperature, increased incidents of drought, and similar warming effects, whereas another region may experience a relative cooling. According to the International Panel on Climate Change's (IPCC's) Working Group II Report[18], climate change impacts to North America may include diminishing snowpack, increasing evaporation, exacerbated shoreline erosion, exacerbated inundation from sea level rising, increased risk and frequency of wildfire, increased risk of insect outbreaks, increased experiences of heat waves, and rearrangement of ecosystems, as species and ecosystem zones shift northward and to higher elevations.

2.3.3 California Implications

Even though climate change is a global problem and GHGs are global pollutants, the specific potential effects of climate change on California have been studied. The third assessment produced by the California Natural Resources Agency (CNRA)[19] explores local and statewide vulnerabilities to climate change, highlighting opportunities for taking concrete actions to reduce climate-change impacts. Projected changes for the remainder of this century in California include:

- **Temperatures** – By 2050, California is projected to warm by approximately 2.7 °F above 2000 averages, a threefold increase in the rate of warming over the last century and springtime warming — a critical influence on snowmelt — will be particularly pronounced.
- **Rainfall** – Even though model projections continue to show the Mediterranean pattern of wet winters and dry summers with seasonal, year-to-year, and decade-to-decade variability, improved climate models shift towards drier conditions by the mid-to-late 21st century in Central, and most notably, Southern California.
- **Wildfire** - Earlier snowmelt, higher temperatures, and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning, with human activities continuing to be the biggest factor in ignition risk. Models are showing that estimated property damage from wildfire risk could be as much as 35 percent lower if smart growth policies were adopted and followed than if there is no change in growth policies and patterns.

The third assessment by CNRA not only defines projected vulnerabilities to climatic changes but analyzes potential impacts from adaptation measures used to minimize harm and take advantage of beneficial opportunities that may arise from climate change.

The report highlights important new insights and data, using probabilistic and detailed climate projections and refined topographic, demographic, and land use information. The findings include:

- The State's electricity system is more vulnerable than was previously understood.
- The Sacramento-San Joaquin Delta is sinking, putting levees at growing risk.
- Wind and waves, in addition to faster rising seas, will worsen coastal flooding.
- Animals and plants need connected "migration corridors" to allow them to move to habitats that are more suitable to avoid serious impacts.
- Native freshwater fish are particularly threatened by climate change.

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18 ibid

19 *Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California.* California Natural Resources Agency. July 2012 / CEC-500-2012-007

- Minority and low-income communities face the greatest risks from climate change.

2.4. Baseline Conditions

2.4.1 Local Ambient Air Quality

Existing levels of ambient air concentrations and historical trends and projections in the project area are best documented by measurements made by the ICAPCD and CARB. Imperial County began its ambient air monitoring in 1976; however, monitoring of ozone began in 1986 at the El Centro monitoring station. Since that time, monitoring has been performed by the ICAPCD, CARB, and private industry. There are six monitoring sites in Imperial County from Niland to Calexico.

The nearest monitoring station to the Project site is in El Centro, approximately 5 miles southwest of the Project. The El Centro station is located on 9th Street. The El Centro station monitors ozone, PM_{10}, $PM_{2.5}$, and NO_2. **Table 4** summarizes 2013 through 2018 published monitoring data from the CARB's Aerometric Data Analysis and Management System (ADAM).

The monitoring data shows that the El Centro station exceeded the State PM_{10} standard in all six years except 2017 but only exceeded the federal PM_{10} standard once in the six years and exceeded the federal PM_{10} standard the last four years. The station exceeded the State and federal 8-hour ozone standards and the State 1-hour ozone standard in all six years. The station did not exceed the NO_2 standard in any of the six years.

Table 4 – Ambient Air Quality Monitoring Summary for El Centro - 9th Street Station[20]

Air Pollutant	Monitoring Year					
Ozone (O_3)	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Max 1 Hour (ppm) Days > CAAQS (0.09 ppm)	**0.110** 7	**0.110** 2	**0.099** 2	**0.108** 4	**0.110** 4	**0.102** 2
Max 8 Hour (ppm) Days > NAAQS (0.070 ppm) Days > CAAQS (0.070 ppm)	**0.088** 23 23	**0.080** 12 13	**0.079** 11 12	**0.082** 11 11	**0.092** 17 17	**0.090** 14 15
Inhalable Particulate Matter (PM_{10})	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Max Daily California Measurement Days > NAAQS (150 µg/m³) Days > CAAQS (50 µg/m³)	**147.9** 0 10	**120.4** 0 15	**165.9** 1 7	**284.9** 10 N/A	**268.5** 4 N/A	**253.0** 5 N/A
Fine Particulate Matter ($PM_{2.5}$)	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Max Daily National Measurement Days > NAAQS (35 µg/m³)	30.0 0	27.5 0	31.2 0	31.3 0	23.2 0	22.4 0
Nitrogen Dioxide (NO_2)	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Max Daily National Measurement Days > NAAQS (100 ppb) Days > CAAQS (180 ppb)	53.0 0 0	59.3 0 0	59.1 0 0	50.9 0 0	48.8 0 0	34.1 0 0

Abbreviations:

> = exceed | ***Bold** = exceedance* | *N/A = not available*
ppm = parts per million | *ppb = parts per billion* | *µg/m³ = micrograms per cubic meter*
CAAQS = California Ambient Air Quality Standard | *NAAQS = National Ambient Air Quality Standard*

[20] ADAM Air Quality Data Statistics. California Air Resources Board. http://www.arb.ca.gov/adam/welcome.html. Accessed May 2020.

Section 3.0 – REGULATORY CONTEXT

Air pollutants are regulated at the national, State, and air basin level; each agency has a different degree of control. EPA regulates at the national level; CARB regulates at the State level; and ICAPCD regulates at the air basin level in the Project area.

3.1. Regulatory Agencies

3.1.1 Environmental Protection Agency (EPA)

EPA is the federal agency responsible for overseeing state air programs as they relate to the FCAA, approving State Implementation Plans (SIPs), establishing NAAQS and setting emission standards for mobile sources under federal jurisdiction. EPA also regulates Hazardous Air Pollutants (HAPs) under the FCAA. EPA has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented.

3.1.2 California Air Resources Board (CARB)

CARB is the State agency responsible for establishing CAAQS, adopting and enforcing emission standards for various sources including mobile sources (except where federal law preempts their authority), fuels, consumer products, and toxic air contaminants. CARB is also responsible for providing technical support to California's 35 local air districts, which are organized at the county or regional level, overseeing local air district compliance with State and federal law, approving local air plans and submitting the SIP to the EPA. CARB also regulates mobile emission sources in California, such as construction equipment, trucks, and automobiles. CARB also maintains a comprehensive air toxics program.

For the purposes of managing air quality in California, the California Health & Safety Codes Section 39606(a)(2) gave CARB the responsibility to, "based upon similar meteorological and geographic conditions and consideration for political boundary lines whenever practicable, divide the State into air basins to fulfill the purposes of this division". Imperial County is located within the SSAB.

3.1.3 Imperial County Air Pollution Control District (ICAPCD)

The ICAPCD shares responsibility with CARB for ensuring that all State and federal ambient air quality standards are achieved and maintained within the County. State law assigns to local air pollution control districts the primary responsibility for control of air pollution from stationary sources, while reserving an oversight role for CARB. Generally, the air pollution control districts must meet minimum State and EPA program requirements. The air pollution control district is also responsible for the inspection of stationary sources, monitoring of ambient air quality, and planning activities such as modeling and maintenance of the emission inventory. Air pollution control districts in State nonattainment areas are also responsible for developing and implementing transportation control measures necessary to achieve the state ambient air quality. Regarding the SIP, air pollution control districts will implement the following activities:

1. Development of emission inventories, modeling process, trend analysis and quantification and comparison of emission reduction strategies.
2. Necessary information on all federal and State adopted emission reduction measures which affect the area.
3. Review of emissions inventory, modeling, and self-evaluation work.
4. Technical and strategic assistance, as appropriate, in the selection and implementation of emission reduction strategies.

5. Technical and planning assistance in developing and implementing processes to address the impact of emissions growth beyond the attainment date.
6. Maintenance of monitors and reporting and analysis of monitoring data.
7. Support for public education efforts by providing information to the community for means of outreach.
8. Coordinate communication between local areas and EPA to facilitate continuing EPA review of local work.
9. Expeditious review of the locally developed plan, and if deemed adequate, propose modification of the Air Quality Management Plan (AQMP) to adopt the early progress plan.
10. Adoption of emission reduction strategies into the AQMP as expeditiously as possible.

3.2. Attainment Status

3.2.1 Designations/Classifications

EPA has identified nonattainment and attainment areas for each NAAQS. Under amendments to the FCAA, EPA has designated air basins or portions thereof as attainment, nonattainment, or unclassifiable, based on whether the national standards have been achieved. The State designates air basins or portions thereof for all CAAQS. The State designation criteria specify four categories: nonattainment, nonattainment-transitional, attainment, and unclassified.

In addition, the FCAA uses a classification system to design clean-up requirements appropriate for the severity of the pollution and set realistic deadlines for reaching clean-up goals. If an air basin is not in federal attainment for a pollutant, the Basin is classified as a marginal, moderate, serious, severe, or extreme nonattainment area, based on the estimated time it would take to reach attainment. Nonattainment areas must take steps towards attainment by a specific timeline. Table 5 shows the federal and State attainment designations and federal classifications for the Basin.

3.2.2 Federal Clean Air Act Requirements

The FCAA requires plans to provide for the implementation of all reasonably available control measures including the adoption of reasonably available control technology for reducing emissions from existing sources. The FCAA encourages market-based approaches to emission control innovations.

On April 30, 2004, Imperial County was classified as a "marginal" nonattainment area for 8-Hour Ozone NAAQS under the FCAA. On March 13, 2008, the EPA found that Imperial County failed to meet attainment for the 8-Hour Ozone NAAQS by June 15, 2007 and was reclassified as "moderate" nonattainment. However, on November 17, 2009, EPA announced that Imperial County has met the 1997 federal 8-hour ozone standard—demonstrating improved air quality in the area. The announcement is based on three years of certified clean air monitoring data for the years 2006-2008. **Table 5** shows the designations and classifications for the Basin.

In response to the opinion of the US Court of Appeals for the Ninth Circuit in *Sierra Club v. United States Environmental Protection Agency, et al.*, in August 2004 the EPA found that the Imperial Valley PM_{10} nonattainment area had failed to attain by the moderate area attainment date of December 31, 1994, and as a result reclassified under the FCAA the Imperial Valley from a moderate to a serious PM_{10} nonattainment area. Also, in August 2004, the EPA proposed a rule to find that the Imperial area had failed to attain the annual and 24-hour PM_{10} standards by the serious area deadline of December 31, 2001. The EPA finalized the rule on December 11, 2007, citing as the basis for the rule that six Imperial County monitoring stations were in violation of the 24-hour standard during 1999-2001. The EPA's final rule action requires the State to submit to the EPA by December 11, 2008 (within one year of the rule's publication in the Federal Register) an air quality plan that demonstrates that the County will attain the PM_{10} standard as expeditiously as practicable.

Table 5 – Designations/Classifications for the Basin[21]

Pollutant	State Designation	Federal Designation (Classification)
Ozone	Nonattainment	Nonattainment (Marginal)
Respirable PM (PM_{10})	Nonattainment	Nonattainment (Serious) *
Fine PM ($PM_{2.5}$)	Attainment***	Attainment **
Carbon Monoxide (CO)	Attainment	Unclassifiable/Attainment
Nitrogen Dioxide (NO_2)	Attainment	Unclassifiable/Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Unclassifiable/Attainment
Sulfates	Attainment	No Federal Standard
Hydrogen Sulfide	Unclassified	
Visibility reducing Particles	Unclassified	

* Designation for Imperial Valley Planning Area only, which is most of Imperial County save for a small stretch of land on the County's eastern end.
** A Determination of Attainment for the 2006 24-hour $PM_{2.5}$ standard was made by EPA in June 2017.
*** Designation for the whole of Imperial County except the Calexico area.

On November 13, 2009, EPA published Air Quality Designations for the 2006 24-Hour Fine Particle ($PM_{2.5}$) National Ambient Air Quality Standards[22] wherein Imperial County was listed as designated nonattainment for the 2006 24-hour $PM_{2.5}$ NAAQS. On April 10, 2014, CARB Board gave final approval to the 2013 Amendments to Area Designations for CAAQSs. For the State $PM_{2.5}$ standard, effective July 1, 2014, the Calexico area was designated nonattainment, while the rest of the SSAB was designated attainment. The Project lies outside the Calexico nonattainment area.

Besides the "criteria" air pollutants, there is another group of substances found in ambient air referred as HAPs under the FCAA and TACs under the California Clean Air Act (CCAA). These contaminants tend to be localized to their sources and are found in relatively low concentrations in ambient air. They are regulated at the federal, state, and regional levels, due to their potential of causing adverse health effects from exposure to low concentrations for long periods of time.

HAPs are the air contaminants identified by the EPA as known or suspected to cause cancer, serious illness, birth defects, or death. Many of the contaminants originate from human activities, such as fuel combustion and solvent use. Mobile Source Air Toxics (MSATs) are a subset of the 188 identified HAPs. Of the 21 different HAPs that constitute the MSATs, there are six primary HAPs identified that include diesel exhaust, benzene, formaldehyde, acetaldehyde, acrolein, and 1, 3-butadiene. While vehicle miles traveled in the United States is

21 Area Designations and Maps – 2018. California Air Resources Board. December 31, 2018.

22 Air Quality Designations for the 2006 24-Hour Fine Particle ($PM_{2.5}$) National Ambient Air Quality Standards. United States Environmental Protection Agency. Federal Register. Vol. 74, No. 218. November 13, 2009.

anticipated to increase by 64 percent between 2000 and 2020, emissions of MSATs are anticipated to decrease between 57 and 67 percent because of efforts to control mobile source emissions.

3.3. Regulatory Framework

This section contains a discussion of the federal, State, and local air quality regulations, plans, and policies applicable to the Project. Federal, State, and local authorities have adopted rules and regulations that govern the emissions of air pollutants from any facility. The local and federal authorities each have specific criteria for the evaluation of a source and its emissions and the authority to issue permit conditions and specify recordkeeping and reporting requirements that must be met in order to operate a source of air pollutants.

3.3.1 Federal Regulations and Standards

The FCAA was enacted in 1970 and last amended in 1990 (42 USC 7401, et seq.) with the purpose of controlling air pollution and providing a framework for national, state, and local air pollution control efforts. Basic components of the FCAA and its amendments include NAAQS for major air pollutants, hazardous air pollutants standards, SIP requirements, motor vehicle emissions standards, and enforcement provisions. The FCAA was enacted for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity.

3.3.2 State Regulations and Standards

CARB is responsible for responding to the FCAA, regulating emissions from motor vehicles and consumer products, and implementing the CCAA. The CCAA outlines a program to attain the CAAQSs for ozone, sulfur dioxide, and CO by the earliest practical date. Since CAAQSs are more stringent than NAAQSs in most cases, attainment of the CAAQS will require more emissions reductions than what would be required to show attainment of the NAAQS. Like the federal system, the state requirements and compliance dates are based upon the severity of the ambient air quality standard violation within a region.

3.3.3 Local Regulations and Standards

The ICAPCD also has the authority to adopt and enforce regulations dealing with controls for specific types of sources, emissions of hazardous air pollutants, and New Source Review. The ICAPCD Rules and Regulations are part of the SIP and are separately enforceable by the EPA. The following ICAPCD rules potentially apply to the Project:

- **Rules 800** (General Requirements for Control of Fine Particulate Matter), **801** (Construction and Earthmoving Activities), **802** (Bulk Materials, **803** (Carry-out and Track-out), **804** (Open Areas), and **805** (Paved and Unpaved Roads) are intended to reduce the amount of PM_{10} entrained in the ambient air as a result of emissions generated by anthropogenic fugitive dust sources by requiring actions to prevent, reduce, or mitigate PM_{10} emissions. These rules include opacity limits, control measure requirements, and dust control plan requirements that apply to activities at the Facility.

3.3.4 Air Quality Management Plans (AQMP)

3.3.4.1 Ozone Plan

On December 3, 2009, the EPA issued a final ruling determining that the Imperial County "moderate" 8-hour ozone non-attainment area attained the 1997 8-hour NAAQS for ozone. The determination by EPA was based upon complete, quality-assured, and certified ambient air monitoring data for the years 2006 thru 2008. This determination effectively suspended the requirement for the state to submit an attainment demonstration, a Reasonable Further Progress (RFP) plan, contingency measures, and other planning requirements for so long as Imperial County continues to attain the 1997 8-hour ozone NAAQS. However, this determination did not constitute a re-designation to attainment; therefore, the classification and designation status for Imperial County remain as a "moderate" non-attainment area of the 1997 8-hour ozone NAAQS. As such, Imperial County was required to submit for EPA approval a 2009 8-Hour Ozone "Modified" Air Quality Management Plan (Modified AQMP), which was approved July 13, 2010.

The Modified AQMP serves as a comprehensive planning document intended to provide guidance to the ICAPCD, the County, and other local agencies on how to continue maintaining the 1997 8-hour ozone NAAQS. The Modified AQMP includes control measures consisting of three components: 1) the ICAPCD's Stationary Source Control Measures; 2) Regional Transportation Control Measures; and 3) the State Strategy. These measures primarily rely on the traditional command and control approach and as such provide the framework for ICAPCD rules that reduce ROG and NO_X emissions.

The current designation for the PM_{10} standard remains nonattainment as of February 28, 2019.[23] The ICAPCD is in the process of requesting an attainment redesignation and maintenance plan.[24] However, Imperial County's 2017 Ozone SIP[25], demonstrates that Imperial County is in attainment of the 2008 8-hour ozone standard but for emissions emanating across the international border. In addition, a weight-of-evidence analysis has been included to show that Imperial County will maintain this status of attainment through the July 2018 attainment date.

As of November 2017, after consideration of CARB's recommendations, the EPA "is designating Imperial County, CA as nonattainment for the 2015 ozone NAAQS".[26]

3.3.4.2 PM_{10} Plan

The ICAPCD District Board of Directors adopted the PM_{10} SIP for Imperial County on August 11, 2009[27]. The PM_{10} SIP meets EPA requirements to demonstrate that the County will attain the PM_{10} standard as expeditiously as practicable. The PM_{10} SIP was required to address and meet the following elements, required under the FCAA of areas classified to be in serious nonattainment of the NAAQS:

- Best available emission inventories.
- A plan that enables attainment of the PM_{10} federal air quality standards.
- Annual reductions in PM_{10} or PM_{10} precursor emissions that are of not less than 5 percent from the date of SIP submission until attainment.
- Best available control measures and best available control technologies for significant sources and major stationary sources of PM_{10}, to be implemented no later than 4 years after reclassification of the area as serious.
- Transportation conformity and motor vehicle emission budgets in accord with the attainment plan.
- Reasonable further progress and quantitative milestones; and

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23 *Green Book PM-10 (1987) Area Information*. United States Environmental Protection Agency. https://www.epa.gov/green-book/green-book-pm-10-1987-area-information. Accessed March 2019.

24 *Draft Imperial County 2018 Redesignation Request and Maintenance Plan for Particulate Matter less than 10 Microns in Diameter*. Imperial County Air Pollution Control District. September 2018.

25 *2017 Imperial County State Implementation Plan for the 2008 8-Hour Ozone Standard*. Imperial County Air Pollution Control District, September 12, 2017.

26 *California - Final Area Designations for the 2015 Ozone National Ambient Air Quality Standards, Technical Support Document*. United States Environmental Protection Agency. November 16, 2017.

27 *2009 Imperial County State Implementation Plan for Particulate Matter Less Than 10 Microns in Aerodynamic Diameter*. Imperial County Air Pollution Control District. July 10, 2009.

- Contingency measures to be implemented (without the need for additional rulemaking actions) if the control measure regulations incorporated in the plan cannot be successfully implemented or fail to give the expected emission reductions.

The PM_{10} SIP updated the emission inventory to incorporate revised cattle emissions, revised windblown dust model results, revised South Coast Association of Governments activity data, and updated entrained and windblown unpaved road dust estimates. The adjustments made to the emission inventory fell in two categories: (i) adjustments to incorporate new methodology and updated information (e.g., throughputs, activity data, etc.), and (ii) adjustments to incorporate emission reductions arising from the implementation of new control measures.

Additionally, the PM_{10} SIP demonstrates that Imperial County attained the Federal PM_{10} NAAQS, but-for international emissions from Mexico, based on 2006-2008 monitoring data. Attainment was due, in part, to ICAPCD's November 2005 adoption and subsequent implementation of Regulation VIII fugitive dust rules; those rules were based on the related 2005 Best Available Control Measure analysis.

Since the reclassification of Imperial County to serious nonattainment for PM_{10} occurred on August 2004 and control of fugitive PM_{10} emissions from the significant source categories that meets best available control measure (BACM) stringency identified in the PM_{10} SIP began in January 2006.

Major stationary sources are required to implement Best Available Control Technology (BACT) to control PM_{10} emissions (Rule 207) and they are required to comply with the 20 percent opacity (Rule 403). In addition, stationary sources will be required to mitigate fugitive dust emissions from access roads, construction activities, handling and transferring of bulk materials, and track-out/carry-out according to the requirements of Regulation VIII.

Because the Imperial County is shown in the PM_{10} SIP to have attained the 24-hour PM_{10} NAAQS but-for international transport of Mexicali emissions in 2006-2008, reasonable further progress and milestone requirements are unnecessary, and specifically the 5 percent yearly emission reductions requirement does not apply to future years. As documented in the PM_{10} SIP, all remaining SIP requirements applicable to the 2009 Imperial County PM_{10} Plan have been successfully addressed.

3.3.4.3 $PM_{2.5}$ Plan

The ICAPCD District Board of Directors adopted the $PM_{2.5}$ SIP for Imperial County on December 2, 2014 [28]. The $PM_{2.5}$ SIP fulfills the requirements of the Clean Air Act Amendments (CAA) for those areas classified as "moderate" nonattainment for $PM_{2.5}$. The $PM_{2.5}$ SIP incorporates updated emission inventories, and analysis of Reasonable Available Control Measures, an assessment of RFP, and a discussion of contingency measures. Analyses in the $PM_{2.5}$ SIP included assessing emission inventories from Imperial County and Mexicali; evaluating the composition and elemental makeup of samples collected on Calexico violation days; reviewing the meteorology associated with high concentration measurements; and performing directional analysis of the sources potentially impacting the Calexico $PM_{2.5}$ monitor. As is demonstrated in the $PM_{2.5}$ SIP, the primary reason for elevated $PM_{2.5}$ levels in Imperial County is transport from Mexico. Essentially, the $PM_{2.5}$ SIP demonstrated attainment of the 2006 $PM_{2.5}$ NAAQS "but-for" transport of international emissions from Mexicali, Mexico.

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28 *Imperial County 2013 SIP for the 2006 24-hr PM2.5 Moderate Nonattainment Area.* Imperial County Air Pollution Control District. December 2, 2014.

3.4. Toxic Air Contaminants (TACs)/Hazardous Air Pollutants (HAPs)

3.4.1 Federal Toxics Legislation

Another group of substances found in ambient air are referred to as HAPs under the FCAA and TACs under the CCAA. HAPs are the air contaminants identified by the EPA as known or suspected to cause cancer, serious illness, birth defects, or death. These contaminants tend to be localized to their sources and are found in relatively low concentrations in ambient air.

Many of the contaminants originate from human activities, such as fuel combustion and solvent use. MSATs are a subset of the 188 identified HAPs. Of the 21 different HAPs that constitute the MSATs, there are six primary HAPs identified that include diesel exhaust, benzene, formaldehyde, acetaldehyde, acrolein, and 1, 3-butadiene. While vehicle miles traveled in the United States is anticipated to increase by 64 percent between 2000 and 2020, emissions of MSATs are anticipated to decrease between 57 and 67 percent because of efforts to control mobile source emissions.

3.4.2 State Toxics Legislation

The CARB Statewide comprehensive air toxics program was established in the early 1980s. In 1983, the TAC Identification and Control Act (AB 1807) created California's program to reduce exposure to air toxics and in 1987, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled engines and vehicles. The goal of the Plan is to reduce PM emissions and the associated health risks by 75 percent by 2010 and 85 percent by 2020. The Plan provides a roadmap that identifies steps CARB has and will be taking to develop specific regulations to reduce DPM emissions.

As a result of controls on motor vehicles, fuels, stationary sources, and consumer products, the public's exposure to air toxics has decreased dramatically. Between the early 1990's and today, the decrease in statewide average health risk ranged from approximately 20 percent from formaldehyde to approximately 90 for perchloroethylene. 1,3-butadiene and benzene have also seen significant decreases of 80 to 85 percent because of CARB's mobile source control program. In addition, dioxins have been reduced by 99 percent in that period, however that is primarily due to CARB's restrictions on medical waste incinerators.

3.4.2.1 On-Road Diesel Truck Fleets

California Code of Regulations (CCR) Title 14, Section 2025 is the codified regulation that limits NO_X, PM_{10}, and $PM_{2.5}$ emissions from on-road diesel truck fleets that operate in California. By January 1, 2017, 80 percent of a truck fleet is required to have installed BACT for NOx emissions and 100 percent of a truck fleet installed BACT for PM_{10} emissions. All diesel trucks that utilize public roads in California are required to comply with CCR Title 13, Section 2025.

3.4.2.2 Commercial Vehicle Idling and Auxiliary Power Systems

CCR Title 13, Section 2485 is the codified regulation that regulates idling activities and auxiliary power systems (APS) in commercial vehicle vehicles with a vehicle weight rating of greater than 10,000 pounds. In addition to requiring phased compliance with emission standards, Section 2485 also restricts vehicle idling to no more than five minutes at any one location and restricts the operation of an APS to no more than five minutes in any location within 100 feet of a sensitive receptor.

3.5. Climate Change

3.5.1 Federal Climate Change Legislation

The federal government is taking several common-sense steps to address the challenge of climate change. EPA collects various types of GHG emissions data. This data helps policy makers, businesses, and EPA track GHG emissions trends and identify opportunities for reducing emissions and increasing efficiency. EPA has been collecting a national inventory of GHG emissions since 1990 and in 2009 established mandatory reporting of GHG emissions from large GHG emissions sources.

EPA is also getting GHG reductions through partnerships and initiatives; evaluating policy options, costs, and benefits; advancing the science; partnering internationally and with states, localities, and tribes; and helping communities adapt.

3.5.2 State Climate Change Legislation

3.5.2.1 Executive Order S 3-05

On June 1, 2005, the Governor issued Executive Order S 3-05 which set the following GHG emission reduction targets:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

To meet these targets, the Climate Action Team (CAT) prepared a report to the Governor in 2006 that contains recommendations and strategies to help ensure the targets in Executive Order S-3-05 are met.

3.5.2.2 Assembly Bill 32 (AB 32)

In 2006, the California State Legislature enacted the California Global Warming Solutions Act of 2006, also known as AB 32. AB 32 focuses on reducing GHG emissions in California. GHGs, as defined under AB 32, include CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. AB 32 requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. CARB is the State agency charged with monitoring and regulating sources of emissions of GHGs in California that cause global warming to reduce emissions of GHGs. AB 32 also requires that by January 1, 2008, the CARB must determine what the statewide GHG emissions level was in 1990, and it must approve a statewide GHG emissions limit so it may be applied to the 2020 benchmark. CARB approved a 1990 GHG emissions level of 427 $MtCO_2e$, on December 6, 2007 in its Staff Report. Therefore, in 2020, emissions in California are required to be at or below 427 $MtCO_2e$.

Under the "business as usual or (BAU)" scenario established in 2008, Statewide emissions were increasing at a rate of approximately 1 percent per year as noted below. It was estimated that the 2020 estimated BAU of 596 $MtCO_2e$ would have required a 28 percent reduction to reach the 1990 level of 427 $MtCO_2e$.

3.5.2.3 Climate Change Scoping Plan

The Scoping Plan[29] released by CARB in 2008 outlined the state's strategy to achieve the AB-32 goals. This Scoping Plan, developed by CARB in coordination with the CAT, proposed a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health. It was adopted by

[29] *Climate Change Scoping Plan: a framework for change.* California Air Resources Board. December 2008.

CARB at its meeting in December 2008. According to the Scoping Plan, the 2020 target of 427 $MtCO_2e$ requires the reduction of 169 $MtCO_2e$, or approximately 28.3 percent, from the State's projected 2020 BAU emissions level of 596 $MtCO_2e$.

However, in May 2014, CARB developed; in collaboration with the CAT, the First Update to California's Climate Change Scoping Plan[30] (Update), which shows that California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB-32. In accordance with the United Nations Framework Convention on Climate Change (UNFCCC), CARB is beginning to transition to the use of IPCC's Fourth Assessment Report (AR4's) 100-year GWPs in its climate change programs. CARB has recalculated the 1990 GHG emissions level with the AR4 GWPs to be 431 $MtCO_2e$, therefore the 2020 GHG emissions limit established in response to AB-32 is now slightly higher than the 427 $MtCO_2e$ in the initial Scoping Plan.

However, in May 2014, CARB developed; in collaboration with the CAT, the First Update to California's Climate Change Scoping Plan[31] (Update), which shows that California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB-32. In accordance with the UNFCCC, CARB is beginning to transition to the use of the IPCC's AR4's[32] 100-year GWPs in its climate change programs. CARB has recalculated the 1990 GHG emissions level with the AR4 GWPs to be 431 $MtCO_2e$, therefore the 2020 GHG emissions limit established in response to AB-32 is now slightly higher than the 427 $MtCO_2e$ in the initial Scoping Plan.

A Proposed Scoping Plan[33] builds upon the former Scoping Plan and Update by outlining priorities and recommendations for the State to achieve its long-term climate objectives. The Proposed Scoping Plan establishes a proposed framework of action for California to meet the climate target of a 40 percent reduction in GHGs by 2030, compared to 1990 levels. The major elements of the framework proposed are enhancement of the Renewables Portfolio Standard and the Low Carbon Fuel Standard; a Mobile Source Strategy, Sustainable Freight Action Plan, Short-Lived Climate Pollutant Reduction Strategy, Sustainable Communities Strategies, and a Post-2020 Cap-and-Trade Program; a 20 percent reduction in GHG emissions from the refinery sector and an Integrated Natural and Working Lands Action Plan.

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30 First Update to the Climate Change Scoping Plan, Building on the Framework. California Air Resources Board. May 2014.

31 *First Update to the Climate Change Scoping Plan, Building on the Framework*. California Air Resources Board. May 2014.

32 *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.* Intergovernmental Panel on Climate Change. Core Writing Team; Pachauri, R.K; Reisinger, A., eds., 2007. ISBN 92-9169-122-4.

33 *The 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target.* California Air Resources Board. January 20, 2017. URL: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf

Section 4.0 – THRESHOLDS OF SIGNIFICANCE

The ICAPCD CEQA Air Quality Handbook[34] outlines significance determination thresholds. The significance criteria described in this section have been derived from this guidance document. In addition, significance criteria for stationary sources, which are permitted by the ICAPCD, are also cited in this section of the document.

4.1. CEQA Significance Determination Thresholds

In accordance with State 2020 CEQA Guidelines Appendix G, implementation of the project would result in a potentially significant impact if it were to:

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

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

c) Expose sensitive receptors to substantial pollutant concentrations.

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

4.2. ICAPCD Regional Thresholds of Significance

Under the ICAPCD guidelines, an air quality evaluation must address the following:

- Comparison of calculated project emissions with ICAPCD emission thresholds.
- Consistency with the most recent Clean Air Plan for Imperial County.
- Comparison of predicted ambient pollutant concentrations resulting from the project to state and federal health standards, when applicable.
- The evaluation of special conditions that apply to certain projects.

4.2.1 Operational Thresholds

The ICAPCD has determined in their Guidelines that because the operational phase of a proposed project has the potential of creating lasting or long-term impacts on air quality, it is important that a proposed development evaluate the potential impacts carefully. Therefore, air quality analyses should compare all operational emissions of a project, including motor vehicle, area source, and stationary or point sources to the thresholds in **Table 6**, which provides general guidelines for determining the significance of impacts and the recommended type of environmental analysis required based on the total emissions that are expected from the operational phase of a project.

34 *CEQA Air Quality Handbook: Guidelines for the Implementation of the California Air Quality Act of 1970 as amended.* Imperial County Air Pollution Control District. Final December 12, 2017.

Table 6 – Regional Operational Thresholds of Significance[35]

Pollutant	Emissions (lbs/day)	
	Tier I	Tier II
Carbon Monoxide (CO)	< 550	≥ 550
Reactive Organic Gases (ROG)	< 137	≥ 137
Nitrogen Oxides (NO_X)	< 137	≥ 137
Sulfur Oxides (SO_X)	< 150	≥ 150
Particulate Matter (PM_{10})	< 150	≥ 150
Particulate Matter ($PM_{2.5}$)	< 550	≥ 550

From the ICAPCD's perspective residential, commercial, and industrial developments with a potential to emit below Tier I level will not be required to develop a Comprehensive Air Quality Analysis Report (CAQAR) or an Environmental impact report (EIR). However, an Initial Study would be required to help the Lead Agency determine whether the project would have a less than significant impact. The Lead Agency is required by CEQA to disclose the identified environmental effects and the ways in which the environmental effects will be mitigated to achieve a level of less than significant. To achieve a level of insignificance the Lead Agency should require the implementation of all feasible standard mitigation measures listed in Section 7.2 of the ICAPCD Guidelines.

4.2.2 Construction Thresholds

In general, projects whose operational emissions qualify them as Tier I do not need to quantify their construction emissions; instead, they adopt the standard mitigation measures for construction. The CEQA Guidelines states the "approach of the CEQA analyses for construction particulate matter impacts should be qualitative as opposed to quantitative."

4.2.3 Local Concentrations of Criteria Pollutant Thresholds

Even though the ICAPCD's CEQA Guidelines does not specifically address localized impacts from criteria pollutants, this AQIA analyzes the potential criteria pollutant health risks pursuant to the published opinion of *Sierra Club v. County of Fresno*[36] that a project with potential significance should provide an analysis of potential correlation that would be generated by the Project to adverse human health impacts that could be expected to result from the increase in criteria emissions for pollutants that exceed air quality standards.

4.2.4 Toxics or Hazardous Air Pollutant Thresholds

The ICAPCD has also determined that any project with the potential to expose sensitive receptors or the general public to substantial levels of TACs would be deemed to have a potentially significant impact. A health risk is the probability that exposure to a TAC under a given set of conditions will result in an adverse health effect. The term "risk" usually refers to the chance of contracting cancer because of an exposure, and it is expressed as a probability: chances-in-a-million. The values expressed for cancer risk do not predict actual

35 *ibid*

36 *Sierra Club v. County of Fresno*, Fifth District Court of Appeal. May 27, 2014.

cases that will result from exposure to toxic air contaminants. Rather, they state a probability of contracting cancer over and above the background level and over a given exposure to toxic air contaminants.

Since the ICAPCD has not adopted a quantitative health risk significance threshold for TAC emissions, the thresholds provided in the California Air Pollution Control Officers Association (CAPCOA) Guidelines have been utilized. According to the CAPCOA Guidelines, any project that has the potential to expose the public to TACs more than the following threshold would be considered to result in a significant impact:

- If the Maximum Exposed Individual (MEI) Cancer Risk from carcinogens equals or exceeds 10 in one million persons.
- If the MEI Acute Hazard Index from non-carcinogens equals or exceeds 1.0, or
- If the MEI Chronic Hazard Index from non-carcinogens equals or exceeds 1.0.

4.2.5 Odor Threshold

While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the District. Any project with the potential to expose members of the public to objectionable odors frequently would be deemed to have a significant impact.

4.3. Greenhouse Gas (GHG) / Climate Change

4.3.1 California Environmental Quality Act (CEQA)

Effective March 18, 2010, CEQA Appendix G states that a project would have potentially significant GHG emission impacts if it would:

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

4.3.2 Local Significance Thresholds

It is widely recognized that no single project could generate enough GHG emissions to change the global climate temperature noticeably. However, the combination of GHG emissions from past, present, and future projects could contribute substantially to global climate change. Thus, project specific GHG emissions should be evaluated in terms of whether they would result in a cumulatively significant impact on global climate change.

Since the County of Imperial has not established a threshold of significance for GHGs, the ICAPCD recommends that the project be evaluated based on strategies developed by the CAT in a 2006 Report[37] that set the framework for the State's emission reduction strategies that could be implemented in California to reduce climate change emissions to ensure that the targets of AB-32 are met.

[37] Climate Action Team Report to Governor Schwarzenegger and the Legislature. California Environmental Protection Agency. March 2006.

Section 5.0 – ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

5.1. Analysis Methodology

Regional and local emissions of criteria air pollutants and precursors, and GHGs during project operations were assessed in accordance with the methodologies described below to ascertain impacts from the facility due to amended CUP.

5.1.1 Construction Emissions

The Project will include the construction of a restroom. The building will be 480 ft^2 (20 x 24 foot). Construction emissions were estimated using the CalEEMod model using conservative parameters, i.e. 2 days of grading and 2 weeks of construction with no mitigations or control applied, which yielded the following emissions:

- Criteria emissions in pounds per day
  - ROG – 0.5
  - NO_X – 5.2
  - CO – 4.1
  - PM_{10} – 27.8
  - $PM_{2.5}$ – 3.2
- Total GHG emissions in metric tons
  - CO_2e – 3.5

All emissions are significantly below the ICAPCD's construction threshold. CalEEMod output is in Appendix C.

5.1.2 Operational Emissions

Existing emissions associated with the current operation include emissions of exhaust from off-road sources and existing truck emissions. Existing onsite stationary source emissions data was obtained from the Authority to Construct (ATC) #3357 and are presented below.

The ATC quantifies emissions from the hay compressing operations. Additionally, the ATC estimates fugitive emissions related to transport vehicles' activity within the property line and onsite squeeze and fork truck unit activity. The ATC estimates the hay compressing operations would produce 30.59 pounds per day (ppd) of PM_{10} and 2.96 ppd of $PM_{2.5}$. Additionally, fugitive emissions generated onsite would produce an additional 66.02 ppd of PM_{10} and 6.60 ppd of $PM_{2.5}$. Total emissions for the stationary source would be 96.6 ppd of PM_{10} and 29.6 ppd of $PM_{2.5}$. According to the CEQA handbook, emissions from stationary sources subject to mitigation according to Rule 207 need not compare their emissions to CEQA thresholds, so this information is provided to provide full disclosure.

To estimate CEQA emissions related to the amendment of the CUP, the proposed on-road and off-road exhaust operations of the facility in proposed or post-project conditions, while subtracting the emissions from the existing[38] facility to produce the emissions to be used to determine CEQA impacts from the Project.

[38] Existing means the state of the facility at entitlement levels as presented in the County's Conditional Use Permit #04-0003 Time Extension #16-0009.

Exhaust emissions from the heavy-duty diesel (HDD) trucks bringing hay to the facility and HDD trucks taking the pressed product to AAG to be shipped out; exhaust emissions from employee commute and visitor vehicles; and exhaust emissions from off-road equipment were assessed to generate Project emissions.

Estimated proposed and existing activity levels of on-road vehicles were obtained from the Applicant. Emission factors were determined using CARB's latest EMFAC2017's Project Analysis[39] for Calendar Year 2021 with an aggregated Model Year and an average speed for vehicle class "T7 tractor" as 55 miles per hour (mph) and for the vehicle class "T7 single as 45 mph" (see Appendix D for Project Analysis printout).

Estimated activity levels for employees and vendors were also obtained from the Applicant. Emission factors for employee and vendor vehicles were obtained from the EMFAC2017 model[40]; were for the calendar year 2021; and represents aggregated Model Year and Speed.

Estimated activities and engine size for on-site, off-road equipment were provided by the Applicant and emission factors were obtained from the California Emissions Estimator Model (CalEEMod™) Guidelines[41].

A detailed summary of the assumptions and model data used to estimate the facility's proposed and existing conditions and estimated Project's operational emissions are provided in Appendix A.

5.1.3 Toxic Air Contaminant Emissions

The proposed project is anticipated to generate DPM emissions from on-road vehicle operations and off-road equipment. All emissions are based on year 2021 emissions rates. To provide a worst-case analysis, the HRA analyzes the impacts from all DPM emissions created from Hay Kingdom at proposed levels.

5.1.3.1 Off-Road Diesel Equipment

CARB's OFFROAD2017 Web Database[42] was utilized to calculate the DPM emissions from each piece of equipment that operates on the project site. The OFFROAD2017 model was run for Imperial County for the year 2021. Since the project applicant has stated that all off-road diesel equipment meets the most current Tier 4 standards, that were not fully implemented until the year 2014, the model year 2014 was analyzed in the OFFROAD2017 model. The OFFROAD2017 model only provides a limited number of types of off-road vehicles, as such the most similar types available to the off-road equipment utilized onsite were selected, which include off-highway trucks, rubber tired loaders, tractors/loaders/backhoes, and forklifts. It should be noted that the DPM emission rates for each type of equipment needs to meet the same Tier 4 standards, so an exact match to the equipment used is not required to provide a reasonable estimate of DPM emissions created from each piece of equipment.

5.1.3.2 On-Road Diesel Trucks

The truck trips generated from the proposed project have been calculated through use of the peak daily truck trip rate of 60 round trips per day, which was provided by the project Applicant. The truck travel was modeled with line volume sources of Highway 111, Worthington Road, and Rose Lateral Two Road, as well as onsite

39 EMFAC2017 Web Database (v1.0.2). California Air Resources Board. http://www.arb.ca.gov/emfac/2017/. Accessed May 2020.

40 *ibid*

41 Appendix D: Default Data Tables for CalEEMod. South Coast Air Quality Management District. February 2011

42 https://www.arb.ca.gov/orion/

roads within a 1.5-kilometer area around the project site. According to the TIA[43], the following percentages of daily truck trips will occur on the nearby roadways: 1 percent on Worthington Road west of Highway 111; 98 percent on Worthington Road between Highway 111 and Rose Lateral Two; 2 percent on Worthington Road east of Rose Lateral Two; 39 percent on Highway 111 north of Worthington Road; and 58 percent on Highway 111 south of Worthington Road.

The emission factors used for the roadway line volume sources was obtained from a model run of EMFAC2017 Model Version 1.0.2 for Imperial County for the year 2021. The diesel trucks were based on the T7 Tractor truck classification. The onsite truck travel was analyzed based on a speed of 15 miles per hour; the travel on Worthington Road was analyzed based on a speed of 45 miles per hour; and Highway 111 travel was analyzed based on a speed of 55 miles per hour.

5.1.3.3 On-Site Truck Idling

The onsite diesel truck idling was modeled as one-point source located near the loading docks on the northern portion of the project site. The analysis was based on all 120 daily truck trips to or from the project site idling for five minutes. Per CCR Section 2485 truck idling is restricted to no more than five minutes at any one location.

5.1.4 Other Air Quality Impacts

Other air quality impacts (i.e., local emissions of CO, and odors) were assessed in accordance with methodologies recommended by CARB and ICAPCD.

5.2. Analysis of Environmental Impacts

IMPACT 1: Would the Project conflict with or obstruct implementation of the applicable air quality plan?

CEQA requires that projects be consistent with the applicable AQMP. A consistency determination plays an important role in local agency project review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision-makers of the environmental efforts of the project under consideration at a stage early enough to ensure that air quality concerns are fully addressed.

ICAPCD's CEQA Handbook states that a CAQAR of a proposed project should demonstrate compliance with the most recent ozone AQMP and PM_{10} SIP. It also states the CAQAR should demonstrate compliance with the Imperial County Rules and Regulations as well as the State and federal regulations.

Ozone Air Quality Management Plan (AQMP)

To develop the Modified AQMP[44], a control strategy for meeting State and federal requirements is required. The ICAPCD control strategy included an interactive process of technology and strategy review supported by ambient air quality modeling. The air quality modeling assists in identifying current and remaining emission targets that would help to achieve the ambient air quality standards. The Modified AQMP control measures consist of three components: 1) the ICAPCD's Stationary Source Control Measures; 2) Regional

[43] *Draft Traffic Impact Analysis*. Hay Kingdom Project. County of Imperial, California. LOS Engineering. April 3, 2020.

[44] *Final 2009 1997 8-Hour Modified Air Quality Management Plan.* Imperial County Air Pollution Control District. July 13, 2010.

Transportation Strategy and Control Measures; and 3) State Strategy. These measures primarily rely on the traditional command and control approach and as such provide the framework for ICAPCD Rules that reduce ROG and NO_X emissions.

The Project does not produce new residential activity, produces only minimal additional traffic activity during project operations; and does not fall outside of the modeling forecast estimations used in determining continued maintenance.

PM_{10} State Implementation Plan (PM_{10} SIP)

The PM_{10} SIP was required to address and meet the following elements, required under the FCAA of areas classified to be in serious nonattainment of the NAAQS:

- Best available emission inventories.
- A plan that enables attainment of the PM_{10} federal air quality standards.
- Annual reductions in PM_{10} or PM_{10} precursor emissions that are of not less than 5 percent from the date of SIP submission until attainment.
- Best available control measures and best available control technologies for significant sources and major stationary sources of PM_{10}, to be implemented no later than 4 years after reclassification of the area as serious.
- Transportation conformity and motor vehicle emission budgets in accord with the attainment plan.
- Reasonable further progress and quantitative milestones.
- Contingency measures to be implemented (without the need for additional rulemaking actions) if the control measure regulations incorporated in the plan cannot be successfully implemented or fail to give the expected emission reductions.

In November 2005, revised Regulation VIII fugitive dust control measures were adopted, which form the core of the Imperial County PM_{10} control strategy. The Project is required to comply with all applicable Regulation VIII measure.

Level of Significance Before Mitigation: The Project would not conflict with, or obstruct implementation of, the applicable air quality plan, therefore would result in a less than significant impact.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: Impacts would be less than significant.

IMPACT 2: Would the Project result in cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard?

In accordance with CEQA Guidelines 15130(b), this analysis of cumulative impacts incorporates a summary of projections. The following three-tiered approach is to assess cumulative air quality impacts.

- Consistency with the ICAPCD project specific thresholds for construction and operation.
- Project consistency with existing air quality plans.
- Assessment of the cumulative health effects of the pollutants.

Project Specific Thresholds

As established here in Impact 2, the Project will not exceed the ICAPCD regional significance thresholds. It is assumed that emissions that do not exceed the project specific thresholds will not result in a cumulative impact.

Air Quality Plans

The area in which the Project is located is in nonattainment for ozone and PM_{10}. As such, the ICAPCD is required to prepare and maintain an AQMP to document the strategies and measures to be undertaken to reach attainment of ambient air quality standards. As discussed above in Impact 1, the Project is compliant with the AQMP and would not result in a significant impact.

Cumulative Health Impacts

The area is in nonattainment for ozone and PM_{10}, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect the health of sensitive individuals (i.e., elderly, children, and the sick). Therefore, when the concentration of those pollutants exceeds the standard, it is likely that some of the sensitive individuals of the population experience adverse health effects.

The localized significance analysis in Impact 3 showed that during construction no localized adverse exposure was expected; therefore, the emissions of particulate matter and NO_X would not result in a significant cumulative health impact.

Project Related Construction Emissions

The Project will include the construction of a restroom. The building will be 480 ft^2 (20 x 24 foot). Construction emissions were estimated using the CalEEMod model using conservative parameters, i.e. 2 days of grading and 2 weeks of construction with no mitigations or control applied, which yielded the following emissions:

- Criteria emissions in pounds per day
  - ROG – 0.5
  - NO_X – 5.2
  - CO – 4.1
  - PM_{10} – 27.8
  - $PM_{2.5}$ – 3.2
- Total GHG emissions in metric tons
  - CO_2e – 3.5

All construction emissions are significantly below the ICAPCD's construction threshold. CalEEMod output is attached in Appendix C.

Project Related Operational Emissions

Emission factors for vehicular activity related to HDD trucks hauling to and from the Project were estimated using the Project Analysis feature in CARBs latest EMFAC2017 model[45]. The vehicle class "T7 Tractor" was used for the incoming HDD trucks and "T7 Single" for the outgoing container trucks. Aggregate model years

[45] *EMFAC2017 Web Database.* California Air Resources Board. https://www.arb.ca.gov/emfac/2017/. Accessed May 2020.

was used but emission factors were based on appropriate average speeds. Project analysis output is presented in Appendix D.

Employee commute and vendors/visitors were estimated using EMFAC2017 with emission rate data for Imperial County for the 2021 calendar year. To generate expected exhaust emissions from employee and vendor vehicles, this AQIA used CARB's latest EMFAC2017 model. To represent the type of vehicles used by the potential employee work pool more accurately, an activity-weighted average emission factor was generated using light-duty automobiles and light-duty trucks. The weighted averages were derived from the distributions of vehicle miles travelled (VMT) in 2021 in Imperial County from EMFAC2017.

The number of proposed on-road vehicles used was obtained from the Applicant and estimated trip lengths were generated by assuming that 50 percent of employees would come from El Centro, with the other half originating in Brawley. The trip lengths for the haulers bringing product to the Project were estimated using Google. Incoming trip distribution was Applicant-estimated to be 40 percent from southern Imperial Valley; 35 percent from northern Imperial Valley; 20 percent from the areas around Wilcox Arizona; and 5 percent from the areas around Beaverton Utah.

Emission factors, brake-horsepower, and load factors for off-road equipment used on-site were taken from the Data Tables in the latest CalEEMod Guidance Document. Specific list of equipment provided by the Applicant was assigned an appropriate equipment type categorized in CARB's OFFROAD model.

In addition, entrained road dust emissions were assigned to haulers and employees. The ICAPCD usually recommends that 50 percent of vehicular travel in Imperial County is assumed to be on unpaved roads. For this AQIA however, since employees will be using a parking area adjacent to a paved road, all employee commute trips will be on paved roads. This AQIA also assumed that all the hauler fleets travel will be on paved roads. Since vendors may travel some on unpaved roads to deliver materials or provide service, 5 percent of vendor activity is assigned to the potential of off-road activity.

Table 7 shows the estimated emissions from the facility at proposed conditions and

Table 8 shows the estimated emissions from the facility at existing conditions.

Table 7 – Proposed Operational Unmitigated Emissions

Emission Sources	Criteria Emissions (lbs/d)				
	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
On-road vehicles	1.8	10.1	59.5	1.5	1.5
Off-road equipment	3.3	26.8	31.9	1.9	1.5
Entrained Road Dust	----	----	----	82.2	8.6
Total	**5.1**	**36.8**	**91.4**	**85.5**	**11.4**

Table 8 – Existing Operational Unmitigated Emissions

Emission Sources	Criteria Emissions (lbs/d)				
	ROG	CO	NO_X	PM_{10}	$PM_{2.5}$
On-road vehicles	0.5	3.4	16.3	0.5	0.4
Off-road equipment	3.3	26.8	31.9	1.9	1.5
Entrained Road Dust	----	----	----	33.9	3.6
Total	**3.8**	**30.1**	**48.2**	**36.2**	**5.5**

Table 9 summarizes project-related operational air emissions by subtracting the existing emissions from the proposed conditions. The ICAPCD thresholds of significance are also included in this table as well as information regarding whether peak operational emissions would exceed those thresholds. As shown in **Table 9**, operational emissions would be well below ICAPCD Tier 1 Regional thresholds. Detailed emissions calculations are included in Appendix A.

Table 9 – Project Operational Unmitigated Emissions

Emission Sources	Criteria Emissions (lbs/d)				
	ROG	CO	NO_X	PM_{10}	$PM_{2.5}$
Proposed Emissions	5.1	36.8	91.4	85.5	11.4
- Existing Emissions	3.8	30.1	48.2	36.2	5.5
Total	**1.3**	**6.7**	**43.2**	**49.3**	**5.9**
ICAPCD Regional Thresholds	*137*	*550*	*137*	*150*	*550*
Exceed Thresholds?	No	No	No	No	No

Level of Significance Before Mitigation: The Project would not result in cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard, therefore would result in a less than significant impact.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: Impacts would be less than significant.

IMPACT 3: Would the Project expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors are defined as land uses where sensitive population groups are likely to be located (e.g., children, the elderly, the acutely ill, and the chronically ill). These land uses include residences, schools, childcare centers, retirement homes, convalescent homes, medical care facilities, and recreational facilities. Sensitive receptors that may be adversely affected by the Project include the surrounding residential land uses.

The nearest sensitive receptor to the Project site consists of a farmhouse located approximately 250 feet east of the Project site and 2 farmhouses located as near as 500 feet northeast of the Project site's northeast corner and across East Worthington Road.

Toxic Air Contaminants

Due to the Project's ongoing reliance on heavy duty diesel trucks and diesel off-road equipment, an assessment of the potential health risk from TAC emissions resulting from the operation of the Project was conducted and the Health Risk Assessment (HRA)[46] is presented in full in Appendix B. The HRA was conducted, in part, to determine the potential cancer and non-cancer (acute and chronic) risks associated with the operation of the Project. Health risks from TACs are twofold; 1) TACs are carcinogens according to the State and 2) short-term acute and long-term chronic exposure to TACs can cause chronic and/or acute health effects to the respiratory system. The HRA concluded:

- All DPM emissions concentrations at the nearby sensitive receptors were found to be below the 10.0 in a million cancer risk threshold. Therefore, a less than significant cancer risk would occur from DPM emissions created from the operation of the Project.
- The on-going operations of the Project would result in a less than significant impact due to the non-cancer chronic and acute health risks from TAC emissions created by the Project.

CO Hot spots

Another way a project can establish significance with this impact is the potential to create a CO hotspot. CO hotspots can occur when vehicles are idling at highly congested intersections. According to the Traffic Impact Analysis (TIA)[47], the Project would not create an increase in congestion of the magnitude required to generate a CO hotspot.

Level of Significance Before Mitigation: The Project would not expose the public to substantial pollutant concentrations.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: Impacts would be less than significant.

IMPACT 4: Would the Project result in other emissions (such as odors) adversely affecting a substantial number of people?

The CEQA Guidelines indicate that a significant impact would occur if a project would create objectionable odors affecting a substantial number of people. While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the ICAPCD. Because offensive odors rarely cause any physical harm and no requirements for their control are included in State or federal air quality regulations, the ICAPCD has no rules or standards related to odor emissions, other than its nuisance rule.

46 *Health Risk Assessment: Hay Kingdom Expansion Project, County of Imperial*. Vista Environmental. June 1, 2020.

47 *Draft Traffic Impact Analysis*. Hay Kingdom Project. County of Imperial, California. LOS Engineering. April 3, 2020.

The construction and operation of a hay processing facility is not an odor producer nor located near an odor producer; therefore, the Project would not result in a significant odor impact.

Level of Significance Before Mitigation: The Project would not create objectionable odors affecting a substantial number of people.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: Impacts would be less than significant.

IMPACT 5: Would the Project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

The Project would generate GHG emissions operational activities at the site and off the site. On-site activities' GHG emissions would be generated primarily by on-site diesel equipment, e.g. forklifts, loaders, and water truck. Off-site GHG emissions would primarily come from HDD trucks, with the majority from the haulers from the fields to the Project site. GHG emissions were estimated using all the methodologies listed above for criteria emissions. **Table 10** shows that the operational emissions for the facility at proposed conditions and **Table 11** shows the estimated emissions from the facility at existing conditions. **Table 12** shows the Project emissions as a factor of proposed conditions minus the existing conditions. The detailed calculations are presented in Appendix A.

Table 10 – Proposed Operational GHG Emissions

Emission Sources	GHG Emissions (tonnes/year)			
	CO_2	CH_4	N_2O	CO_2e
Off-site sources	6,088	0.032	0.011	6,092.3
On-site sources	516.9	0.167	N/A	521.0
Proposed Total	**6,605**	**0.199**	**0.011**	**6,613**

Table 11 – Existing Operational GHG Emissions

Emission Sources	GHG Emissions (tonnes/year)			
	CO_2	CH_4	N_2O	CO_2e
Off-site sources	869.4	0.006	0.005	871.0
On-site sources	516.9	0.167	N/A	521.0
Existing Total	**1,386**	**0.173**	**0.005**	**1,392**

Table 12 – Project Operational GHG Emissions

Emission Sources	GHG Emissions (tonnes/year)			
	CO_2	CH_4	N_2O	CO_2e
Proposed Conditions	6,605.1	0.199	0.011	6,613.3
- Existing Conditions	1 386.2	0.173	0.005	1,392.0
Project Total	**5,219**	**0.026**	**0.006**	**5,221**

Level of Significance Before Mitigation: The Project would generate GHG emissions that may have a significant impact on the environment.

Mitigation Measures: The ICAPCD has determined that compliance with applicable State GHG emission reduction strategies would constitute feasible mitigation. **Table 13** presents Project's design and/or mitigation that demonstrates compliance with applicable State GHG strategies presented in the CAT report.

Table 13 – California Greenhouse Gas Emission-Reduction Strategies

Strategy	Project Design/Mitigation to Comply with Strategy
Vehicle Climate Change Standards: AB 1493 (Pavley) required the State to develop and adopt regulations to achieve the most feasible and cost-effective reduction in climate change emissions emitted by passenger vehicles and light-duty trucks. Regulations were adopted by CARB in September 2004.	These are CARB-enforced standards; vehicles subject to these standards/measures that would access the proposed project would be complying.
Other Light-duty Vehicle Technology: New standards would be adopted and phased in beginning in the 2017 model year.	
Heavy-duty Vehicle Emission Reduction Measures: Increased efficiency in the design of heavy-duty vehicles and an educational program for the heavy-duty vehicle sector.	
Diesel Anti-Idling: In July 2004, CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	This is a CARB-enforced measure; vehicles subject to this measure that would access the proposed project would be complying.
Hydrofluorocarbon Reduction: 1) ban retail sale of HFC in small cans, 2) require that only low-GWP refrigerants be used in new vehicular systems, 3) adopt specifications for new commercial refrigeration, 4) add refrigerant leak-tightness to the pass criteria for vehicular inspection and maintenance programs, 5) enforce Federal ban on releasing HFCs.	Not applicable.
Transportation Refrigeration Units (TRUs), Off-road Electrification, Port Electrification: Strategies to reduce emissions from TRUs, increase off-road electrification, and increase use of shore-side/port electrification.	Not applicable.
Manure Management: The proposed San Joaquin Valley Rule 4570 would reduce volatile organic compounds from confined animal facilities through implementation of control options.	Not applicable.

Strategy	Project Design/Mitigation to Comply with Strategy
Alternative Fuels – Biodiesel Blends: CARB would develop regulations to require the use of 1% to 4% biodiesel displacement in California diesel fuel.	Not applicable.
Alternative Fuels – Ethanol: Increased use of ethanol fuel.	Not applicable.
Achieve 50% Statewide Recycling Goal: Achieving the State's 50% waste diversion mandate, as established by the Integrated Waste Management Act of 1989 (AB 939 [Sher]), Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy-intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48% has been achieved on a statewide basis. Therefore, a 2% additional reduction is needed.	Not applicable.
Zero Waste – High Recycling: Additional recycling beyond the State's 50% recycling goal.	Not applicable.
Landfill Methane Capture: Implement direct gas use or electricity projects at landfills to capture and use emitted methane.	Not applicable. The proposed project does not include landfill operations.
Urban Forestry: A new statewide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs.	Not applicable. The proposed project is not in an urban area.
Afforestation/Reforestation Projects: Reforestation projects focus on restoring native tree cover on lands that were previously forested and are now covered with other vegetative types.	Not applicable. The proposed project area has not been forested in recent times.
Water Use Efficiency: 19% of all electricity, 30% of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute, and use water and wastewater. Increasing the efficiency of water transport and reducing water usage would reduce GHG emissions.	Not applicable. The project is not a water supply entity.
Building Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes the California Energy Commission (CEC) to adopt and periodically update its building energy efficiency standards, which apply to newly constructed buildings and additions and alterations to existing buildings.	Not applicable. The project does not include any construction activity.
Appliance Energy Efficiency Standards in Place and in Progress: Public Resources Code 25402 authorizes CEC to adopt and periodically update its appliance energy efficiency standards, which apply to equipment and devices that use energy and are sold or offered for sale in California.	Not applicable. The project does not include new appliance acquisition.
Cement Manufacturing: Cost-effective actions to reduce energy consumption and lower carbon dioxide emissions in the cement industry.	Not applicable. The proposed project does not include cement manufacturing operations.

Strategy	Project Design/Mitigation to Comply with Strategy
Smart Land Use and Intelligent Transportation Systems (ITS): Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. It is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and the movement of people, goods, and services. Governor's office is finalizing a comprehensive 10-year strategic growth plan with the intent of developing ways to promote, through State investments, incentives, and technical assistance, land use and technology strategies that provide for a prosperous economy, social equity, and a quality environment. Smart land use, demand management, ITS, and value pricing are critical elements for improving mobility and transportation efficiency. Specific strategies include promoting jobs/housing proximity and transit-oriented development, encouraging high-density residential/commercial development along transit/rail corridors, value and congestion pricing, ITS, traveler information/traffic control, incident management, accelerating the development of broadband infrastructure, and comprehensive, integrated, multimodal/intermodal transportation planning.	Not applicable. The project is not in a metropolitan or urban area.
Enteric Fermentation: Cattle emit methane from digestion processes. Changes in diet could result in a reduction in emissions.	Not applicable. The project does not include any cattle operations.
Green Buildings Initiative: Green Building Executive Order S-20-04 sets a goal of reducing energy use in public and private buildings by 20% by 2015 compared with 2003 levels. Consistent with mitigation.	Not applicable. The project does not include any construction activity.
California Solar Initiative: Installation of 1 million solar roofs on homes and businesses, or an equivalent 3,000 megawatts, by 2017; increased use of solar thermal systems to offset the increasing demand for natural gas; use of advanced metering in solar applications; and the creation of a funding source that can provide rebates over 10 years through a declining incentive schedule.	Not applicable. The project does not include any construction activity.

Source: State of California, Environmental Protection Agency, Climate Action Team, 2006

Level of Significance After Mitigation: Impacts would be less than significant.

IMPACT 6: Would the Project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Neither the County of Imperial nor ICAPCD have any specific plans, policies, nor regulations adopted for reducing the emissions of GHGs but CARB's First Update to their Scoping Plan[48] included a table presenting the recommended actions the State should take in each of the sectors to meet our climate change goals. The Project does not conflict with any of these recommended actions. Since the operational emissions associated with the Project would not conflict with any applicable plan, policy, or regulation adopted for reducing the emissions of GHGs, impact from the Project is less than significant.

Level of Significance Before Mitigation: The Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Mitigation Measures: No mitigation measures are necessary.

Level of Significance After Mitigation: Impacts would be less than significant.

48 *First Update to the Climate Change Scoping Plan: Building on the Framework Pursuant to AB 32, The California Global Warming Solutions Act of 2006.* California Air Resources Board. May 22, 2014.

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒

c) The project site is not zoned for forest land, per Zoning Map #16; the General Plan Land Use Map designates this site as "Agriculture". Hence, the proposed project will not conflict with existing zoning, or cause rezoning of forest land, timberland or timberland zoned Timberland Production; therefore, no impacts are expected.

	PSI	PSUMI	LTSI	NI
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

d) The project site is not zoned for forest land, per Zoning Map #16; the General Plan Land Use Map designate this site as "Agriculture", In fact the proposed project is for an agricultural use and would not result in the loss or conversion of forest land to non-forest use. Therefore, no impacts are expected.

	PSI	PSUMI	LTSI	NI
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

e) The proposed project is for an agricultural use and consist of an existing hay processing and storage facility; therefore, it does not involve any changes in the existing environment that may cause a conversion of farmland to non-agricultural use and the project site is not located near forest land. Therefore, no impacts are expected.

III. *AIR QUALITY*

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

	PSI	PSUMI	LTSI	NI
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐

a) Per the proposed project's Air Quality Impact Assessment (OB-1 August 2020), CEQA requires that project s be consistent with the applicable Air Quality Management Plan (AQMP). A consistency determination plays an important role in local agency project review by linking local planning and individual projects to the ACZMP. It fulfills the CEQA goal of informing decision makers of the environment efforts of the project under consideration at ta sate early enough to ensure that air quality concerns are fully addressed. The Imperial County Air Pollution Control District's (ICAPCD's) CEQA Handbook states that a Comprehensive Air Quality Analysis Report (CAQAR) of a propose project should demonstrate compliance with the most recent ozone ACMP and PM10 SIP. It also states the CAQAR should demonstrate compliance with the Imperial County Rules and Regulations as well as State and federal regulations (OB-1 June 2020).

<u>Ozone Air Quality Management Plan (AQMP)</u>
In order to develop the Modified AQMP43, a control strategy for meeting State and federal requirements is required. The ICAPCD control strategy included an interactive process of technology and strategy review supported by ambient air quality modeling. The air quality modeling assists in identifying current and remaining emission targets that would help to achieve the ambient air quality standards. The Modified AQMP control measures consist of three components: 1) the ICAPCD's Stationary Source Control Measures; 2) Regional Transportation Strategy and Control Measures; and 3) State Strategy. These measures primarily rely on the traditional command and control approach and as such provide the framework for ICAPCD Rules that reduce ROG and NOX emissions.

The Project does not produce new residential activity, produces only minimal additional traffic activity during project operations; and does not fall outside of the modeling forecast estimations used in determining continued maintenance.

<u>PM10 State Implementation Plan (PM10 SIP)</u>
The PM10 SIP was required to address and meet the following elements, required under the FCAA of areas classified to be in serious nonattainment of the NAAQS:

- Best available emission inventories.

	Potentially Significant Impact (PSI)	Potentially Significant Unless Mitigation Incorporated (PSUMI)	Less Than Significant Impact (LTSI)	No Impact (NI)

- A plan that enables attainment of the PM10 federal air quality standards.
- Annual reductions in PM10 or PM10 precursor emissions that are of not less than 5 percent from the date of SIP submission until attainment.
- Best available control measures and best available control technologies for significant sources and major stationary sources of PM10, to be implemented no later than 4 years after reclassification of the area as serious.
- Transportation conformity and motor vehicle emission budgets in accord with the attainment plan.
- Reasonable further progress and quantitative milestones.
- Contingency measures to be implemented (without the need for additional rulemaking actions) if the control measure regulations incorporated in the plan cannot be successfully implemented or fail to give the expected emission reductions.

In November 2005, revised Regulation VIII fugitive dust control measures were adopted, which from the cord of the Imperial County PM10 control strategy. The project is required to comply with all applicable Regulation VIII measure. Therefore, the project would not conflict with, or obstruct implementation of, the applicable air quality plan (OB-1 June 2020). This impact is less than significant.

		PSI	PSUMI	LTSI	NI
b)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐

b) In accordance with CEQA Guidelines 15130(b), this analysis of cumulative impacts incorporates a summary of projections. The following three-tiered approach is to assess cumulative air quality impacts.

- Consistency with the ICAPCD project specific thresholds for construction and operation.
- Project consistency with existing air quality plans.
- Assessment of the cumulative health effects of the pollutants.

Project Specific Thresholds
As established here in Impact 2, the Project will not exceed the ICAPCD regional significance thresholds. It is assumed that emissions that do not exceed the project specific thresholds will not result in a cumulative impact.

Air Quality Plans
The area in which the Project is located is in nonattainment for ozone and PM10. As such, the ICAPCD is required to prepare and maintain an AQMP to document the strategies and measures to be undertaken to reach attainment of ambient air quality standards. As discussed above in Impact 1, the Project is compliant with the AQMP and would not result in a significant impact.

Cumulative Health Impacts
The area is in nonattainment for ozone and PM10, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect the health of sensitive individuals (i.e., elderly, children, and the sick). Therefore, when the concentration of those pollutants exceeds the standard, it is likely that some of the sensitive individuals of the population experience adverse health effects.

The localized significance analysis in Impact 3 showed that during construction no localized adverse exposure was expected; therefore, the emissions of particulate matter and NOX would not result in a significant cumulative health impact.

Project Related Construction Emissions
As discussed in Section 5.1.1, no new production equipment or facilities are proposed for this expansion of operations, and no construction activities are involved. Therefore, no analysis of construction emissions was necessary.

Project Related Operational Emissions
Emission factors for vehicular activity related to HDD trucks hauling to and from the Project and commute of employees were estimated using CARB's latest EMFAC2017 model44 with emission rate data for Imperial County for the 2021 calendar year. For truck trips, this AQIA used aggregate model years, which is an average age of specific vehicle types for Imperial County.

To generate expected exhaust emissions from employee vehicles, this AQIA also used CARB's latest EMFAC2017 model. In order to represent the type of vehicles used by the potential employee work pool more accurately, an activity-weighted average emission factor was generated using light-duty automobiles and lightduty trucks. The weighted averages were derived from the distributions of vehicle miles travelled (VMT) in 2021 in Imperial County from EMFAC2017.

The number of proposed on-road vehicles used was obtained from the Draft TIA45 and estimated trip lengths were generated by assuming that 50 percent of employees would come from El Centro, with the other half originating in Brawley. The trip lengths for the haulers bringing product to the Project were provided by the Applicant and estimated to be 40 percent from southern Imperial Valley; 35 percent from northern Imperial Valley; 20 percent from the areas around Wilcox Arizona; and 5 percent from the areas around Beaverton Utah.

Emission factors, brake-horsepower, and load factors for off-road equipment used on-site were taken from the Data Tables in the latest CalEEMod Guidance Document. Specific list of equipment provided by the Applicant was assigned an appropriate equipment type categorized in CARB's OFFROAD modeler. In addition, entrained road dust emissions were assigned to haulers and employees. The ICAPCD usually recommends that 50 percent of vehicular travel in Imperial County is assumed to be on unpaved roads. For this AQIA however, since employees will be using a parking area adjacent to a paved road, all employee commute trips will be on paved roads. This AQIA also assumed that all the hauler fleets travel will be on paved roads. Since vendors may travel some on unpaved roads to deliver materials or provide service, 5 percent of vendor activity is assigned to the potential of off-road activity.

Table 7 summarizes project-related annual operational air emissions. The ICAPCD thresholds of significance are also included in this table as well as information regarding whether annual operational emissions would exceed those thresholds. As shown in **Table 7**, operational emissions would be well below ICAPCD Tier 1 Regional thresholds. Detailed emissions calculations are included in Appendix A.

Table 7 – Project Operational Unmitigated Emissions

Emission Sources	Criteria Emissions (lbs/d)				
	ROG	CO	NO_x	PM_{10}	$PM_{2.5}$
On-road sources	1.78	10.20	65.40	2.24	1.79
Off-road equipment	3.32	26.76	31.89	1.86	1.49
Entrained road dust	—	—	—	85.90	9.30
Total	**5.10**	**36.96**	**97.29**	**90.00**	**12.58**
ICAPCD Regional Thresholds	*137*	*550*	*137*	*150*	*550*
Exceed Thresholds?	No	No	No	No	No

The project would not result in cumulatively considerable net increase in any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard, therefore would result in less than significant impact.

	PSI	PSUMI	LTSI	NI
c) Expose sensitive receptors to substantial pollutants concentrations?	☐	☐	☒	☐

c) Sensitive receptors are defined as land uses where sensitive population groups are likely to be located (e.g., children, the elderly, the acutely ill, and the chronically ill). These land uses include residences, schools, childcare centers, retirement homes, convalescent homes, medical care facilities, and recreational facilities. Sensitive receptors that may be adversely affected by the Project include the surrounding residential land uses.

The nearest sensitive receptor to the Project site consist of a farmhouse located approximately 250 feet east of the Project site and 2 farmhouses located as near as 500 feet northeast of the Project site's northeast corner and across East Worthington Road.

Toxic Air Contaminants

Due to the Project's ongoing reliance on heavy duty diesel trucks and diesel off-road equipment, an assessment of the potential health risk from TAC emissions resulting from the operation of the Project was conducted and the Health Risk Assessment (HRA)46 is presented in full in Appendix B. The HRA was conducted, in part, to determine the potential cancer and non-cancer (acute and chronic) risks associated with the operation of the Project. Health risks from TACs are twofold; 1) TACs are carcinogens according to the State and 2) short-term acute and long-term chronic exposure to TACs can cause chronic and/or acute health effects to the respiratory system. The HRA concluded:

- All DPM emissions concentrations at the nearby sensitive receptors were found to be below the 10.0 in a million cancer risk threshold. Therefore, a less than significant cancer risk would occur from DPM emissions created from the operation of the Project.
- The on-going operations of the Project would result in a less than significant impact due to the noncancer chronic and acute health risks from TAC emissions created by the Project.

CO Hot spots

Another way a project can establish significance with this impact is the potential to create a CO hotspot. CO hotspots can occur when vehicles are idling at highly congested intersections. According to the Draft TIA, the Project would not create an increase in congestion of the magnitude required to generate a CO hotspot.

The project would not expose the public to substantial pollutant concentration. Impacts would be less than significant.

		PSI	PSUMI	LTSI	NI
d)	Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?	☐	☐	☒	☐

d) The CEQA Guidelines indicate that a significant impact would occur if a project would create objectionable odors affecting a substantial number of people. While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the ICAPCD. Because offensive odors rarely cause any physical harm and no requirements for their control are included in State or federal air quality regulations, the ICAPCD has no rules or standards related to odor emissions, other than its nuisance rule.

The construction and operation of a hay processing facility is not an odor producer nor located near an odor producer; therefore, the Project would not result in a significant odor impact.

Therefore, impacts would be less than significant.

IV. *BIOLOGICAL RESOURCES*

		PSI	PSUMI	LTSI	NI
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒

a) The proposed project site is located within existing disturbed land, which contains an existing hay processing and storage facility. Aside from a new hay press to be located within an existing building, proposed restroom and potable water plant, only in increase to the operation production; therefore, no adverse impact on any species or their habitat is expected.

		PSI	PSUMI	LTSI	NI
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒

b) As explained above, the project site is within disturbed land, which contains an existing hay processing and storage facility. Aside from a proposed hay press to be located within an existing building and proposed restroom and potable water plant, only an increase to the existing operation production; therefore, no adverse impact on any on riparian habitat or other sensitive natural community is expected.

		PSI	PSUMI	LTSI	NI
c)	Have a substantial adverse effect on state or federally	☐	☐	☐	☒