Board of Supervisors Hearing
July 23, 2019

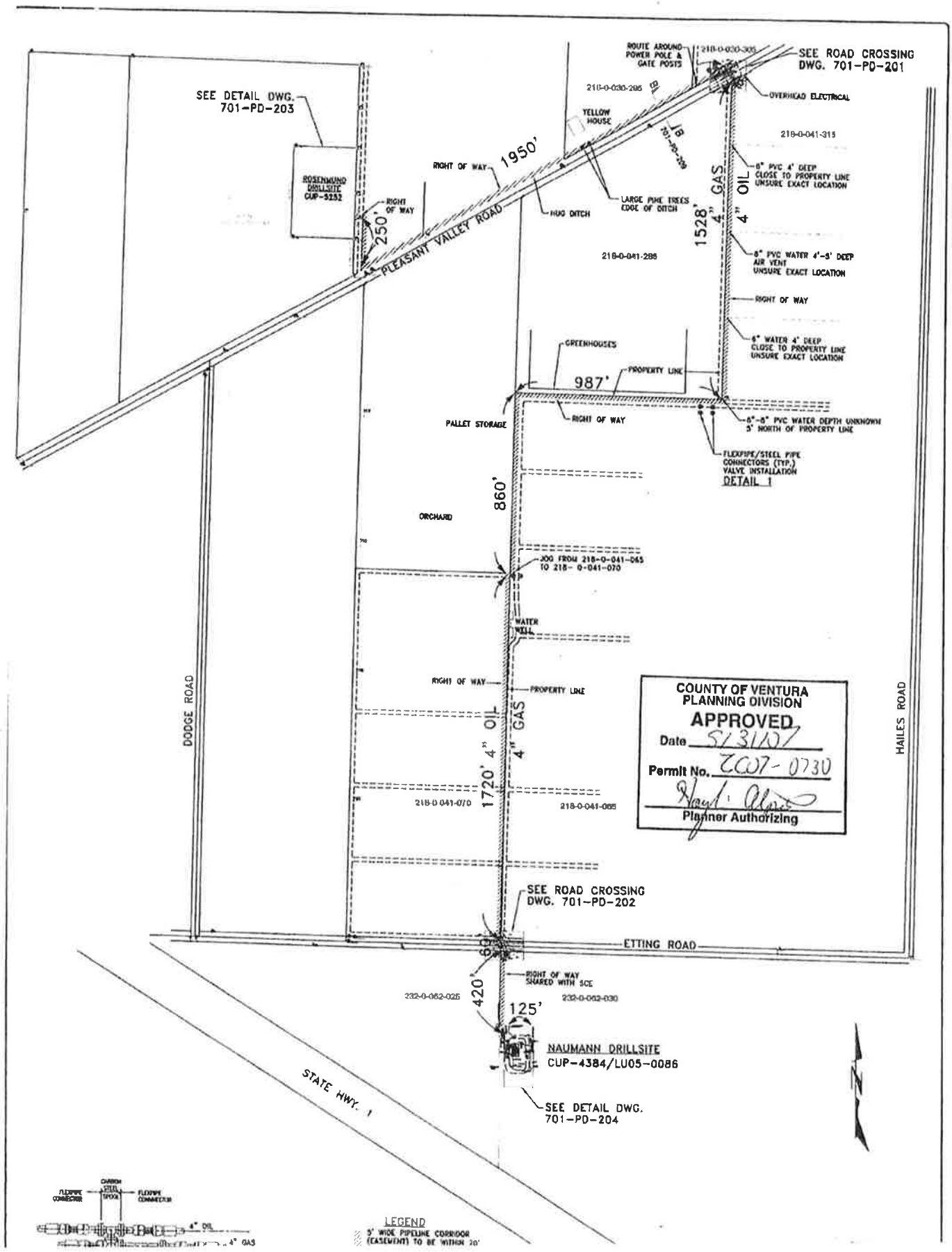
Mitigated Negative Declaration Addendum

Attachment 1

Existing Gathering Pipelines_Cabrillo Oil Field

Renaissance Petroleum Project

Case No. PL14-0103
(Minor Modification of CUP 4384)


SEE DETAIL DWG. 701-PD-203
ROSENMUND DRILLSITE CUP-5252
RIGHT OF WAY
250'
PLEASANT VALLEY ROAD
RIGHT OF WAY
1950'
ROUTE AROUND POWER POLE & GATE POSTS
218-0-030-305
SEE ROAD CROSSING DWG. 701-PD-201
OVERHEAD ELECTRICAL
210-0-030-295
YELLOW HOUSE
B1
B
701-PD-209
218-0-041-315
LARGE PINE TREES EDGE OF DITCH
HUG DITCH
1528'
4" GAS
4" OIL
8" PVC 4' DEEP CLOSE TO PROPERTY LINE UNSURE EXACT LOCATION
218-0-041-285
8" PVC WATER 4'-8' DEEP AIR VENT UNSURE EXACT LOCATION
RIGHT OF WAY
8" WATER 4' DEEP CLOSE TO PROPERTY LINE UNSURE EXACT LOCATION
GREENHOUSES
PROPERTY LINE
987'
PALLET STORAGE
RIGHT OF WAY
6"-8" PVC WATER DEPTH UNKNOWN 5' NORTH OF PROPERTY LINE
FLEXPIPE/STEEL PIPE CONNECTORS (TYP.) VALVE INSTALLATION
DETAIL 1
860'
ORCHARD
JOG FROM 218-0-041-065 TO 218- 0-041-070
WATER WELL
RIGHT OF WAY
PROPERTY LINE
DODGE ROAD
HAILES ROAD
4" OIL
4" GAS
1720'
218-0-041-070
218-0-041-065
COUNTY OF VENTURA
PLANNING DIVISION
APPROVED
Date 5/31/07
Permit No. ZC07-0730
Planner Authorizing
SEE ROAD CROSSING DWG. 701-PD-202
ETTING ROAD
RIGHT OF WAY SHARED WITH SCE
232-0-062-025
232-0-062-030
420'
125'
NAUMANN DRILLSITE
CUP-4384/LU05-0086
STATE HWY. 1
SEE DETAIL DWG. 701-PD-204
N
FLEXPIPE CONNECTOR
CHANGE FITTING SPOOL
FLEXPIPE CONNECTOR
4" OIL
4" GAS
LEGEND
5' WIDE PIPELINE CORRIDOR (EASEMENT) TO BE WITHIN 20'

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

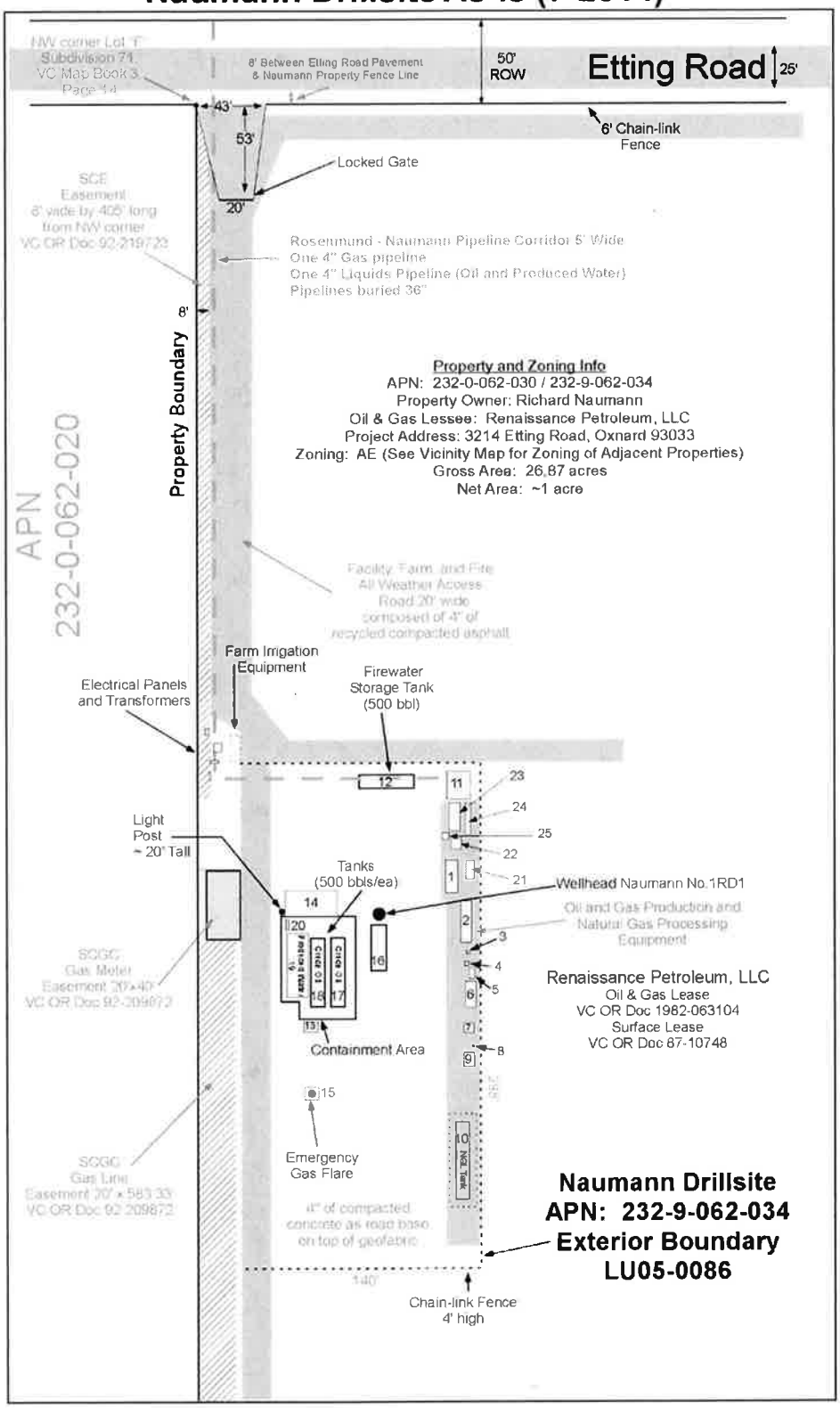
Attachment 2

Site Plans

Renaissance Petroleum Project

Case No. PL14-0103
(Minor Modification of CUP 4384)

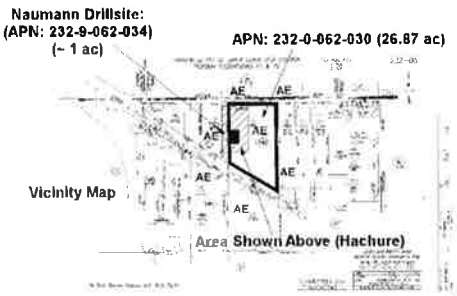
LU05-0086 Site Plan
Naumann Drillsite As-Is (7-2014)



Naumann Drillsite Equipment Inventory*

1. Gas Compressor
2. Gas Chiller
3. Inlet Gas Scrubber
4. Vertical Separator
5. Total Flow Gas Meter
6. 3 Phase Separator.
7. Flare Scrubber
8. Flare Meter
9. Air Compressor
10. NGL Tank
11. Pipeline Connections
12. Fire Water Tank
13. Vapor Recovery
14. LACT Skid
15. Emergency Gas Flare
16. Pumping Unit
17. Crude Oil Tank
18. Crude Oil Tank
19. Produced Water Tank
20. Loading Rack
21. Refrigeration Unit Skid
22. Glycol Contactor
23. Glycol Burner
24. Glycol Condenser
25. VSD Electrical Panels

* See addendum to VC Minor Mod dated 7-24-2014 for additional information



N
E

Scale

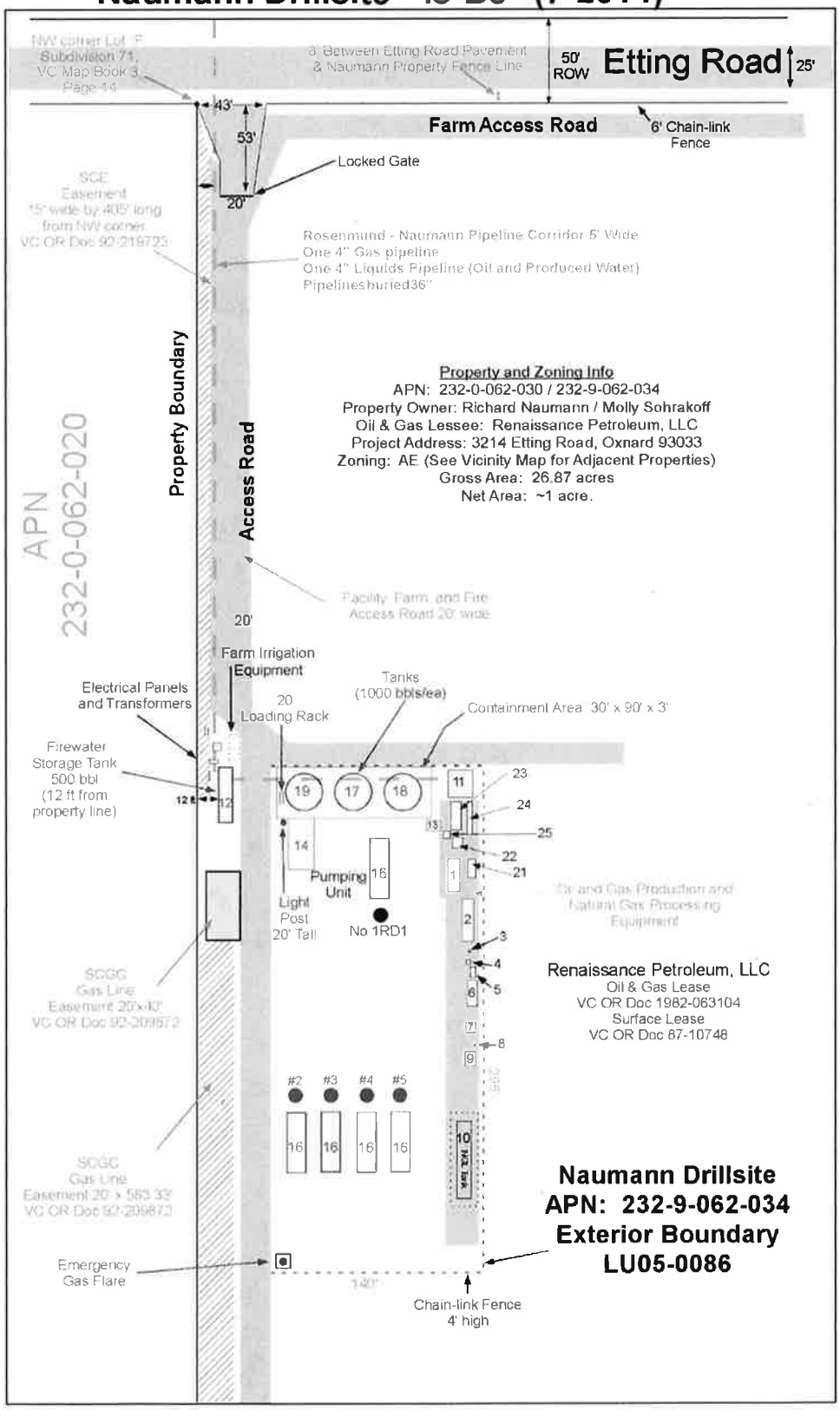
0' 60' 120'

1" = 30'

Renaissance Petroleum, LLC
Ventura County, CA
CUP LU05-0086
Naumann Drillsite
Site Plan "As-Is" 7-2014
rev. 1-2017

Prepared By:
Renaissance Petroleum, LLC
PO Box 20456
Bakersfield, CA 93390
661-324-9901

LU05-0086 Site Plan
Naumann Drillsite "To-Be" (7-2014)



Naumann Drillsite Equipment Inventory*

1. Gas Compressor
2. Gas Chiller
3. Inlet Gas Scrubber
4. Vertical Separator
5. Total Flow Gas Meter
6. 3 Phase Separator.
7. Flare Scrubber
8. Flare Meter
9. Air Compressor
10. NGL Tank
11. Pipeline Connections
12. Fire Water Tank
13. Vapor Recovery
14. LACT Skid
15. Emergency Gas Flare
16. Pumping Unit
17. Crude Oil Tank
18. Crude Oil Tank
19. Produced Water Tank
20. Loading Rack
21. Refrigeration Unit Skid
22. Glycol Contactor
23. Glycol Burner
24. Glycol Condenser
25. VSD Electrical Panels

* See addendum to VC Minor Mod dated 7-24-2014 for additional information

Naumann Drillsite:
(APN: 232-9-062-034)
(~ 1 ac)

APN: 232-0-062-030 (26.87 ac)

Vicinity Map

Engineer: MWT ver 7-2014

N
E

Scale
0' 60' 120'
1" = 30'

Renaissance Petroleum, LLC
Ventura County, CA
CUP LU05-0086
Naumann Drillsite
Site Plan "To-Be" 7-2014
rev. 1-2017

Prepared By:
Renaissance Petroleum, LLC
PO Box 20456
Bakersfield, CA 93390
661-324-9901

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

Attachment 3

1986 Mitigated Negative Declaration

Renaissance Petroleum Project

Case No. PL14-0103
(Minor Modification of CUP 4384)

FINAL

MITIGATED NEGATIVE DECLARATION

A. PROJECT DESCRIPTION:

1. Entitlement: Conditional Use Permit No. 4384

2. Applicant: Cities Service Oil and Gas Corp.

3. Location: (see attached map): Between Etting Road and State Highway 1, approximately 1/2 mile east of Pleasant Valley Road; City of Oxnard Area of Interest.

4. Assessor Parcel No(s). 232-062-03

5. Parcel Size: 26.87 acres; Permit Area: 28,000 sq. ft.

6. General Plan Designation Agriculture (Open Space Element)

7. Existing Zoning: "A-E" (Agricultural Exclusive)

8. Project Description: Drilling of one exploratory oil/gas well and production if hydrocarbons are found.

9. Responsible Agencies: California Division of Oil and Gas

B. STATEMENT OF ENVIRONMENTAL FINDINGS

California State law requires that an Initial Study (environmental evaluation) be conducted to determine if this project could significantly affect the environment. An Initial Study was conducted by the Planning Division to evaluate the potential effect of this project on the environment. Based on the findings contained in the attached Initial Study it has been determined that this project could have a significant effect on the environment. Therefore, a Mitigated Negative Declaration has been prepared, pursuant to the provisions of California Environmental Quality Act (Sec. 15073). The potentially significant impacts can be satisfactorily mitigated through adoption of the following identified measures as conditions of approval.

C. POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS IDENTIFIED AND PROPOSED MITIGATION MEASURES

1. #1 - Discussion of Impact

The subject site is currently planted in citrus (lemon) orchard, and is under an LCA Contract. The proposed two acre permit area will have to be cleared of all the lemon trees prior to the start of drilling and through the life of the permit, if production is reached.

Mitigation

a. The proposed two acre permit area will be reduced to 28,000 sq. ft. This area is adequate to drill one exploratory oil/gas well, and to install production if oil and/or gas is found.

b. Trees of the same variety shall be planted as close to the well as possible/practical when the well is abandoned, or completed.

c. Dust will be kept to an absolute minimum along access roads, and within the permit area.

D. PUBLIC REVIEW:

1. Legal Notice Method: Direct mailing to property owners within 300 feet of proposed project boundary.

2. Document Posting Period: October 31, 1986 to December 2, 1986

3. Environmental Report Review Committee Hearing Date: December 3, 1986

4. Place: Hall of Administration, Multi-Purpose Room, Room 344, Third Floor.

5. Time: 1:30 p.m.

Prepared by: James Carusone
Case Planner

Reviewed by: 10/22/86
Robert K. Laughlin, Supervisor
Commercial/Industrial Land Use
Section

The Environmental Report Review Committee recommends that the decision-making body find that this document has been completed in compliance with the California Environmental Quality Act.

Chair, Environmental Report
Review Committee

12/5/86
Date

RKL:bb/J225

COUNTY OF VENTURA
RESOURCE MANAGEMENT AGENCY
800 S. VICTORIA AVENUE
VENTURA, CA 93009

CONSENT AGREEMENT FOR PROPOSED MITIGATION MEASURES WITH MITIGATED NEGATIVE DECLARATION

COUNTY OF VENTURA
RESOURCE MANAGEMENT AGENCY

ENTITLEMENT NO.: CUP-4384

I, Cities Service Oil & Gas Corp the applicant, hereby agree to the proposed Mitigation Measures which have been developed in conjunction with the preparation of a Mitigated Negative Declaration for the proposed project. I understand that these Mitigation Measures or substantially similar measures must be adopted as conditions of approval with this permit request in order to reduce identified potential environmental impacts to an acceptable level, and to avoid the necessity of preparing an Environmental Impact Report for this project.

The potentially significant environmental issues and the proposed Mitigation Measures are as follows:

1. #1 - Discussion of Impact

   The subject site is currently planted in citrus (lemon) orchard, and is under an LCA Contract. The proposed two acre permit area will have to be cleared of all the lemon trees prior to the start of drilling and through the life of the permit, if production is reached.

   Mitigation

   a. The proposed two acre permit area will be reduced to 28,000 sq. ft. This area is adequate to drill one exploratory oil/gas well, and to install production if oil and/or gas is found.

   b. Trees of the same variety shall be planted as close to the well as possible/practical when the well is abandoned, or completed.

   c. Dust will be kept to an absolute minimum along access roads, and within the permit area.

Applicant's Signature _____

Applicant's Address P.O. Box 939
Bakersfield, CA 93302

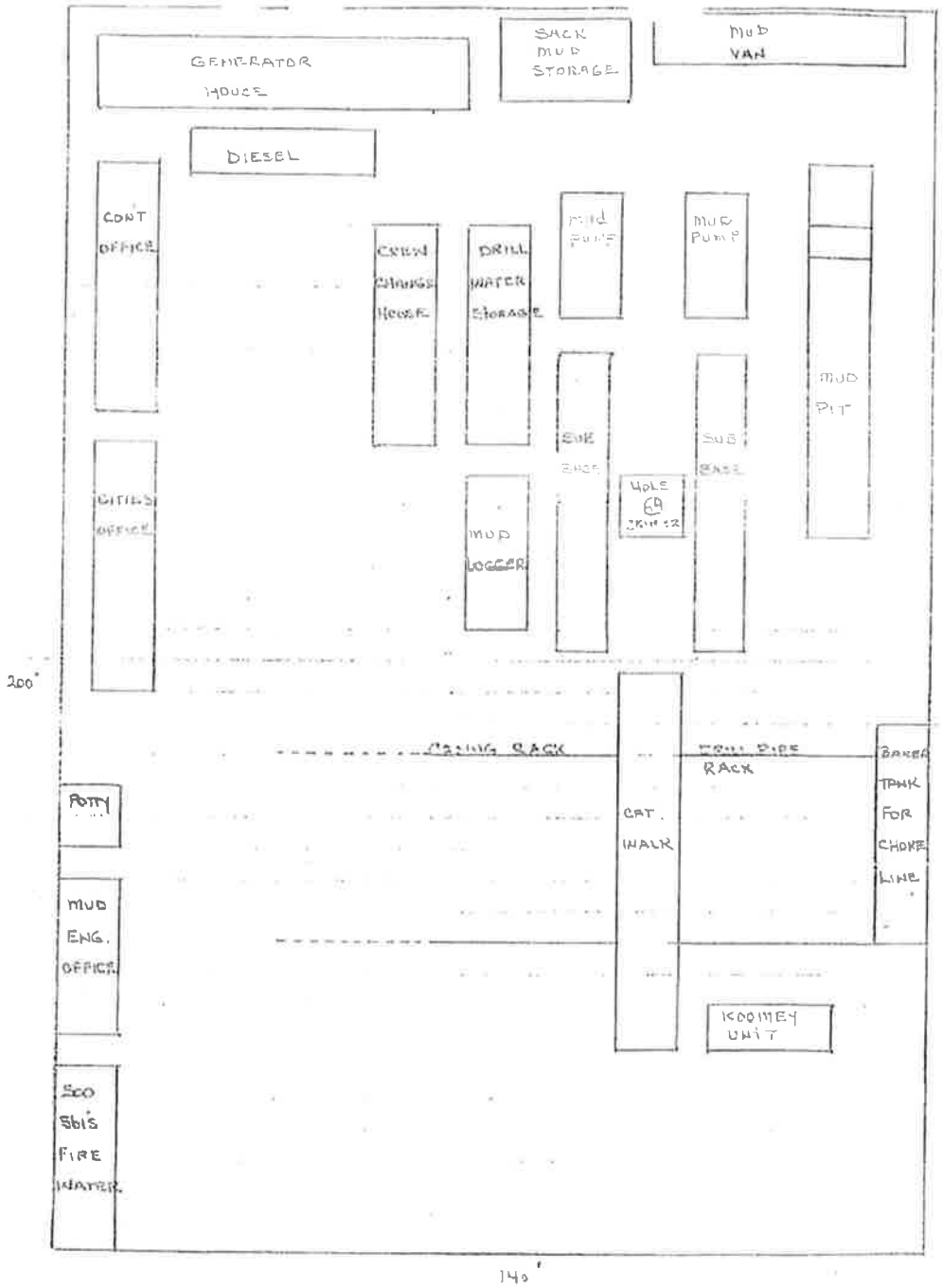
Date December 2, 1986

JC:bb/J258

Ventura County
Resource
Management
Agency

CUP-4384

1" = 2000'



SCALE 1" = 20 Feet

Derrick Height = 157'

N

INITIAL STUDY

A. PROJECT INFORMATION

1. Project No.: Conditional Use Permit No: 4384

2. Name of Applicant: Cities Service Oil and Gas Co.

3. Project Location: Between Etting Rd and State Highway 1 approximately 1½ miles east of Pleasant Valley Rd

4. Project Description: Drilling of one exploratory oil and gas well (30-35 days) and the installation of production equipment if if production is reached.

B. ENVIRONMENTAL IMPACT CHECKLIST

PLANNING DIVISION	Impact? Yes	Impact? Maybe	Impact? No	Significant? Yes	Significant? Maybe	Significant? No
1. Land Use						
Will the project, individually or cumulatively, alter the planned land use of an area?	X					X
2. Growth Inducement						
Will the project, individually or cumulatively, induce growth in an area?			X			
3. Housing						
Will the project, individually or cumulatively, affect existing housing, or create a demand for additional housing?			X			
4. General Plan Consistency						
Will the project, individually or cumulatively, conflict with any environmental goal, objective, policy or program of the General Plan?			X			
5. Mineral and Oil Resources						
Will the project, individually or cumulatively, result in:						
a. The depletion of mineral or oil resources?		X				X
b. Hampering or precluding access to or the extraction of, mineral or oil resources?			X			

	Impact? Yes	Impact? Maybe	Impact? No	Significant? Yes	Significant? Maybe	Significant? No
b. An effect on existing parking facilities, or demand for new parking?			X			
c. An impact upon existing transportation systems?	X					X
d. Alterations to present patterns of circulation or movement of people and/or goods?			X			
e. Alterations to rail traffic?			X			
f. An increase in traffic hazards to motor vehicles, bicyclists or pedestrians?			X			
10. Flood Control						
Will the project, individually or cumulatively, result in or be impacted by:						
a. Changes to absorption rates, drainage patterns, or the route and/or amount of surface water runoff?			X			
b. The alteration to the course or flow of flood waters?			X			
c. The exposure of people, property or unique natural resources to hazards such as flooding or tsunami?			X			
d. An effect on a channel or stream regulated by the Flood Control District?			X			
e. Changes in currents, or the course of direction of water movements, in any body of water?			X			
f. A flood plain indicated on the Ventura County Flood Insurance Rate Maps?			X			
11. Water Resources						
Will the project, individually or cumulatively, result in or be impacted by:						
a. A decrease of surface water quantity?			X			
b. The degradation of surface water quality?			X			
c. A decrease of groundwater quantity?			X			
d. The degradation of groundwater quality?			X			
e. A high groundwater table?	X					X

	Impact Yes	Impact Maybe	Impact No	Significant? Yes	Significant? Maybe	Significant? No
GENERAL SERVICES AGENCY						
18. Recreation						
Will the project, individually or cumulatively, result in impacts on recreational opportunities or facilities?			X			
19. Harbors						
Will the project, individually or cumulatively, result in an impact on harbors?			X			
AIRPORTS DEPARTMENT						
20. Will the project, individually or cumulatively, result in impacts on:						
a. Air traffic safety?	X					X
b. Existing airport facilities?	X					X
AGRICULTURAL DEPARTMENT						
21. Agricultural Resources						
Will the project, individually or cumulatively, result in:						
a. The conversion of prime agricultural land to other uses?	X			X		
b. The loss of productive crop land or soils?	X			X		
c. An adverse effect on adjacent agricultural land?			X			
AREAS TO BE COMPLETED BY THE AGENCY RESPONSIBLE FOR ADMINISTERING THE PROJECT						
22. Visual Effects						
Will the project, individually or cumulatively, result in the obstruction of a scenic resource or view open to the public, or will the project result in the creation of an aesthetically offensive site open to public view?	X					X
23. Light and Glare						
Will the project, individually or cumulatively, produce light or glare?	X					X
24. Noise and Vibrations						
Will the project, individually or or cumulatively, result in the exposure of people to increased noise or vibrations?	X					X
25. Public Facilities and Utilities						
Will the project, individually or cumulatively, have an effect upon, or result in a need for new or altered services in any of the following areas:						
a. Sewers or sewage treatment plants?			X			

	Impact? Yes	Impact? Maybe	Impact? No	Significant? Yes	Significant? Maybe	Significant? No
c. Introduction of new plant species into an area, or the introduction of a barrier to the normal replenishment of existing species?			X			
d. Change in the diversity of species, numbers or habitat of any animal species which are locally sensitive or unique?			X			
e. Disturbance or reduction in the numbers of any State or Federally listed rare, threatened or endangered animal species or their habitats?			X			
f. Introduction of new animal species into an area?			X			
g. Introduction of barriers to movement of any resident or migratory fish or wildlife species?			X			
h. Introduction of factors adverse to the existing ecological balance?			X			
i. Introduction of substances, human activity, structures or other factors that would damage, change or hamper an existing locally sensitive or unique ecosystem?			X			

C. DISCUSSION OF RESPONSES TO CHECKLIST

(~~Agency responses are~~ SEE attached here.)

JC
Here are your originals
B.

IAGEM_NT AGENCY
of ventura

Planning Division

NOTICE OF PUBLIC REVIEW OF A
DRAFT MITIGATION NEGATIVE DECLARATION

TO CONCERNED PARTIES:

The Planning Division is currently processing the land use permit request described below. California State law requires that an Initial Study (environmental evaluation) be conducted to determine if this project could significantly affect the environment. Based on the Initial Study, it has been found that significant effects upon the environment could occur; however, mitigation meaures can be adopted which will reduce these impacts to acceptable levels. Therefore, a Mitigated Negative Declaration has been prepared, pursuant to the provisions of CEQA (Sec. 15073).

A. PROJECT DESCRIPTION:

1. Entitlement: Conditional Use Permit No. 4384

2. Applicant: Cities Service Oil and Gas Corp.

3. Location: (see attached map): Between Etting Road and State Highway 1, approximately 1½ miles east of Pleasant Valley Road, City of Oxnard Area of Interest, California.

4. Assessor Parcel No(s).: 232-062-03

5. Parcel Size: 28.67 acres.

6. General Plan Designation: "Agriculture" (Open Space Element).

7. Existing Zoning: "A-E" (Agricultural Exclusive).

8. Proposal: Drilling of 1 exploratory oil and gas well, and production if hydrocarbons are found.

B. PUBLIC REVIEW:

The public review period of the Draft Mitigated Negative Declaration is from October 31, 1986 to December 2, 1986. In addition, the Ventura County Environmental Report Review Committee will hold a public hearing on the adequacy of the Draft Mitigated Negative Declaration at 1:30 p.m. on December 3, 1986, in the Multi-Purpose Hearing Room, Room 344, Third Floor, Hall of Administration, 800 South Victoria Avenue, Ventura, CA 93009. You are welcome to attend this hearing, and to comment on the adequacy of the Draft Mitigated Negative Declaration. If you are unable to attend, written comments on this document may be submitted to James Caruso, Planning Division, Resource Management Agency, 800 South Victoria Avenue, Ventura, CA 93009.

Copies of this Draft Mitigated Negative Declaration may be reviewed or obtained at the above address. If you have any questions, please phone James Caruso at (805) 654-2453.

JC:jl/J349

Attachment:
Location Map

C. Discussion of Impacts

1. Land Use - The present land use in the area is agriculture (lemon orchard on site). Drilling of one exploratory well and installation of production equipment (pump, tanks, etc.) will necessarily remove land from agricultural production. The 28,000 square feet of land needed for drilling and production represents less than 0.01% of the 28 acre parcel on which the well is to be located. This figure is deemed to be insignificant.

2. Growth Inducement - Drilling of and production from one well has no growth inducing impacts.

3. Housing - No new employees of the applicant will be needed to complete this well. Therefore, no new housing will be needed.

4. General Plan Consistency - A review of the Ventura County General Plan indicates no conflict between the project and the General Plan.

5. Mineral and Oil Resources - The purpose of the proposed project is to locate and develop oil and gas resources. Therefore, if oil and/or gas is found, and pumped from the ground, the resource(s) will be depleted. However, the completion of one well will not significantly deplete the resource(s).

6. Solid Waste Facilities - The Ventura County Ordinance Code Section 8107-5.6.4 requires the proper handling and disposal of contaminants. Other materials such as broken concrete, paper, brush, etc., can be disposed of at appropriate landfill sites. The project shall produce such wastes in very small quantities, and therefore shall not have a significant effect on solid waste facilities.

7. Air

(a)(1) Based on the criteria contained in Ventura County's Guidelines for the Preparation of Air Quality Impact Analyses for determining a project's potential impact on air quality, the subject project will not have a significant adverse impact on air quality.

(a)(2) Due to the nature and location of the proposed project, and the small amount of earth (17 cu. yds.) to be moved to create the drilling pad, the project is not expected to cause local air quality impacts.

(a)(3) Oil well projects generally do not produce objectionable odors.

(b)(1) Agricultural spraying in the area may impact the project site. The degree of impact will depend on such factors as type and amount of material sprayed, method and frequency of spraying, distance of the drilling rig from areas sprayed, and wind direction and speed. Since the drilling operation is temporary, and agricultural spraying operations in the area infrequent, personnel at the drilling site are not expected to be adversely impacted by the application of pesticides on nearby crops.

(b)(2) Odors associated with agricultural spraying in the area may impact the project site. The degree of impact will depend on such factors as type and amount of material sprayed, method and frequency of spraying, distance of the drilling rig from areas sprayed, and wind direction and speed. Since the drilling operation is temporary, and agricultural spraying operations in the area infrequent, personnel at the drilling site are not expected to be adversely impacted by odors resulting from the application of pesticides on nearby crops.

8. Earth - The Public Works Agency comments that pursuant to the County's Zoning Ordinance Section 8107-5, the proposed project site would not impact, nor be impacted by, any earth characteristics that might be present. The proposed amount of grading identified is insignificant to County standards.

9. Transportation/Circulation - The Public Works Agency comments that the proposed project will impact the County's road system in the area. However, the Agency considers the impact to be insignificant since the roads are adequately developed to handle the amount and type of traffic identified in the environmental assessment.

   Consequently, the Agency will not require any mitigation.

10. Flood Control - The Public Works Agency comments that within the area of the proposed project site, the Agency's records show that the site has no historical evidence of being impacted by, or impacting, any flood storm water.

11. Water Resources - The Public Works Agency comments that pursuant to Section 8107-5.6.1 of the County's Zoning Ordinance, any impacts on surface and ground waters would be alleviated by the requirements of the ordinance.

    The Agency's records indicate the presence of high ground water table. However, the nature of the proposed project would not impact, or be impacted by, the level of the ground water.

12. Sanitation - The project will not utilize an individual disposal system

13. Water Supply - The project is not required to provide a long-term water supply.

14. Risk of Upset - The provisions of hazardous materials and zoning ordinances, require steps be taken to minimize the possibility of risk of upset. These ordinances reduce possible impacts to insignificant levels.

15. Human Health - See number 14 above

16. Fire Protection -

    (a) Two fire stations are located within five miles of the project site.

    (b) Adequate personnel and equipment are available at these stations.

    (c) The project is not located in a high fire hazard area.

    (d) The site is located 500 feet off a paved road. Adequate access for fire equipment is available.

    (e)(f) The provisions of the Uniform Fire Code adequately address these issues. No further mitigation is required. The applicant must apply for and obtain a Uniform Fire Permit.

17. Sheriff's Department -

    (a) The applicant proposes to secure the project by fencing.

    (b) Adequate roads are available to the site.

    (c) No locational impacts are evident from the project's location. Regular Sheriff patrols frequent the area.

18. **Recreation** - The project is not located near any recreational facilities, and shall not generate the need for additional recreational facilities.

19. **Harbors** - No harbor impacts are feasible from this project.

20. **Airports** - The project is located approximately two miles northwest of the end of the Point Mugu runways. The FAA requires a warning beacon be installed atop the drilling mast. This impact is insignificant.

21. **Agricultural Resources** - The subject site is currently planted in citrus (lemon) orchard, and is under an LCA Contract. The proposed two acre permit area will have to be cleared of all lemon trees prior to the start of drilling and through the life of the permit if production is reached.

    Mitigation

    a. The proposed two acre permit area shall be reduced to one acre or less. This area is adequate to drill one exploratory oil/gas well, and to install production equipment.

    b. Trees of the same variety shall be planted as close to the well as possible/practical when the well is abandoned or completed.

    c. Dust shall be kept to an absolute minimum along access roads and within the permit area by damping or chemical dust binding.

22. **Visual Effects** - Due to the surrounding orchard, the only phase of the project to be visible from public roads or neighboring property will be the drilling rig mast. This mast will be approximately 160 feet high and will remain in place for 30-35 days. This impact is deemed to be insignificant due to its temporary nature.

23. **Light and Glare** - This impact is insignificant due to the controlling provision of the Ventura County Ordinance Code Section 8107-5.6.7.

24. **Noise and Vibration** - Noise impacts are deemed to be insignificant due to the provisions of Ordinance Code Sections 8107-5.6.13 through 8107-5.6.21.

25. **Public Facilities and Utilities** - The project will have no interaction with any of the mentioned facilities with the possible exception of electrical transmission. According to APCD rules, the drilling phase and 90 days of the production phase can be powered by diesel-electric generators. After the initial 90 days of production, permanent grid power must be brought to the site. This single service extension is insignificant.

26. **Energy** - As noted above, a diesel-electric generator will power the drilling rig. The amount of fuel needed for this generator is relatively small. No significant impact is expected.

27. **Cultural/Ethnic Resources** - According to the Ventura County Archaeological Society, no impacts on cultural or ethnic resources are expected.

28. **Biological Resources** - The biological systems prevalent in the area have been given over entirely to permanent agriculture. The permit site, and all adjacent lands within approximately one-half mile, have been cleared of natural vegetation. The permit area itself will not act as a barrier to wildlife movement due to its size and the fact that it is surrounded on all sides by agricultural lands.

JC:j/L14

CITY OF
Oxnard

COMMUNITY DEVELOPMENT DEPARTMENT • 305 W. THIRD ST. • OXNARD, CA 93030 • (805) 984-4657

RICHARD J. MAGGIO, DIRECTOR

November 21, 1986

Mr. Robert Laughlin, Supervisor
Commercial/Industrial Land Use Section
Planning Division
Resource Management Agency
800 South Victoria Avenue
Ventura, California 93009

Dear Mr. Laughlin:

Subject: Draft Mitigated Negative Declaration for Conditional Use Permit (CUP) No. 4384 and Mitigation of Oil Development-Related Impacts on the Oxnard Plain

After reviewing the Draft Mitigated Negative Declaration for CUP 4384 and the history of similar types of proposed exploratory and production oil development projects over the past several years, it seems timely to state that we are becoming concerned about the total number of proposals for the area surrounding the City of Oxnard. I would like to take the opportunity to highlight our concerns and ask that you apply them to CUP 4384, as well as other applications, as appropriate. The concerns are as follows:

1. Visual Impacts--The City has several principal entranceways and many that might seem minor now, but will have greater importance in the future. Visual separation and screening of entranceways should be provided wherever possible by requiring that the actual drilling site be located as far as possible from the entranceway road and that existing or added plant material be used to as great an extent as practical to either screen the drilling equipment or interrupt its rectilinear profile. In addition, use of low-profile equipment instead of high-profile equipment, would be preferable.

2. Noise Impacts--It should be kept in mind that while many of the drill sites have been proposed for seemingly unoccupied areas, frequently either isolated houses or residential areas might actually be in relatively close proximity when viewed from the way that noise can travel in certain atmospheric and temperature conditions. Therefore, it is requested that consideration be given to providing noise attenuation devices that are sufficient to prevent disturbance of daytime or nighttime activities in nearby residences.

3. Dust and Particulate Impacts--Any increase of particulate matter in the atmosphere is of concern not only for public health reasons, but because of potentially negative impacts on adjacent crops. Therefore, it is hereby requested that all unpaved service roads, as well as the drill site area, be kept damp or that the use of chemical dust binders be required.

4. Odor--All reasonable steps should be taken to ensure that odors associated with either exploratory drilling or production cannot be detected beyond the actual permitted site boundary.

5. Site Size and Permitting--It is requested that only the site size actually needed be permitted and that separate permits be utilized for the exploratory drilling phase and, subsequently, for the production phase.

6. On-site Power Generation--Given that Ventura County has been designated by the EPA as a non-attainment area for ozone, it is thereby necessary to take every possible opportunity to reduce NO_x emissions from internal combustion (IC) engine generators. This can best be accomplished by requiring the use of grid power to drive the drilling rig if it is available within close proximity (i.e., one quarter mile). If grid power cannot be used because of the distance factor then it should be required that the IC engine generator be adjusted and operated in a manner that will produce the lowest practical emissions (LPE's).

7. Controlling Other Emissions Sources--To the extent feasible, the tanks used to support exploratory drilling operations should have vapor recovery systems and the utmost should be done to control other sources of fugitive emissions.

After you have reviewed the above, please give consideration to whether your agency's current oil development standards include all of the above requirements. If they do not, I would like to ask that consideration be given to amending the standards, or as an alternate that consideration be given to developing a more specific set of standards for the Oxnard Plain.

Very truly yours,

Matthew G. Winegar
City Planner

MGW:RJS:jly

cc: Tom Berg
David Mora
Richard Maggio

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

Attachment 4

Topical Response to Comment
DCOR (PL13-0046)

Renaissance Petroleum Project
Case No. PL14-0103
(Minor Modification of CUP 4384)

DCOR Oil and Gas Project, PL13-0046

Topical Response to Comment on the MND

Seismic Hazards and Produced Fluid Spills:

Discussion:

The San Cayetano Fault intersects the ground surface approximately 1.5 miles south of the drilling site for the proposed exploratory oil wells. This fault is classified as Active due to evidence of movement during the Holocene period (i.e. less than 11,000 years before present). This major fault trends east-west along the base of the Topatopa Mountains at the northern edge of the Santa Clara River valley. This north-dipping thrust fault forms the northern boundary of the thick accumulation of Pleistocene and Holocene sediments that underlie the valley.

Small magnitude earthquakes occur on or near the San Cayetano Fault. According to Olson (2012), the following earthquakes have been recorded in the vicinity of the project site and community of Piru.

Date	Magnitude (Richter scale)
2-14-1936	3.0
3-23-1938	3.5
2-20-1941	3.6
6-1-1946	4.1
4-20-1959	2.4
1-20-1960	2.5
5-21-1960	2.7
11-29-1987	2.1
2-23-1989	2.1
1-19-1994	2.9
9-13-1994	2.0
8-1-1995	2.8
6-7-2000	2.0
12-27-2008	2.2

Although Active, there is no definitive evidence of substantial movement (a large earthquake) or surface rupture along the San Cayetano Fault within the recent historic past (i.e. within the past 200 years). As reported in Olson (2012) and Dolan (2009), studies of displaced sedimentary rock units exposed in trenches excavated along the fault about 1 mile west of the community of Piru suggest that two major earthquakes occurred along this fault sometime after the year 1660 A.D. (i.e. in the last 450 years).

The hazard represented by the San Cayetano Fault is addressed in State Law (the Alquist-Priolo Act) and in the California Building Code. Proposed structures intended for human occupancy must be set back a minimum of 50 feet from the trace of the fault to avoid possible surface rupture. All above-ground structures must also be constructed in accordance with the Seismic Zone IV Building Code standards to resist ground shaking during an earthquake. Compliance with these standard State requirements is considered adequate to address seismic hazards.

With regard to the proposed project, any above ground structures will be required to meet Building Code standards. The proposed oil wells will be required to meet State construction standards enforced by the Division of Oil and Gas and Geothermal Resources (DOGGR). No evidence has been presented or is available to indicate that these standards are inadequate to protect the environment (including groundwater aquifers) from contamination by fluids produced from oil wells. There is no historic evidence that fault movement or earthquake shaking is a substantial risk of well leakage to the surface or to groundwater aquifers. Fault movement in past historic earthquakes (such as the 1933 Long Beach Earthquake) has resulted in well casings being sheared off below ground. This rare occurrence effectively seals and abandons the subject wells. Thus, DOOGR has no regulatory prohibition on drilling through the plane of an active fault to reach oil-bearing zones below. Many (if not most) of the oil fields in the Ventura and Los Angeles basins have been created by fault movement.

As indicated above, the San Cayetano Fault is estimated to have generated two major earthquakes in the last 450 years (with none in the last 200 years). It is highly speculative that a major earthquake would occur on this fault in the vicinity of the proposed project within the next 5 to 30 years. There is no substantial evidence that such an earthquake event will occur within the timeframe of the proposed project. Should a major quake occur there is no substantial evidence that a significant environmental impact will result from the presence of the proposed oil facilities.

The District 2 (Ventura Basin) office of DOGGR maintains a publically-available list of all produced fluid spills that have occurred in the District since 1994. This list documents 889 spill incidents that range from the loss of a tablespoon of crude oil to major pipeline breaks that involve the spillage of several thousand barrels of crude oil. Leaks of produced water and other fluids are also included in the list. As indicated in the chart below, most of the spills involve a minor amount of petroleum.

Quantity of oil spilled (Barrels)	Number of incidents	% of total
0 - 2	443	49.8
2-10	219	24.6
10-99	202	22.8
100 or greater	25	2.8
Total =	**889**	**100**

As indicated above, approximately 75 percent of the oil spills reported for the 20-year period of record spills involved 10 barrels of oil or less. Most of these incidents involve field maintenance issues such as flowline or tank corrosion. Only 25 oil spills in the 20-year period involved more than 100 barrels of crude oil (i.e. more than the equivalent of one oil tanker truck). The largest spills in the 1994-2013 record involve damage during the January 1994 Northridge Earthquake. During the earthquake, six breaks of 10-inch crude oil transmission pipelines occurred. This includes a pipeline break in the Valencia area of Los Angeles County that spilled an estimated 3,500 barrels of crude oil into the Santa Clara River.

The record assembled by DOGGR reflects a low level of oil spillage given the following factors:

- There are more than 30 oil fields in Ventura County
- Over 12,000 oil wells have been drilled in the Ventura Basin
- Over 2,000 wells are currently active
- There are 318 miles of oil transmission pipelines in Ventura County alone.
- There are several hundred miles of production flowlines within the oil fields
- There are hundreds of tanks and processing facilities in the oil fields

The operator of the facility where a spill has occurred is responsible for the clean-up of the spilled fluid under the direction of State agencies including DOGGR, the Regional Water Quality Control Board, and California Department of Fish and Wildlife. This oversight has assured adequate clean-up of affected lands.

The spillage events associated with the 1994 Northridge earthquake do not reflect widespread damage of oil field facilities in Ventura County. The only incident in the DOGGR list cited as "possibly due" to the earthquake that occurred in Ventura County involved a rupture of a tank in the Rincon Tank Farm. A total of 30 barrels of crude oil was spilled in that event.

The addition of the two oil wells and associated facilities included in the proposed project to the existing 2,000 active wells and associated production facilities would not substantially change the existing risk of oil spills in the Ventura Basin. The DCOR project would not involve any change in the risk of a transmission pipeline leak since no such pipeline is included in the proposal.

The issue of a major salt water leak from the Vintage, Ojai #36 well has been raised in public commentary. This well is located in the Ojai Field and was originally drilled in 1911-1914 to a depth of at least 2,408 feet. It was deepened in 1917-1918 to a total depth of 3,407 feet. In a report filed on June 13, 1917 with the California State Mining Bureau, the operator reported:

"Strata of salt water encountered containing heavy gas pressure which made flow of water about every 25 minutes."

In February 2006, the Ojai #36 well began flowing salt water from the annulus of the casing. According to the DOGGR record, the flow of salt water was contained and the water hauled from the site. The operator plugged and abandoned the well under DOGGR supervision. DOGGR approved the plugging of the well on May 30, 2006. There is no known residual environmental effect of this incident.

The incident involving the Ojai #36 does not constitute substantial evidence that the proposed exploratory wells will suffer a casing failure. The failure of the casing in a well drilled in 1911 that is one of the 12,000 wells drilled in the Ventura Basin does not make it reasonably foreseeable that a similar fate awaits the proposed wells.

Summary:

No substantial evidence has been identified that the proposed exploratory wells would be damaged during an earthquake such that substantial environmental damage would result.

References:

Olson, Brian (2012), "Eastern San Cayetano Fault in the Piru Quadrangle", California Geological Survey Fault Evaluation Report #FER-257

Dolan, James (2009), "Paleoseismicity and Seismic Hazards of the San Cayetano Fault Zone."

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

Attachment 5

Board of Supervisors Letter
Response to Grand Jury Report on Oil Pipelines
02-07-17

Renaissance Petroleum Project
Case No. PL14-0103
(Minor Modification of CUP 4384)

RESOURCE MANAGEMENT AGENCY

county of ventura

Planning Division
Kimberly L. Prillhart
Director

February 7, 2017

Board of Supervisors
County of Ventura
800 South Victoria Avenue
Ventura, CA 93009

SUBJECT: Consideration of Supplemental Response to the FY 2015-2016 Ventura County Grand Jury Report on "Ventura County Crude Oil Pipelines."

RECOMMENDED ACTIONS

Staff recommends that the Board of Supervisors take the following actions:

1. Receive and File this supplemental response to the subject Grand Jury report "Ventura County Crude Oil Pipelines" (Exhibit 1) and direct that it be sent to the Grand Jury.

2. Provide direction on whether County staff should prepare any periodic report(s) on pipeline monitoring activities conducted by state and federal agencies.

FISCAL MANDATES/IMPACTS

Receiving this supplemental response to the subject Grand Jury report would not have a new fiscal impact. The costs associated with the preparation of this response are accommodated within the existing budget of the Resource Management Agency and the County Executive Office.

Should your Board direct that a periodic report on the ongoing regulatory oversight of crude oil and gas pipelines be prepared by County staff, there would be a fiscal impact as additional funds would be required for the staff time necessary to gather and organize information and report back to the Board. The annual County cost would depend on the scope of any reporting directed by the Board.

The Board of Supervisors directed that staff, in consultation with County Counsel, explore the potential for the recovery of County costs from pipeline operators to prepare periodic reports on pipeline safety. Pipeline operators (including oil and gas permittees) currently pay fees to state and federal agencies that fund safety inspection, monitoring and enforcement activities. The County may be pre-empted from levying a similar fee to fund a periodic report on the oversight of pipeline safety by these other agencies. In the case of County-permitted oil and gas operations, the County cannot unilaterally impose a new fee because the

800 South Victoria Avenue, L# 1740, Ventura, CA 93009 (805) 654-2481 Fax (805) 654-2509

permittees are vested in the terms of the existing permits. In addition, the County does not exercise land use authority over most of the major pipelines in the County as they are located in the public right-of-way outside of the Coastal Zone. Given these factors, a non-County funding source for the contemplated periodic report has not been identified.

DISCUSSION

On July 19, 2016, your Board approved a response to the Grand Jury report titled "Ventura County Crude Oil Pipelines" (Exhibit 1). This supplemental letter outlines the regulatory jurisdiction of each agency regarding the safety and maintenance of crude oil and gas pipelines. Representatives from these agencies are scheduled to be at your Board meeting to present information regarding their responsibilities and programs related to pipeline monitoring and safety.

A. BACKGROUND

As indicated in the Board-approved July 19, 2016 response to the Grand Jury Report (Exhibit 1), your Board agreed with many of the findings made by the Grand Jury regarding regulatory oversight of crude oil and gas pipelines. The County response described the separation between the state and federal responsibilities for maintenance and monitoring of pipelines and the County's land use authority to grant permits for oil and gas facilities.

Recommendation R-01 of the Grand Jury report calls for the preparation of an annual report summarizing the state of crude oil pipelines located in Ventura County. In the July 19, 2016 response (Exhibit 1), your Board found that this issue required further analysis and would be addressed in a later report to the Board prepared by the County Executive Office and the Resource Management Agency. This Board letter includes the further analysis and constitutes the County's additional response to the annual report recommendation made by the Grand Jury.

B. HAZARDOUS LIQUID (CRUDE OIL) AND NATURAL GAS PIPELINE REGULATORY JURISDICTION

In its 2015-2016 report, the Grand Jury accurately stated that no single agency is responsible for the regulation of oil and gas pipelines within Ventura County. However, the agency responsible for oversight for each category of pipeline is clear and depends on the type of regulatory activity and the use of the subject pipeline. The categories of oversight and the responsible agency for each category are outlined below in Table 1.

Land Use Permitting Authority:

The County has the authority, pursuant to the Coastal and Non-Coastal Zoning Ordinances, to grant discretionary permits to authorize pipeline installation and use as a land use matter

within unincorporated Ventura County, but not within the boundaries of any city located within Ventura County. Pipelines within the County's jurisdiction are generally permitted by the County as part of an oil and gas production facility. As part of the initial permitting of oil and gas pipelines, the County Planning Division evaluates the potential for adverse impacts on the environment as part of the environmental review conducted in accordance with the California Environmental Quality Act (CEQA). Note that a discretionary land use permit is not required for a pipeline located in a public road right-of-way (ROW) that is outside of the coastal zone portion of the unincorporated areas of the County. Such pipelines only require a ministerial encroachment permit issued by the County Public Works Agency.

Monitoring of Pipeline Maintenance and Safety:

The County does not have the authority to oversee the maintenance and safety of pipelines once permitted. This responsibility is held by state and federal agencies as outlined below in Table 1.

TABLE 1
Pipeline Monitoring Responsibility

Category	Type	Description	Responsible Agency
Transmission	Interstate (extending to multiple States)	Major collection lines that convey crude oil and natural gas collected from multiple operators to refinery facilities.	FEDERAL: U.S. Department of Transportation - Pipeline and Hazardous Materials Safety Administration (PHMSA) as exercised through the Office of Pipeline Safety.
Transmission	Intrastate (within California)		STATE: CAL FIRE - Office of the State Fire Marshal, Pipeline Safety Division (OSFM)
Oil Field Production	Gathering lines and flowlines	These pipelines convey produced fluid from oil wells to onsite storage and separation facilities.	STATE: Department of Conservation - State Division of Oil, Gas and Geothermal Resources (DOGGR)

Oil Field Production	Connection pipelines to Lease Automatic Custody Transfer (LACT) meter	These pipelines convey separated oil and gas to the transmission pipelines.	STATE: Department of Conservation - State Division of Oil, Gas and Geothermal Resources (DOGGR)

Although the pipelines themselves are not under direct County regulation, the County maintains a Geographical Information Systems (GIS) map of the pipelines within the County that are regulated by the CAL FIRE - Office of the State Fire Marshal, Pipeline Safety Division (OSFM) and those overseen by the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety administration (PHMSA).

C. STATE AGENCIES RESPONSIBLE FOR TESTING AND INSPECTION OF HAZARDOUS LIQUID (CRUDE OIL) AND NATURAL GAS PIPELINES

As stated above in Section B, the County holds land use permitting authority over new or replacement pipelines that are located in the coastal zone, and new, relocated or modified pipelines located outside of the public road ROW in the non-coastal area. As part of the land use permitting process, the County conducts environmental review of proposed pipeline project pursuant to CEQA. The other two state agencies with regulatory oversight are both the OSFM and the Department of Conservation, Division of Oil and Gas and Geothermal Resources (DOGGR). Below is an overview of each agency, as outlined on their respective websites, their regulatory authority over pipelines, as well as legislative updates and ongoing process improvements that both OSFM and DOGGR are undergoing.

Overview - Office of the State Fire Marshall, Pipeline Safety Division:

In 1981, the California Legislature enacted the Hazardous Liquid Pipeline Safety Act with the intent that the OSFM shall exercise exclusive safety regulatory and enforcement authority over intrastate hazardous liquid pipelines. The OSFM currently regulates the safety of approximately 6,500 miles of intrastate hazardous liquid transportation pipelines. The OSFM's Pipeline Safety Division consists of engineers, analytical staff, and clerical support located in northern, central and southern California. Pipeline Safety Division staff inspect pipeline operators to ensure compliance with federal and state pipeline safety laws and regulations. The Pipeline Safety Division is also responsible for the investigation of spills, ruptures, fires, and pipeline incidents for cause and determination of probable violations.

Pipeline inspection and testing overseen by OSFM:

The requirements for pipeline integrity testing overseen by the OSFM are stated in Section 51013.5 (Exhibit 2) of the California Government Code. This section reads, in part, as follows:

§51013.5 - Required Testing

(a) Every newly constructed pipeline, existing pipeline, or part of a pipeline system that has been relocated or replaced, and every pipeline that transports a hazardous liquid substance or highly volatile liquid substance, shall be tested in accordance with Subpart E (commencing with Section §195.300) of Part §195 of Title 49 or the Code of Federal Regulations.

(b) Every pipeline not provided with properly sized automatic pressure relief devices or properly designed pressure limiting devices shall be hydrostatically tested annually.

(c) Every pipeline over 10 years of age and not provided with effective cathodic protection shall be hydrostatically tested every three years, except for those on the State Fire Marshal's list of higher risk pipelines, which shall be hydrostatically tested annually.

(d) Every pipeline over 10 years of age and provided with effective cathodic protection shall be hydrostatically tested every five years, except for those on the State Fire Marshal's list of higher risk pipelines which shall be hydrostatically tested every two years.

(e) Piping within a refined products bulk loading facility served by pipeline shall be tested hydrostatically at 125 percent of maximum allowable operating pressure utilizing the product ordinarily transported in that pipeline if that piping is operated at a stress level of 20 percent or less of the specified minimum yield strength of the pipe. The frequency for pressure testing these pipelines shall be every five years for those pipelines with effective cathodic protection and every three years for those pipelines without effective cathodic protection. If that piping is observable, visual inspection may be the method of testing.

The above measures apply to the 378 miles of intrastate oil transmission pipelines that traverse Ventura County. Based on information provided to the County Planning Division by the OSFM in May 2016, 360 of the 378 miles of pipeline in Ventura County were subject to an inspection or testing between 2011 and 2016. Of the remaining eighteen miles, fourteen miles were last inspected in 2002, three miles were last inspected in 2006, and a one-mile segment was repaired (and inspected) following a leak in 2009.

Legislative Updates:

California SB 295 (2015-2016 Reg. Sess.): Directed the OSFM to develop regulations requiring the annual inspection of all intrastate hazardous liquid pipelines and operators of

intrastate hazardous liquid pipelines under their jurisdiction. Pipeline operators have until July 1, 2017 to submit required information to the OSFM for conducting the necessary inspections.

California AB 864 (2015-2016 Reg. Sess.): Directed the OSFM to develop regulations requiring an operator of an existing hazardous liquid pipeline near environmentally and ecologically sensitive areas in the coastal zone to submit a plan to retrofit pipelines to the OSFM by July 1, 2018 and complete the retrofit by January 1, 2020, with the best available technology. Best available technology includes, but is not limited to, installation of leak detection technologies, automatic shutoff systems, or remote controlled sectionalized block valves, or any combination of these technologies based on a risk analysis conducted by the operator to reduce the amount of oil released in an oil spill to protect state waters and wildlife. Public workshops are scheduled to solicit public comment on the AB 864 draft regulations at the following locations, dates, and times (past workshops may be viewed on the State Fire Marshal's Code Development webpage *osfm.fire.ca.gov/codedevelopment):*

1. California Natural Resources Agency – January 5, 2017 at 3:00 pm
   1416 9th Street, Public Hearing Auditorium 1st Floor
   Sacramento, CA 95814

2. County of Santa Barbara – February 2, 2017 at 4:30 pm
   105 E. Anapamu St. – Board Meeting Room, Fourth Floor
   Santa Barbara, CA 93101

3. City of Huntington Beach – February 16, 2017 at 3:00 pm
   2000 Main Street, City Council Chambers
   Huntington Beach, CA 92648

More detailed information on how to participate in the public workshops and submit comments can be found in the attached public workshop notices (Exhibit 12).

Regulatory/Process Improvements:

The goal of SB 295 and AB 864 is to prevent similar incidents like the 2015 Refugio Spill in Santa Barbara from occurring on intrastate hazardous liquid pipelines and to protect California's vital natural resources. To meet that goal, the OSFM formed a Pipeline Safety Regulations Workgroup comprised of non-governmental entities, local agencies, and industry representatives with expertise in the field to develop the new regulations. This workgroup has met regularly and engaged in extensive discussion and analysis resulting in proposed regulations that are essential to the successful implementation of both SB 295 and AB 864. The annual inspection regulations developed for SB 295 are completed and have been submitted to the Office of Administrative Law for final approval. As noted above, the AB 864 regulations are still in development, and open for public comment.

With the added safety and regulatory authority under SB 295 and AB 864, the OSFM will continue to conduct inspections to ensure pipelines transporting hazardous liquids in California meet State and federal requirements. The OSFM received approval to hire 11 additional pipeline safety engineer positions for Fiscal Year 2016-2017 to meet the increased inspection frequency of SB 295 and the review of operator plans and construction inspections for AB 864. The OSFM is in the process of filling these positions and believes that the regulations will meet the goals of SB 295 and AB 864.

Overview - Department of Conservation, Division of Oil, Gas, & Geothermal Resources:

DOGGR was formed in 1915 to address the needs of the state, local governments, and industry by regulating statewide oil and gas activities with uniform laws and regulations. DOGGR reviews and permits the drilling, operation, maintenance, and plugging and abandonment of onshore and offshore oil, gas, and geothermal wells, preventing damage to (1) life, health, property, and natural resources, (2) underground and surface waters suitable for irrigation or domestic use, and (3) oil, gas, and geothermal reservoirs. Its requirements are intended to encourage wise development of California's oil, gas, and geothermal resources while protecting the public and the environment.

DOGGR's programs include: well permitting and testing, safety and environmental inspections, oversight of production and injection projects, environmental lease inspections, idle-well testing, inspecting oilfield facilities, pipelines, and sumps, orphan well plugging and abandonment contracts, and subsidence monitoring.

Pipeline testing and inspections overseen by DOGGR:

Section 1774.1 of the California Code of Regulations (14 CCR Section 1774.1; Exhibit 3), establishes standards for pipeline testing and maintenance within oil fields. These regulations require mechanical integrity tests be performed *"on all active environmentally sensitive pipelines that are gathering lines, and all urban pipelines over 4 inches in diameter, every two years. Pipelines less than 10 years old are exempt from the two-year testing requirement."* The operator is required to make the tests results available to DOGGR. The operator is required to remove from service any pipeline that fails a mechanical integrity test.

The term "environmentally sensitive" is defined in 14 CCR Section 1760 as a production facility located within 300 feet of a public recreation area or building for human occupancy, or located within 200 feet of any officially recognized wildlife preserve or environmentally sensitive habitat, designated waterways, or other surface waters. The term "environmentally sensitive" also applies to any production facility which the State Oil and Gas Supervisor *"determines to be a significant threat to life, health, property or natural resources in the event of a leak, or that has a history of leaks."*

DOGGR has recently required each operator to prepare and submit a Pipeline Management Plan in accordance with CCR Section 1774.2 (Exhibit 4) for each oil and gas facility in the Coastal District which includes all of Ventura County. These plans are currently being received and reviewed by DOGGR staff.

14 CCR Section 1774.1 also authorizes a County Board of Supervisors to petition the State Oil and Gas Supervisor to include other pipelines within their jurisdiction as "environmentally sensitive." This request must be in writing and based on the findings of a competent, professional evaluation that shows there is a probability of significant public danger or environmental damage if a leak were to occur.

Legislative Updates:

California AB 1420 (2015-2016 Reg. Sess.): Authorizes local health offices, if appropriate for a spill in a sensitive area, to require a responsible party to test, provide assistance, and fund relocation of residents, if necessary. The Resource Management Agency, Environmental Health Division will be the County entity to implement this local responsibility. DOGGR sent a Notice to Operators on December 22, 2015 (Exhibit 5) outlining the operator's responsibilities under the new Public Resource Code (PRC) Sections 3270.5 and 3270.6 enacted by this law.

Regulatory/Process Improvements:

DOGGR conducts annual environmental inspections of oil, gas and underground injection (UIC) wells and associated facilities. Although it is a goal of the southern office of the DOGGR Coastal District (Ventura County and a portion of northern Los Angeles County) to "inspect 100% of all Non-BLM wells, tanks, pipelines, and all other associated equipment on an annual basis" (Exhibit 6), every facility is not inspected in each year. To address this and other enforcement and regulatory oversight deficiencies, in October 2015, the California Department of Conservation adopted a Renewal Plan (Exhibit 7). This Plan is intended to overhaul the DOGGR regulatory program to refocus on the guiding principles of environmental protection and public health. In the Renewal Plan, Mr. David Bunn, who was appointed as Director of the Department of Conservation in June of 2015 states *"The Renewal Plan is an ongoing, four-year effort to correct past problems and to create a regulatory program that ensures public health and the environment are protected while we produce oil in California"*.

D. OIL COMPANY MAINTENANCE PROGRAMS

In response to the Grand Jury Report, Aera Energy (Aera) and Seneca Resources Corporation (Seneca) provided summaries of their regulatory compliance and facility maintenance efforts and submitted them to the County. These summaries are attached as

Exhibit 8. Aera's ongoing pipeline management overview states that in addition to regulatory requirements, they also have an extensive internal and external pipe corrosion program which, since the year 2000, has resulted in the replacement of approximately 1.2 million feet of piping (exceeding $100 million dollars in investment). The summary also states that in order to minimize internal corrosion in oil pipelines, they are using concrete lined piping that is resistant to internal corrosion. Aera has been implementing this standard since 2000 and have now replaced 80% of their oil service piping with internally concrete lined piping.

Seneca also provided a summary regarding their pipelines. Their report states that their 8.2 mile oil pipeline has 2 automatic shutdown valves that can be remotely closed and was last hydro tested in 2015. This pipeline is audited and inspected by the OSFM. Seneca's separate gas line is monitored 24/7 by a third-party contractor and has 2 automatic shutdown valves. This line is audited and inspected by U.S. Department of Transportation, Pipeline and Hazardous Materials Safety administration (PHMSA). Additionally, PRC Section 1774.2 requires Aera, Seneca, and all operators to have a Pipeline Management Plan in place. This regulatory requirement was the result of AB1960 which became effective in January 2011 and required the plans to be in place by January 2013. The plans must be updated within 90 days whenever pipelines are acquired, installed, altered, or when requested.

E. RESPONSE TO PUBLIC COMMENT

By letter dated July 18, 2016 (Exhibit 9), the Citizens for Responsible Oil and Gas (CFROG) provided comments to your Board regarding the County response to the Grand Jury on oil and gas pipeline regulation in Ventura County (Exhibit 1). Staff committed to responding to the CFROG letter as part of this report back. The attached January 19, 2017 staff memorandum (Exhibit 10) provides detailed responses to each of the issues raised in the CFROG letter. The County memorandum points out that the County cannot separately regulate the operation, maintenance and monitoring of oil field pipelines that are under the exclusive jurisdiction of DOGGR pursuant to Section 3106 of the Public Resources Code. Similarly, the County cannot exercise regulatory authority over the maintenance or monitoring of transmission pipelines that are under the exclusive jurisdiction of the OSFM.

The CFROG letter references Chapter 25 of the Santa Barbara County Code (referred to as "the County petroleum ordinance") as evidence that Ventura County can concurrently regulate oil and gas pipelines that are under the exclusive jurisdiction of DOGGR and the OSFM pursuant to state law. Yet, Chapter 25 of the Santa Barbara County Code specifically states that *"where there is conflict with State regulations or laws, such state regulations or laws shall prevail over any conflicting provisions of this chapter 25…"*. Thus, Santa Barbara County recognizes that state law pre-empts local regulations in the area of oil and gas pipeline regulation. County Planning staff confirmed this point with the Deputy Director of the Santa Barbara County Energy Division who oversees that County's oil and gas program.

The CFROG letter (Exhibit 9; marked comments 14 and 15) also raises the issue of the

County's responsibility to oversee the work of other agencies that monitor and regulate the maintenance of oil and gas pipelines. This issue is addressed in the County memorandum (Exhibit 10) and in the following discussion.

F. OIL SPILLS IN VENTURA COUNTY

DOGGR maintains a record of each oil spill within District 2. Table 2 below summarizes oil spill information provided by the DOGGR District 2 office in June 2016. The table shows there have been 45 pipeline leaks of various magnitude within the District 2 area from January 2010 to June 2016 (a 6.5-year period).

TABLE 2

DOGGR District 2 Pipeline Leaks 2010-2016

Oil volume (barrels)	# of incidents	Explanation
700	1	Crimson pipeline leak in City of Ventura. Cause under investigation.
200	1	Crimson pipeline struck by auger rig during Southern California Edison pole replacement along State Highway 118. (Leak did not occur in an oil field.)
25	1	Four-inch diameter gathering line leaked from corrosion.
24	1	Leak in sales line from Tank Battery.
15	1	Break of flowline from earth movement
10	1	Possible underground pipeline break.
9	1	Pinhole leak in pipeline due to corrosion.
Between 1 and 5	23	Minor pipeline leaks due primarily to corrosion.
1 or less	15	Minor pipeline leaks due primarily to corrosion.

As indicated in the above table, there have been seven pipeline leaks in which more than five barrels of oil were spilled in period from January 2010 to June 2016. The June 2016 Crimson pipeline leak in the City of Ventura accounted for more than half of the total volume of oil spilled during this period. The other major incident involved a construction accident that did not occur in an oilfield and was unrelated to pipeline operation. Two hundred barrels were spilled when an underground Crimson pipeline was struck by earth-moving equipment during the replacement of an Edison power pole. In sum, the number of leaks is relatively small given the 378 miles of major oil transmission lines in Ventura County and the hundreds of miles of oil well flow lines and oil field gathering lines in operation in Ventura County.

Although oil spills must always be prevented to the maximum extent feasible, the relative magnitude of the problem in Ventura County should also be considered. According to DOGGR records, over the six-and-a-half year period covered by the above table, approximately 1,100 barrels of crude oil were spilled out of the 58 million barrels of oil produced. The volume of the spilled oil represents 0.002 percent of the oil produced in Ventura County from 2010-2016.

G. REGULATION OF NATURAL GAS PIPELINES

Background:

The operation of interstate natural gas transmission pipelines in the United States is overseen by the federal Pipeline and Hazardous Materials Safety Administration (PHMSA). On behalf of PHMSA, the California Public Utilities Commission (CPUC) oversees the safety and maintenance of natural gas transmission pipelines within the State of California. The CPUC is responsible to ensure that the state's natural gas and liquid petroleum gas (LPG) pipeline systems are designed, constructed, operated, and maintained according to safety standards set by the CPUC and the federal government. The CPUC employs gas safety engineers trained and qualified by the federal government to enforce safety regulations. The CPUC conducts operation and maintenance compliance inspections, accident investigations, reviews utility company reports and records, conducts construction inspections, conducts special studies, and takes action in response to complaints and inquiries from the public on issues regarding gas pipeline safety. The CPUC also develops and adopts amendments to regulations in order to improve public safety.

The CPUC and PHMSA are tasked with ensuring that pipeline operators have established risk management programs designed in conformance with state and federal laws and regulations, and effective in enhancing public and employee safety.

The CPUC oversees the operation and safety practices of the five major investor-owned utilities who serve natural gas and LPG to the bulk of California residents and businesses. These include:

- Pacific Gas and Electric Company (PG&E)
- Southern California Gas Company (SoCalGas)
- San Diego Gas & Electric (SDG&E)
- Southwest Gas Corporation
- Southern California Edison (Avalon LPG).

The CPUC performs field and headquarter inspections and audits of practices and procedures developed by these gas utilities. The utilities also perform audits and report to the CPUC on an ongoing basis their practices, procedures, and progress on a variety of issues.

CPUC pipeline safety improvements:

The 2010 rupture of a PG&E natural gas pipeline in San Bruno, California, resulted in are assessment of CPUC safety and enforcement programs. The CPUC developed, and in 2012 adopted, the Natural Gas Safety Action Plan. This plan was developed to attain the following goals:

- Ensuring the Safety of the existing gas system
- Upgrading and replacing the gas system to make it safer
- Reforming the CPUC – making safety its first priority
- Instilling safety culture in gas operators

A Table outlining the specific tasks included in this Safety Plan is attached as Exhibit 11. These tasks include pipeline inspection, testing, replacement, facility improvements (such as automatic shut-off valves), and audits of operator safety procedures and emergency response plans.

Gas pipelines in Ventura County:

Approximately 240 miles of natural gas transmission pipelines traverse the County of Ventura as part of the Southern California Gas Company distribution system. Leading from these major transmission lines are thousands of miles of minor gas pipelines that connect the system to consumers.

The Resource Management Agency GIS mapping system includes the location of each of the gas transmission pipelines based on data provided by the CPUC.

The County of Ventura does not exercise land use authority over the installation, maintenance or safety monitoring of the natural gas transmission pipelines or the associated distribution system. The CPUC is the agency with authority over these facilities.

H. COUNTY OVERSIGHT OF STATE AND FEDERAL AGENCIES

The Grand Jury recommends that your Board require the preparation of an annual report that summarizes the state of the crude oil pipelines within all of Ventura County. This would require County staff to compile information obtained from DOGGR and the OSFM in an annual report to your Board. The information in an annual report could include an updated tabulation of spill incidents to include those that occurred in the previous year, a description of any identified causes for each incident, and a discussion of any new regulations under consideration by the various agencies that monitor pipelines. County staff could also develop draft regulatory changes that your Board could consider recommending to the state

legislature. The compiled information would be made publicly available on the County website and be presented to your Board in a public hearing.

The cost of annual report preparation and its presentation to your Board depends on the ultimate scope of the data collection and coordination effort with the state and federal agencies, as well as to the extent of related legislative initiatives and any recommended changes to County regulations. It is anticipated that a minimum of 150 hours of staff time (at a cost of about $25,000) would be annually required to assemble, organize and evaluate the data; it is difficult to estimate the additional costs associated with the legislative review/regulatory changes and preparation of Board presentation materials.

County staff has been in contact with the management of DOGGR and the OSFM and staff from both of these agencies will be present at the hearing to make brief presentations on their pipeline inspection programs as well as current efforts underway to address increased pipeline oversight.

Local government agencies can and should provide comments to the state and federal authorities when deficiencies in a regulatory program are identified. Local governments should also comment on proposed regulatory changes such as California AB 2729 (2015-2016 Reg. Sess.) aimed at reducing the number of idle oil wells. Your Board provided a letter of comment to the state on this legislation on May 3, 2016 and the legislation was signed into law by the Governor on September 9, 2016.

I. SUMMARY

Although the number is modest, there have been a number of reported oil spills in Ventura County since 2010. In addition, recent efforts have been undertaken by several State agencies to further improve the safety of petroleum and natural gas pipelines within California. While the various state agencies collect information related to pipeline events and activities, the information is not assembled and provided in a single report. If the Board were to direct staff to prepare a report on an annual basis, how the effort would impact other project assignments would need to be addressed. The Planning Division's queue of other Board-directed priorities includes the General Plan Update, Subdivision Ordinance update, Local Coastal Program update, wildlife corridors, night-time sky ordinance, short-term rental ordinance, and medical marijuana ordinance, among others. Should the Board elect not to pursue the preparation of the annual report, Planning staff would continue to periodically contact DOGGR, CPUC and OSFM to obtain new information regarding the recently-implemented and ongoing regulatory safety improvements, continue to participate in the rule making process, and report back to the Board with issues of concern and recommendations for regulatory changes as needed.

Sincerely,

Kim L. Prillhart
Planning Director

Attachments:

Exhibit 1 – Response to FY 2015-2016 Grand Jury Final Report
Exhibit 2 – Government Code Section 51013.5 (Required Testing)
Exhibit 3 – CCR Section 1774.1 (Pipeline Inspection and Testing)
Exhibit 4 – CCR Section 1774.2 (Pipeline Management Plans)
Exhibit 5 – DOGGR 12-22-15 Notice to Operators
Exhibit 6 – DOGGR District 2 Guidelines for Environmental Inspections
Exhibit 7 – DOGGR Renewal Plan for Oil and Gas Regulation, October 2015
Exhibit 8 – Regulatory compliance summaries for Aera Energy and Seneca Resources
Exhibit 9 – July 18, 2016 letter by CFROG (marked copy)
Exhibit 10 – January 19, 2017 staff memorandum
Exhibit 11 – CPUC Natural Gas Safety Action Plan, 2012
Exhibit 12 – CAL FIRE Workshop notices

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

Attachment 6

Fluid Production Data for Wells Connected to Naumann Facility_2007-2016

Renaissance Petroleum Project

Case No. PL14-0103
(Minor Modification of CUP 4384)

Cabrillo Oil Field

Oil Production 2007-2016 (in barrels)

Data from DOGGR

(Note: Shaded years indicates that the well had not yet been drilled.)

Year	Rosenmund #1	Rosenmund #2	Rosenmund #3	Rosenmund #4	Rosenmund #5	Rosenmund #6	Rosenmund #7	Rosenmund #8	Nauman #1	Total
2016	0	4167	0	0	4337	6260	0	133	5014	19911
2015	0	5883	0	0	5390	6357	24	147	4913	22714
2014	0	6792	7	0	6666	7315	92	275	3231	24378
2013	0	9324	0	0	12018	8750	247	108	3467	33914
2012	0	16558	0	0	25990	13417	0	0	7253	63218
2011	0	20681	0	0	55011	7576			7919	91187
2010	0	27166	0	0	43115				10581	80862
2009	0	34231	0	0					14289	48520
2008	0	42693	0	0					7605	50298
2007	0	19898	0	0					8093	27991

2007-2016 Total Oil Production =	462993	BBLS
2007-2016 Average BO/Year =	46299.3	BBLS
2012-2016 Average BO/Year =	32827	BBLS
Peak Annual Production (2011) =	91187	BBLS

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

Attachment 7

Port Hueneme_Oxnard
Truck Traffic Study
2008

Renaissance Petroleum Project
Case No. PL14-0103
(Minor Modification of CUP 4384)

SOUTHERN CALIFORNIA
ASSOCIATION of GOVERNMENTS

Cities of Port Hueneme/Oxnard Truck Traffic Study

Final Report

June 5, 2008

IBI Group

Cities of Port Hueneme/Oxnard Truck Traffic Study

Final Report

June 5, 2008

Prepared for Southern California Association of Governments
by

IBI GROUP

Funding: The preparation of this report was financed in part through grants from the United States Department of Transportation (DOT).

The contents of this report reflect the views of the author, who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of SCAG or DOT. This report does not constitute a standard, specification or regulation.

TABLE OF CONTENTS

TABLE OF FIGURES

EXECUTIVE SUMMARY

The Cities of Port Hueneme and Oxnard Truck Traffic Study analyzes existing traffic conditions and identifies traffic impacts and areas of congestion caused by trucks traveling on local arterial roadways in the two cities. The study was commissioned by the Southern California Association of Governments (SCAG). A Technical Advisory Committee (TAC) was formed to steer the project, and includes representatives of the Cities of Port Hueneme and Oxnard, the Port of Hueneme, Naval Base Ventura County (NBVC), Caltrans District 7, the Ventura County Transportation Commission (VCTC), and the local trucking industry. The members of the Study TAC are:

- Akiko Yamagami, Southern California Association of Governments (SCAG)
- Michael Jones, SCAG
- Andres Santamaria, City of Port Hueneme
- Jason Samonte, City of Oxnard
- Anthony Taormina, Port of Hueneme
- Chris Birkelo, Port of Hueneme
- Michaela Brown, Naval Base Ventura County (NBVC)
- Vinod Kumar, California State Department of Transportation (Caltrans) District 7
- Robert Wong, California State Department of Transportation (Caltrans) District 7
- Kerry Forsythe, Ventura County Transportation Commission (VCTC)
- Greg Dineen, Greg Dineen & Associates Industry Transportation Consultant
- Seth Hammond, Specialty Crane and Rigging

The study included the collection of existing traffic data for general vehicle traffic and truck traffic traveling through the Cities of Port Hueneme and Oxnard. Written surveys were conducted at the Port of Hueneme and NBVC to obtain information on truck trip generation rates and distribution patterns for these land uses. Telephone surveys were also conducted with a small sample of private business located in the study area to obtain additional information regarding truck trip generation and travel patterns.

The data collection and analysis effort revealed that there are numerous sources of truck trips within the study area. The sources surveyed as part of this study (Port of Hueneme, NBVC, selected private business) comprise a small portion of the total number of truck trips traveling on roadways in Port Hueneme and Oxnard. However, the information obtained through the traffic analysis and the survey efforts is valuable for the two cities in identifying the most heavily used truck routes, areas and intersections in need of improvement to provide for better traffic flow, and additional steps that could be taken in the future to address potential increases in truck traffic volumes from new developments or expansions of existing operations.

Traffic Analysis Methodology

The traffic analysis presented in this report was conducted consistent with the adopted methodologies for the Ventura County Congestion Management Plan, the City of Port Hueneme, and the City of Oxnard. Traffic operations at signalized intersections are analyzed using the Intersection Capacity Utilization (ICU) methodology, which evaluates capacity in terms of the volume-to-capacity (V/C) ratio.

Existing Traffic Conditions

Existing traffic conditions were evaluated at 25 study intersections, using traffic counts collected in January 2008. Roadway average daily traffic (ADT) volumes were also collected at 13 locations along designated truck routes in the study area.

The five highest daily truck volumes are observed on the following roadway segments:

1. Rose Avenue – north of 5th Street
2. Rice Avenue – north of 5th Street
3. Rice Avenue – north of Hueneme Road
4. Victoria Avenue – north of 5th Street
5. Victoria Avenue – between Channel Islands Blvd and 5th Street

This pattern of truck traffic volumes shows that the highest volumes of truck traffic are typically observed on roadway segments located closer to US-101 interchanges and along the designated preferred truck routes.

The five roadway segments identified below have the highest percentage of truck traffic relative to total traffic volume of the 13 locations included in the traffic counts:

1. Rose Avenue – north of 5th Street
2. Rice Avenue – north of 5th Street
3. Hueneme Road – east of Saviers Road
4. Rice Avenue – between Hueneme Road and 5th Street
5. Ventura Road – north of Channel Islands Boulevard

The peak hour study intersection analysis identified the following intersections that do not operate at a satisfactory level of service, along with the identified peak hour:

1. Victoria Avenue and Channel Islands Boulevard – PM peak hour
2. Oxnard Boulevard/Saviers Road and Wooley Road – PM peak hour
3. Rose Avenue and Gonzales Road – PM peak hour
4. Rice Avenue and Gonzales Road – AM peak hour
5. Rice Avenue and US-101 Southbound Ramps – AM and PM peak hour

Many of these intersections are located along roadway segments that have the highest observed total traffic volumes and truck traffic volumes. Several intersections are located near the US-101 freeway, where traffic volumes are typically higher as automobiles and trucks attempt to access the freeway.

Study Area Truck Trips

Written questionnaires were developed to survey truck drivers at the Port of Hueneme and NBVC with the objective of collecting information directly from truck drivers regarding origins and destinations, the routes used to access the Port of Hueneme and NBVC, and the types of cargo carried by the trucks. The written survey was conducted over a period of multiple days at each location and both surveys had a response rate of about 90%.

The data collected through the questionnaire and historic gate counts provided by the Oxnard Harbor District show that the Port of Hueneme generates about 140 entering and 140 exiting truck trips on a daily basis during the spring season. These truck trips represent a small percentage of the overall number of trucks traveling on roadways within the study area. On Port Hueneme Road just east of Ventura Road, Port-related truck trips comprise about 25% of the total trucks traveling on this segment of roadway. The Port's share of total truck trips diminishes rapidly further away from the Port's main gate as truck trips are dispersed within the study area. The Hueneme Road and Rice Avenue corridors were observed to have the greatest use by trucks traveling to and from the Port of Hueneme

NBVC generates even fewer truck trips on a daily basis, with approximately 90 to 100 trucks entering and exiting the base's Victoria Gate during the surveyed time period. Victoria Avenue was the most commonly cited route for trucks traveling between the US-101 freeway and NBVC. These truck trips comprise about 5% of the total number of trucks that travel on Victoria Avenue on a daily basis.

A small sample of private businesses was also surveyed by telephone to supplement the data collected from the Port of Hueneme, NBVC, and traffic counts. The information collected from these private businesses shows utilization of existing truck routes, such as Hueneme Road and Rice Avenue is strong in the existing condition.

Impacts of Truck Traffic on Residential Neighborhoods

Existing truck routes can cause impacts on adjacent residential neighborhoods resulting from traffic congestion, noise, and vibration. The Cities of Port Hueneme and Oxnard have a well-defined network of truck routes that appears to adequately serve the Port of Hueneme, NBVC, and other private businesses in the area. There are a number of new residential developments in the planning or construction stages along study area truck routes within the Cities of Port Hueneme and Oxnard. These developments will expose more people to the existing traffic on the truck routes, and increase the magnitude of the impacts created when incompatible land uses are combined. Measures to reduce the impact of truck traffic on residential neighborhoods include encouraging truck drivers to utilize existing truck routes and requiring residential developers to provide acoustical design features such as pavement surfaces, sound barriers, setbacks, and sound-dampening materials.

Recommendations

A series of recommendations are identified for the Study Technical Advisory Committee (TAC) to consider to address existing traffic deficiencies present in the study area, improve the identification and use of existing truck routes, and to develop strategies for future improvements or studies that would be intended to maintain or enhance traffic operations for both trucks and general traffic in the study area.

Intersection and roadway improvements include increasing the capacity of the Victoria Avenue/Channel Islands Boulevard intersection, widening Hueneme Road to a full four lanes (two in each direction) for the full length between Ventura Road and Rice Avenue, and monitoring the traffic impacts that would be anticipated with the now-funded improvements to the US-101/Rice Avenue interchange.

Strategies to address residential neighborhood impacts include encouraging trucks traveling to and from major generators in the study area (Port of Hueneme, NBVC, private businesses) to utilize the established preferred truck routes on Hueneme Road/Rice Avenue and Victoria Avenue as much as possible to limit the potential impacts of high truck volumes on other streets near residential areas such as Ventura Road and Channel Islands Boulevard and designing residential neighborhoods to consider the potential impacts caused by trucks traveling on the adjacent truck route.

Truck driver's awareness and the use of designated truck routes may be improved by:

- Continuing to emphasize the use of Port Hueneme Road/Hueneme Road and Rice Avenue as the primary truck access corridors to the Port of Hueneme.
- Installing directional signage along Port Hueneme Road/Hueneme Road and Rice Avenue directing trucks exiting the Port of Hueneme main gate to access the US-101 freeway via this route.
- Exploring the feasibility of implementing traffic signal coordination along Port Hueneme Road/Hueneme Road between Ventura Road and Rice Avenue to improve traffic flow and truck travel times in the corridor.

- Continuing to pursue funding for the grade separation of Rice Avenue at the Union Pacific rail corridor immediately north of Fifth Street.
- Working with Caltrans District 7 to install signage along US-101 identifying Rice Avenue as a designated access truck route to the Port of Hueneme and identifying Victoria Avenue as a designated access truck route to NBVC Port Hueneme.

Recommended next steps include the following:

- Identify potential funding sources and the responsible agencies for implementing the recommendations identified in this report.
- Explore performing an analysis of future traffic conditions, truck trip generation rates, and the operation of the future study area roadway network.

1 INTRODUCTION

The Southern California Association of Governments (SCAG) and the Cities of Port Hueneme and Oxnard have commissioned this Truck Traffic Study to analyze existing traffic conditions and identify traffic impacts and congestion generated by truck trips traveling on local arterial roadways. Truck trips in the study area are generated by a variety of land uses located in the Cities of Port Hueneme and Oxnard. Some of these uses include the Port of Hueneme, the Naval Base Ventura County (NBVC), and numerous other private businesses such as agricultural uses, automobile distributors, sod farms, offshore oil operations, and community commercial uses. The study is focused on assessing the impacts caused by existing truck traffic in the study area and identifying strategies for addressing the identified impacts.

This report consists of the following sections:

1 Introduction
2 Traffic Analysis Methodology
3 Existing Traffic Conditions
4 Study Area Truck Trips (Origins and Destinations)
5 Impacts of Truck Traffic through Residential Neighborhoods
6 Recommendations

Section 1 provides an introduction to the report and background information. Section 2 describes the methodology used for various types of analysis presented in this study. Section 3 includes descriptions of the study area roadway network and existing operations. Section 4 is a compilation of the results of questionnaires, surveys, and observations of truck trip origins, destinations, and travel routes within the study area. Section 5 examines the potential to improve truck route corridors through signal timing coordination. In Section 6, the impacts of truck traffic through local residential neighborhoods are discussed. Section 7 presents an overall summary of the impacts of truck traffic on the roadway network, recommendations to mitigate these impacts, and a list of areas that merit further study.

1.1 BACKGROUND

Freight goods movement is a significant regional issue in Southern California that is growing in importance each year. Issues including traffic congestion, air quality, and noise must be addressed when considering the impacts of increased goods movement and truck traffic. While a large portion of the freight traffic in Southern California is generated by the Ports of Los Angeles and Long Beach, there are numerous other smaller sources of truck trips in Southern California. The Oxnard/Port Hueneme area is home to several of these smaller truck trip generators. These land uses include the Port of Hueneme, Naval Base Ventura County (NBVC) – Port Hueneme, as well as several private businesses comprised of automobile distributors, sod farms, agricultural uses, and off-shore oil operations.

The Port of Hueneme is the U.S. Port of Entry for California's central coast region. It serves niche markets that include the import and export of automobiles, fresh fruit and other produce. It is the only deep water harbor between Los Angeles and San Francisco, and serves as a primary support facility for the offshore oil industry.

Agency Coordination

The information presented in this report has been reviewed by the Technical Advisory Committee (TAC), which was formed to support the study effort. The Study TAC is comprised of the following staff representatives from the identified agencies:

- Akiko Yamagami, Southern California Association of Governments (SCAG)
- Michael Jones, SCAG
- Andres Santamaria, City of Port Hueneme
- Jason Samonte, City of Oxnard
- Anthony Taormina, Port of Hueneme
- Chris Birkelo, Port of Hueneme
- Michaela Brown, Naval Base Ventura County (NBVC)
- Vinod Kumar, California State Department of Transportation (Caltrans) District 7
- Robert Wong, California State Department of Transportation (Caltrans) District 7
- Kerry Forsythe, Ventura County Transportation Commission (VCTC)
- Greg Dineen, Greg Dineen & Associates Industry Transportation Consultant
- Seth Hammond, Specialty Crane and Rigging

2 TRAFFIC ANALYSIS METHODOLOGY

The traffic analysis summarized in this report is performed in accordance with the City of Port Hueneme, City of Oxnard, and Ventura County Congestion Management Program (CMP) traffic impact analysis guidelines. The methodology used in the technical analysis presented in this report is briefly described in this section.

2.1 SIGNALIZED INTERSECTION ANALYSIS

Traffic operations at signalized intersections are analyzed using the Intersection Capacity Utilization (ICU) methodology[1], which evaluates capacity in terms of the volume-to-capacity (V/C) ratio. The Ventura County CMP, the City of Port Hueneme, and the City of Oxnard have adopted the ICU methodology as the preferred method for assessing intersection level of service.

The ICU methodology measures the efficiency of traffic operations with a grading system called Level of Service (LOS). Evaluation of roadways and intersections involves the assignment of grades from A to F, with "A" representing the highest level of operating conditions and "F" representing extremely congested and restricted operations. The LOS is determined by measuring the ratio of volume-to-capacity (V/C) for each roadway and intersection. Each letter grade corresponds to a range of V/C values, which are described in detail in Table 2-1.

Threshold of Significance

The Cities of Port Hueneme and Oxnard have established level of service (LOS) "C" as the minimum acceptable LOS for intersections located in each city. Selected study intersections are also monitored by the Ventura County CMP, which defines the minimum acceptable level of service as LOS "E". For the purposes of this report, the more conservative LOS standard established by the Cities of Port Hueneme and Oxnard will be used as the governing measure regarding the minimum acceptable intersection LOS.

[1] All ICU analysis conducted for this study was completed using a traffic impact analysis software program known as TRAFFIX. TRAFFIX is a network-based interactive computer program that enables calculation of levels of service at signalized and unsignalized intersections for multiple locations and scenarios.

Table 2-1 Level of Service for Signalized Intersections

Level of Service	Description of Traffic Conditions	V/C Ratio
A	At level of service A there are no cycles that are fully loaded, and few are even close to loaded. No approach phase is utilized by traffic and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	0.00 – 0.60
B	Level of service B represents stable operation. An occasional approach phase is fully utilized and a substantial number are approaching full use. Many drivers begin to feel somewhat restricted within platoons of vehicles.	0.61 – 0.70
C	In level of service C stable operation continues. Full signal cycle loading is still intermittent, but more frequent. Occasionally drivers may have to wait through more than one red signal indication, and back-ups may develop behind turning vehicles.	0.71 – 0.80
D	Level of service D encompasses a zone of increasing restriction, approaching instability. Delay to approaching vehicles may be substantial during short peaks within the peak period, but enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive back-ups.	0.81 – 0.90
E	Level of service E represents the most vehicles that any particular intersection approach can accommodate. At capacity (V/C = 1.00) there may be long queues of vehicles waiting upstream of the intersection and delays may be great (up to several signal cycles).	0.91 – 1.00
F	Level of service F represents jammed conditions. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration; hence, volumes carried are not predictable. V/C values are highly variable, because full utilization of the approach may be prevented by outside conditions.	>1.00

Source: Los Angeles County Congestion Management Program, 2000

3 EXISTING TRAFFIC CONDITIONS

Descriptions of the project study area arterial roadway network, truck routes, and major intersections are included in this section. Summaries of existing traffic volumes, the percentage of heavy vehicles, and arterial and intersection level of service are also presented.

3.1 PROJECT SETTING

The project study area was determined in consultation with the Project TAC. The study area was chosen based on the presence of corridors and intersections that carry a high percentage of trucks on a daily basis and that serve as essential connections between the US-101 freeway and local land uses.

The project study area is shown in Figure 3-1. The study area is located within the Cities of Port Hueneme and Oxnard, and is bordered by the US-101 freeway on the north, Victoria Avenue on the west, Hueneme Road on the south, and Rice Avenue on the east.

Study Area Roadways

Major roadways analyzed in the study include:

- **Victoria Avenue** – Victoria Avenue runs in a north-south direction and serves as the western border of the study area. The roadway currently has four lanes (two lanes in each direction) for a majority of its length in the study area. Selected locations near 5th Street and Channel Islands Boulevard have been widened to provide an additional lane in one or both directions of travel.

- **Channel Islands Boulevard** – Channel Islands Boulevard provides four lanes of travel between Victoria Avenue and Rose Avenue. Between Rose Avenue and Rice Avenue the street narrows to a single lane in each direction.

- **Ventura Road** – Ventura Road is a four-lane arterial roadway that travels north and south through both the City of Port Hueneme and the City of Oxnard in the study area. The roadway is located along the eastern edge of NBVC and intersects Hueneme Road just east of the main gate to the Port of Hueneme.

- **Hueneme Road** – Hueneme Road is an east-west arterial roadway that travels between the Port of Hueneme on the west and Naval Station Point Mugu on the east. It varies in width from two lanes to four lanes within the study area. Hueneme Road is the southern boundary of the study area for this study and is designated as a preferred access route for trucks in the City of Oxnard General Plan. The City of Oxnard is currently planning to widen a portion of Hueneme Road from Saviers Road to Arctucus Avenue from two lanes to four lanes.

- **Oxnard Boulevard** – Oxnard Boulevard is a major north-south arterial roadway in the City of Oxnard. The street is currently designated as State Route 1 (SR-1) or Pacific Coast Highway between Pleasant Valley Road and Interstate 101 (US-101). Oxnard Boulevard serves as a primary access route to Downtown Oxnard.

- **Vineyard Avenue** – Vineyard Avenue is designated as State Route 232 (SR-232) north of Oxnard Boulevard. Vineyard Avenue has six lanes north of Oxnard Boulevard to US-101 and four lanes of travel south and west of Oxnard Boulevard. Vineyard Avenue also serves as a main access point to Downtown Oxnard from US-101.

IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Project Study Area

Figure 3-1

- **Rose Avenue** – Rose Avenue is a four-lane divided arterial that runs north and south. South of 5th Street, Rose Avenue functions as a local arterial, primarily serving local land uses. The roadway widens to six lanes near the US-101 freeway, and is bordered by retail and medical land uses.

- **Rice Avenue** – Rice Avenue forms the western boundary of the study area. The roadway is a four lane north-south roadway that is designated as a preferred access route to the Port of Hueneme. Rice Avenue currently provides a single lane of travel in each direction over the US-101 freeway, resulting in a traffic bottleneck in the northeast portion of the study area.

Truck Routes

The City of Oxnard General Plan Circulation Element identifies arterial roadway truck routes that serve the City and provide connections to the US-101 freeway. The truck routes are typically arterial roadways that serve as important roadways within the City of Oxnard, providing access to the US-101 freeway, the Port of Hueneme, and NBVC. All truck routes are located along arterial roadways that are designated as Secondary or Primary Arterials by the City of Oxnard. This distinction assists in focusing truck traffic on arterial roadways that provide greater traffic capacity, wider lanes, larger intersections, and design characteristics that are better able to accommodate large trucks when compared to smaller arterial roadways or local streets. Generally, the truck routes are so designated in an attempt to avoid residential neighborhoods and minimize potential traffic, noise, and vibration impacts. Study area truck routes are illustrated in Figure 3-2.

IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Study Area Truck Routes

Figure 3-2

3.2 ARTERIAL ANALYSIS

ADT Count Volumes

The analysis of existing traffic conditions in the project study area is based on new traffic counts for roadway average daily traffic (ADT) volumes and peak hour intersection turning movements. All traffic counts include the collection of vehicle classification data to identify truck traffic volumes in the general traffic stream. Existing traffic counts were also collected from the City of Port Hueneme, the City of Oxnard, and Caltrans District 7 to supplement the new traffic counts conducted for this study effort. All collected traffic count data is provided in the Appendix of this report.

ADT counts were conducted on a single day on January 15, 2008 at the following locations:

1. Victoria Avenue – between Channel Islands Boulevard and 5th Street
2. Victoria Avenue – north of 5th Street
3. Ventura Road – between Hueneme Road and Channel Islands Boulevard
4. Ventura Road – north of Channel Islands Boulevard
5. Saviers Road - north of Channel Islands Boulevard
6. Oxnard Boulevard – north of 5th Street
7. Rose Avenue – north of 5th Street
8. Rice Avenue – between Hueneme Road and 5th Street
9. Rice Avenue – north of 5th Street
10. Hueneme Road - between Ventura Road and Saviers Road
11. Hueneme Road - between Saviers Road and Rice Road
12. Channel Islands Boulevard – between Victoria Avenue and Ventura Road
13. Channel Islands Boulevard – between Ventura Road and Rose Avenue

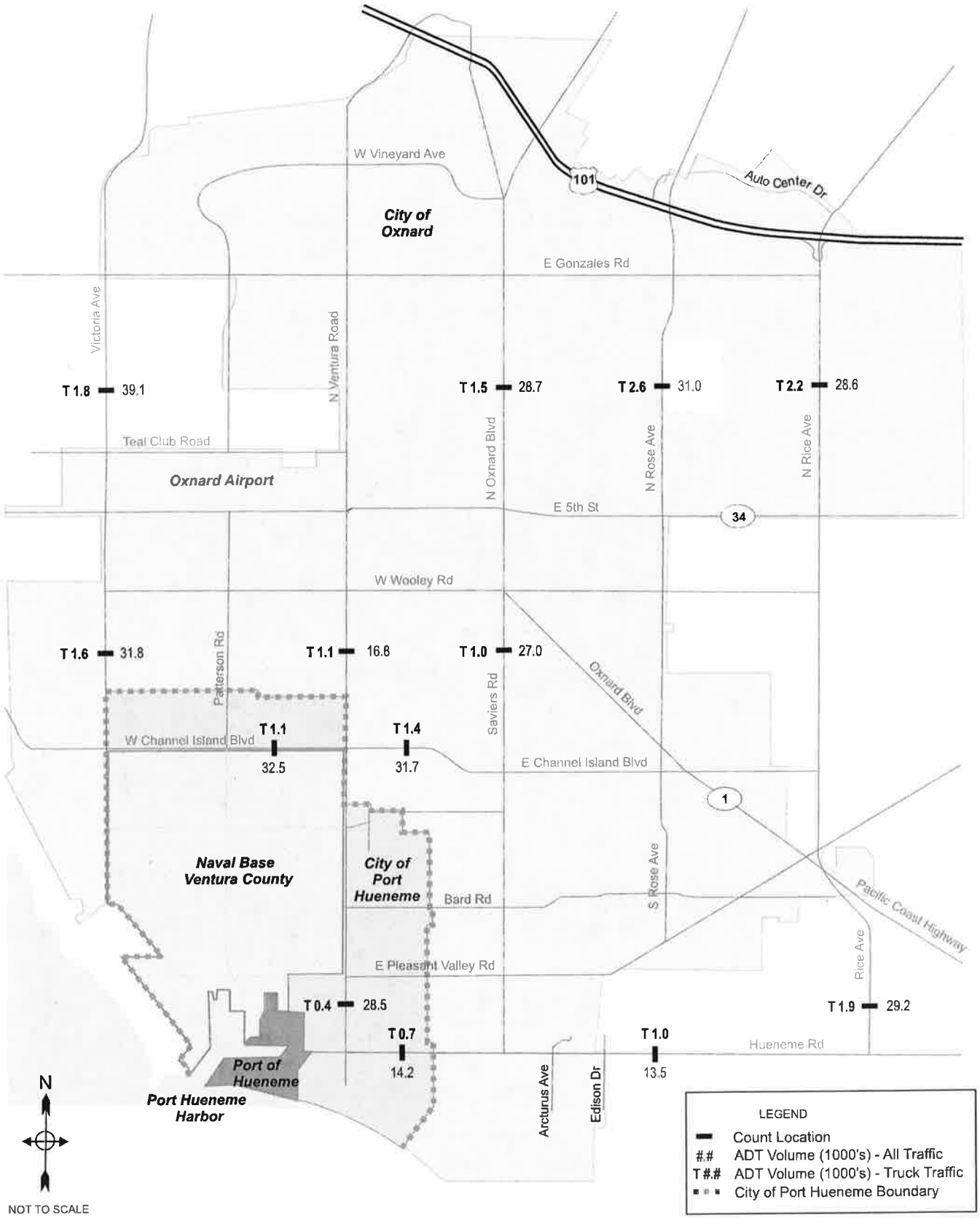
The ADT counts were conducted with vehicle classifications based on the Federal Highway Administration (FHWA) vehicle classification scheme. Under this program, vehicles are classified into categories depending on whether the vehicle carries passengers or commodities. Non-passenger vehicles are further subdivided by the number of axles and number of units. FHWA vehicle classes are summarized in Table 3-1.

Table 3-1 FHWA Vehicle Classifications

Class	Vehicle Type	Description
Class 1	Motorcycles	All two or three-wheeled motorized vehicles. This vehicle type may be reported at the option of the State.
Class 2	Passenger Cars	All sedans, coupes, and station wagons manufactured primarily for the purpose of carrying passengers and including those passenger cars pulling recreational or other light trailers.
Class 3	Other Two-Axle, Four-Tire Single Unit Vehicles	All two-axle, four-tire, vehicles, other than passenger cars. Included in this classification are pickups, panels, vans, and other vehicles such as campers, motor homes, ambulances, hearses, carryalls, and minibuses. Other two-axle, four-tire single-unit vehicles pulling recreational or other light trailers are included in this classification.
Class 4	Buses	All vehicles manufactured as traditional passenger-carrying buses with two axles and six tires or three or more axles. This category includes only traditional buses (including school buses) functioning as passenger-carrying vehicles. Modified buses should be considered to be a truck and should be appropriately classified.
Class 5	Two-Axle, Six-Tire, Single-Unit Trucks	All vehicles on a single frame including trucks, camping and recreational vehicles, motor homes, etc., with two axles and dual rear wheels.
Class 6	Three-Axle Single-Unit Trucks	All vehicles on a single frame including trucks, camping and recreational vehicles, motor homes, etc., with three axles.
Class 7	Four or More Axle Single-Unit Trucks	All trucks on a single frame with four or more axles.
Class 8	Four or Fewer Axle Single-Trailer Trucks	All vehicles with four or fewer axles consisting of two units, one of which is a tractor or straight truck power unit.
Class 9	Five-Axle Single-Trailer Trucks	All five-axle vehicles consisting of two units, one of which is a tractor or straight truck power unit.
Class 10	Six or More Axle Single-Trailer Trucks	All vehicles with six or more axles consisting of two units, one of which is a tractor or straight truck power unit.
Class 11	Five or fewer Axle Multi-Trailer Trucks	All vehicles with six or more axles consisting of two units, one of which is a tractor or straight truck power unit.
Class 12	Six-Axle Multi-Trailer Trucks	All six-axle vehicles consisting of three or more units, one of which is a tractor or straight truck power unit.
Class 13	Seven or More Axle Multi-Trailer Trucks	All vehicles with seven or more axles consisting of three or more units, one of which is a tractor or straight truck power unit.

Additional detail on the types of vehicle classifications established by FHWA is provided in the Appendix.

The traffic counts collected for this study assigned each vehicle that crossed the counting location into a specific classification. Roadway traffic volumes and count locations are shown graphically in Figure 3-3. For the purpose of this study, a "heavy truck" is a vehicle of Class 7 through Class 13. Table 3-2 summarizes the existing average daily traffic counts and identifies the total number of heavy trucks and percentage of the vehicles in relation to total traffic along each roadway segment.



IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Arterial General Vehicle and Heavy Truck Count Volumes

Figure 3-3

Table 3-2 Existing Roadway Daily Traffic Counts

No.	Roadway	Location	ADT (veh/day) Total	Truck ADT (veh/day) Total	Percentage of Heavy Trucks
1	Victoria Ave	Between Channel Islands Blvd and 5th St	31,793	1,585	5.0%
2	Victoria Ave	North of 5th St	39,101	1,771	4.5%
3	Ventura Rd	Between Hueneme Rd and Channel Islands Blvd	28,538	428	1.5%
4	Ventura Rd	North of Channel Islands Blvd	16,834	1,101	6.5%
5	Saviers Rd	North of Channel Islands Blvd	27,001	995	3.7%
6	Oxnard Blvd	North of 5th St	28,696	1,477	5.1%
7	Rose Ave	North of 5th St	30,966	2,608	8.4%
8	Rice Ave	Between Hueneme Rd and 5th St	29,190	1,930	6.6%
9	Rice Ave	North of 5th St	28,610	2,187	7.6%
10	Hueneme Rd	Between Ventura Rd and Saviers Rd	14,190	719	5.1%
11	Hueneme Rd	Between Saviers Rd and Rice Ave	13,512	975	7.2%
12	Channel Islands Blvd	Between Victoria and Ventura Rd	32,519	1,065	3.3%
13	Channel Islands Blvd	Between Ventura Rd and Rose Ave	31,679	1,369	4.3%

Source: Daily traffic counts collected on January 15, 2008
Heavy trucks are vehicles of Class 7 through Class13.

The five highest daily truck volumes are observed on the following roadway segments:

1. Rose Avenue – north of 5th Street
2. Rice Avenue – north of 5th Street
3. Rice Avenue – between Hueneme Rd and 5th street
4. Victoria Avenue – north of 5th Street
5. Victoria Avenue – between Channel Islands Blvd and 5th Street

This pattern of truck traffic volumes shows that the highest volumes of truck traffic are typically observed on roadway segments located closer to US-101 interchanges and along the designated preferred truck routes.

The five roadway segments identified below have the highest percentage of truck traffic relative to total traffic volume of the 13 locations included in the traffic counts:

1. Rose Avenue – north of 5th Street
2. Rice Avenue – north of 5th Street
3. Hueneme Road – east of Saviers Road
4. Rice Avenue – between Hueneme Road and 5th Street
5. Ventura Road – north of Channel Islands Boulevard

The truck percentage data corresponds well with the total truck volumes. However, it is observed that the section of Ventura Road north of Channel Islands Boulevard does serve a high percentage of truck traffic compared to most of the other roadway segments studied in this report.

Traffic Signal Coordination

Traffic signal coordination is the practice of using a common cycle length[2] for a group of adjacent signals, and then setting the beginning of green for a route through the signals so that vehicles starting at one intersection are likely to receive a green indication when they arrive at successive signals after the first. Under certain circumstances, traffic signal coordination can reduce delay, unnecessary stops at traffic signals, vehicle emissions, and potential for accidents.

Within the study area there are existing coordinated signals on Rice Avenue between Fifth Street and Auto Center Drive, on Rose Avenue between Fifth Street and Auto Center Drive, and on Victoria Avenue between Channel Islands Boulevard and Doris Avenue.

[2] The cycle length for a signalized intersection is the time required to complete one full sequence of traffic movements.

3.3 INTERSECTION ANALYSIS

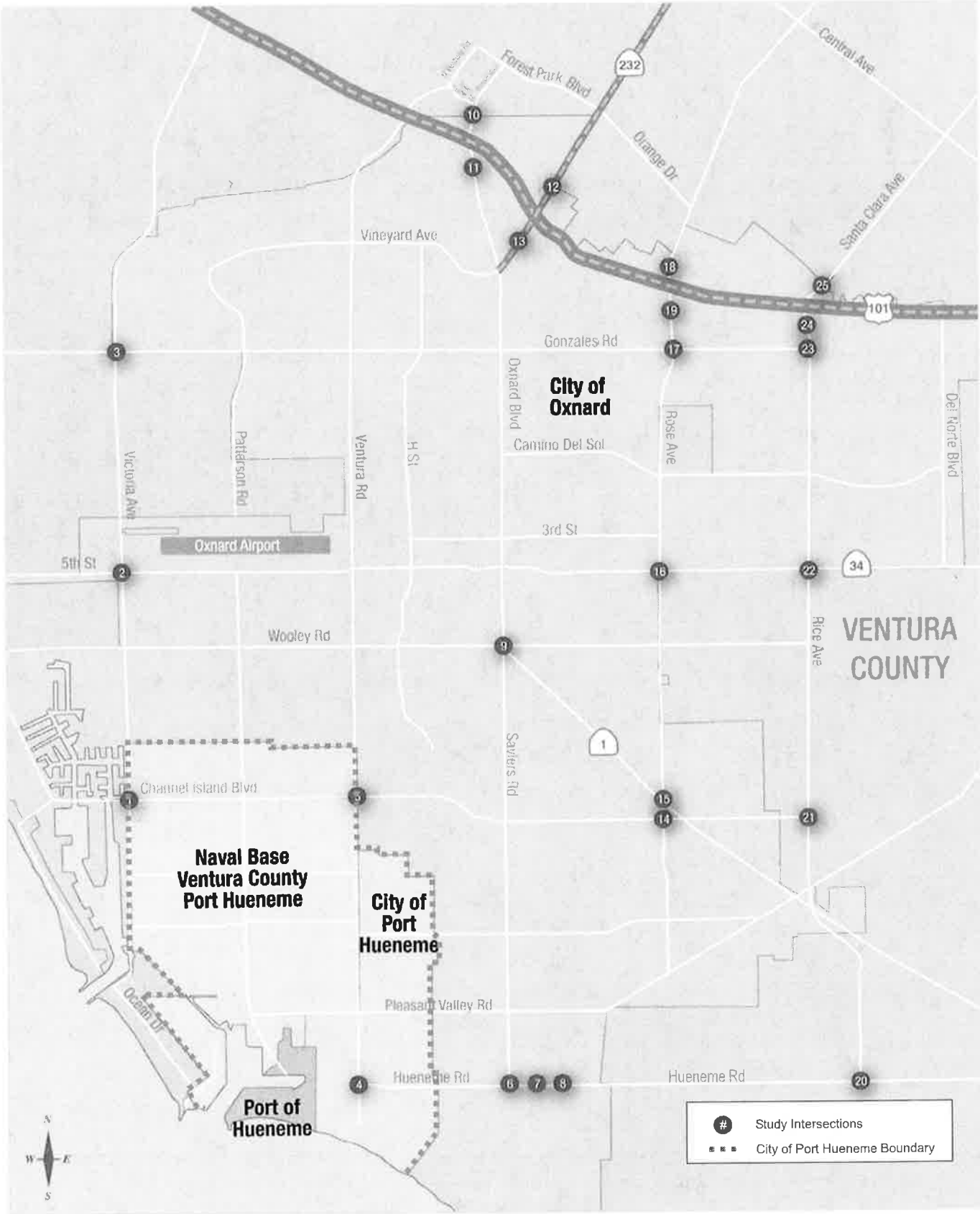
Study Intersections

Twenty-five intersections located within the boundaries of the study area were selected for inclusion in the traffic analysis. The intersection locations are shown in Figure 3-4, and the lane geometry at each intersection is illustrated in Figure 3-5. The study intersections were selected based on their location along major truck routes, their proximity to land uses that generate truck trips, the location of the intersection in relation to the US-101 freeway, and the potential to serve large numbers of heavy trucks.

Turning Movement Counts

The ADT count data was used to establish the peak period for vehicle traffic and to verify the appropriate time periods for conducting the intersection turning movement counts. The peak period intersection counts were then scheduled to take into account the peak hours for ambient traffic as well as the peak hours for truck trips in the project study area. The peak periods identified for this study were from 7:00 AM to 9:00 AM and from 3:00 PM to 6:00 PM. Intersection turning movement counts were completed on January 22, 2008 and January 29, 2008 at the following project study area intersections:

1. Victoria Avenue and Channel Islands Boulevard
2. Victoria Avenue and 5th Street
3. Victoria Avenue and Gonzales Road
4. Ventura Road and Port Hueneme Road
5. Ventura Road and Channel Islands Boulevard
6. Saviers Road and Hueneme Road
7. Arcturus Avenue and Hueneme Road
8. Edison Drive and Hueneme Road
9. Oxnard Boulevard/Saviers Road and Wooley Road
10. Oxnard Boulevard and Northbound US-101 Ramps
11. Oxnard Boulevard and Southbound US-101 Ramps
12. Vineyard Avenue and Northbound US-101 Ramps
13. Vineyard Avenue and Southbound US-101 Ramps
14. Rose Avenue and Channel Islands Boulevard
15. Rose Avenue and Oxnard Boulevard
16. Rose Avenue and 5th Street
17. Rose Avenue and Gonzales Road
18. Rose Avenue and Northbound US-101 Ramps
19. Rose Avenue and Southbound US-101 Ramps
20. Rice Avenue and Hueneme Road
21. Rice Avenue and Channel Islands Boulevard
22. Rice Avenue and 5th Street
23. Rice Avenue and Gonzales Road
24. Rice Avenue and US-101 Southbound Ramps
25. Rice Avenue/Santa Clara Avenue and Auto Center Drive

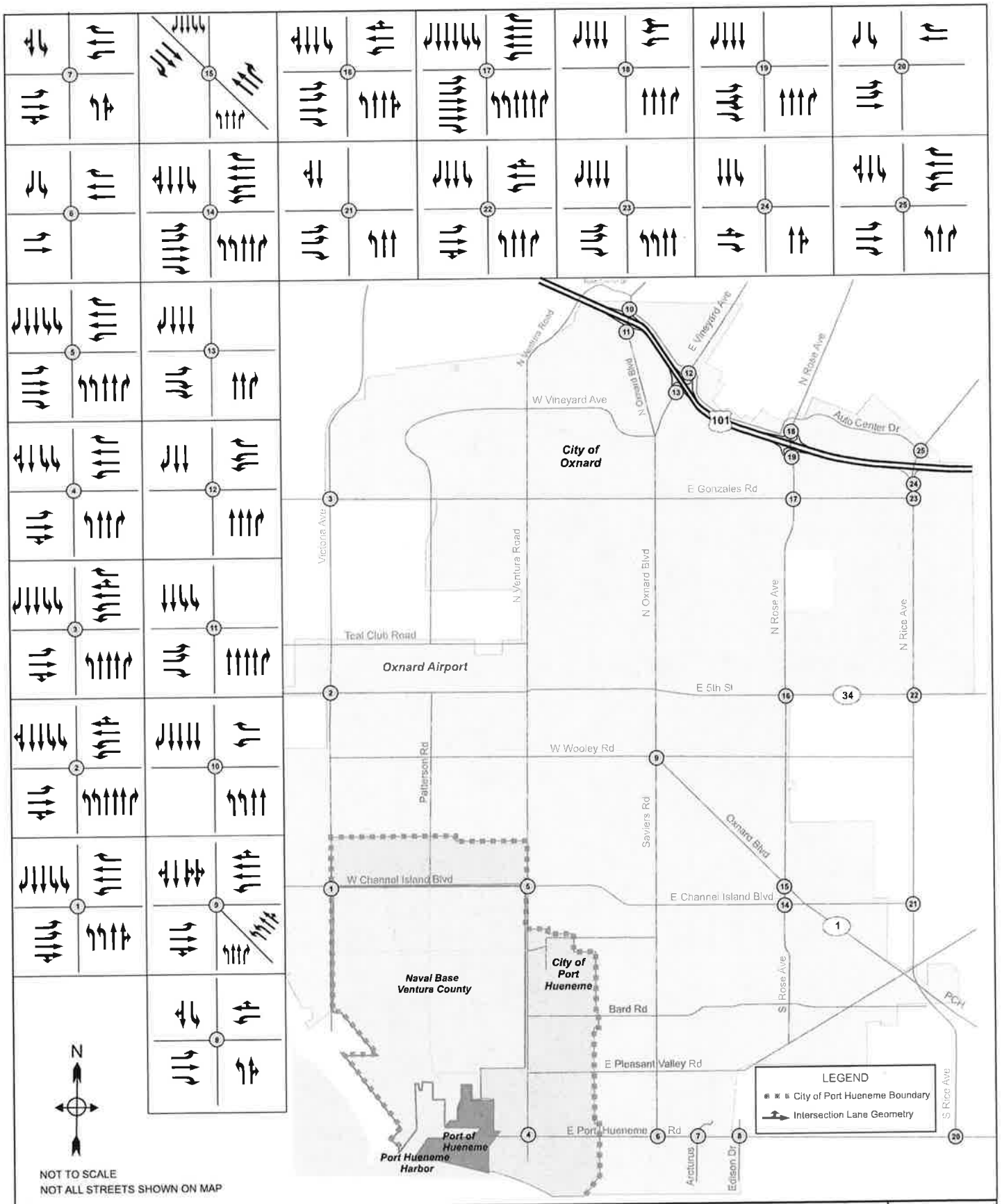


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Study Intersections

Figure 3-4



IBI GROUP

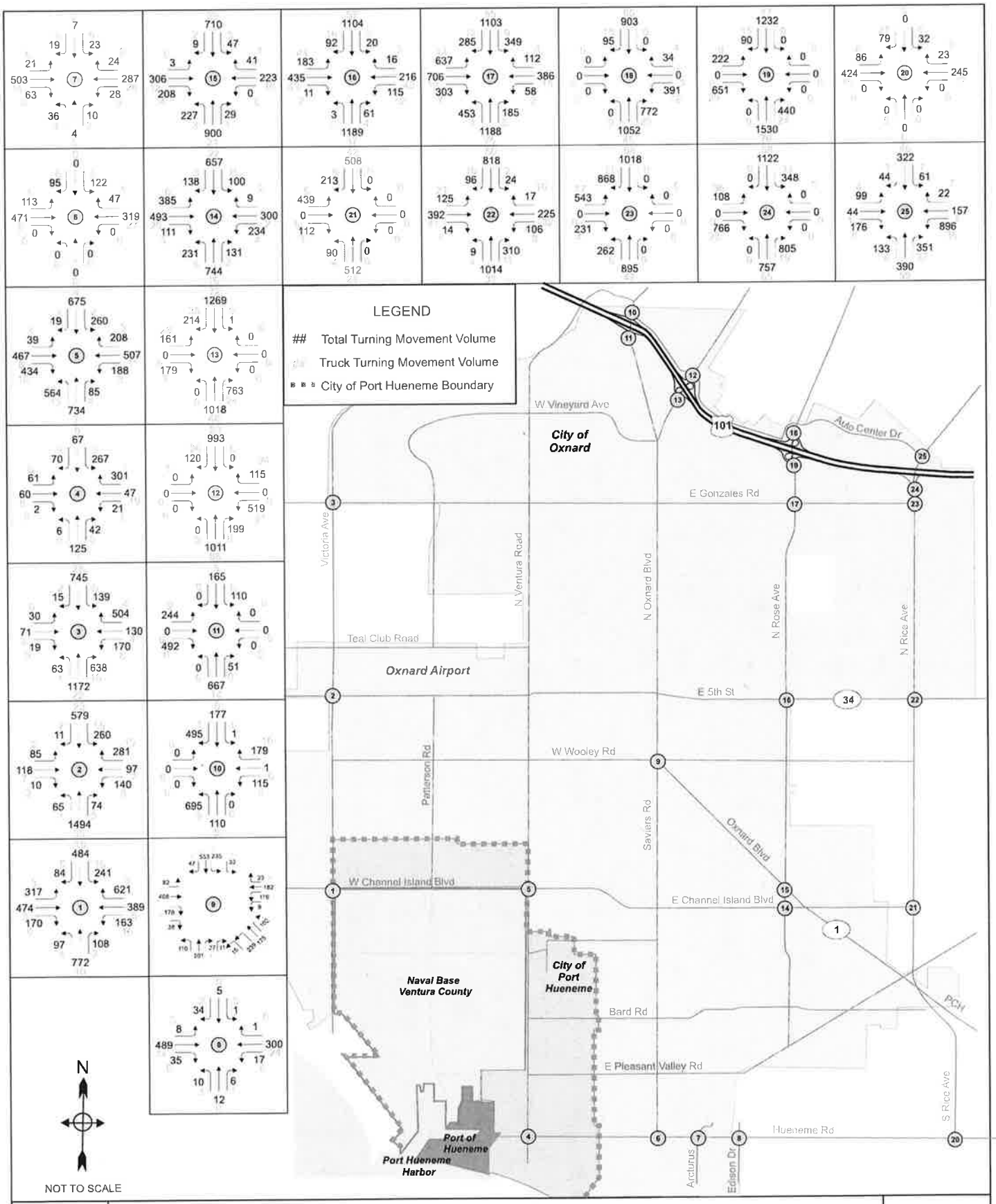
Cities of Port Hueneme and Oxnard Truck Traffic Study

Study Intersection Lane Geometry

Figure 3-5

Intersection turning movement counts for trucks and cars were recorded separately. For the purposes of traffic analysis, truck counts have been converted to passenger car equivalent (PCE) volumes by applying a PCE factor of 2.0. This means that each heavy truck recorded by the traffic counts is incorporated into the analysis as two passenger cars. PCE values are used as a method to convert a mix of different vehicle types in a traffic stream to an equivalent traffic stream composed entirely of passenger cars. PCE conversion is important as larger and heavier trucks reduce the quality of traffic flow due to their size, weight and operational characteristics. A level of service analysis based on traffic volumes without applying the PCE factor for trucks could underestimate their impact.

Intersection turning movement counts for trucks and cars taken at all 25 study intersections are shown separately in Figure 3-6 and 3-7. Combined traffic counts by turning movement with PCE conversion factors applied for truck volumes are shown in Figure 3-8 and 3-9.

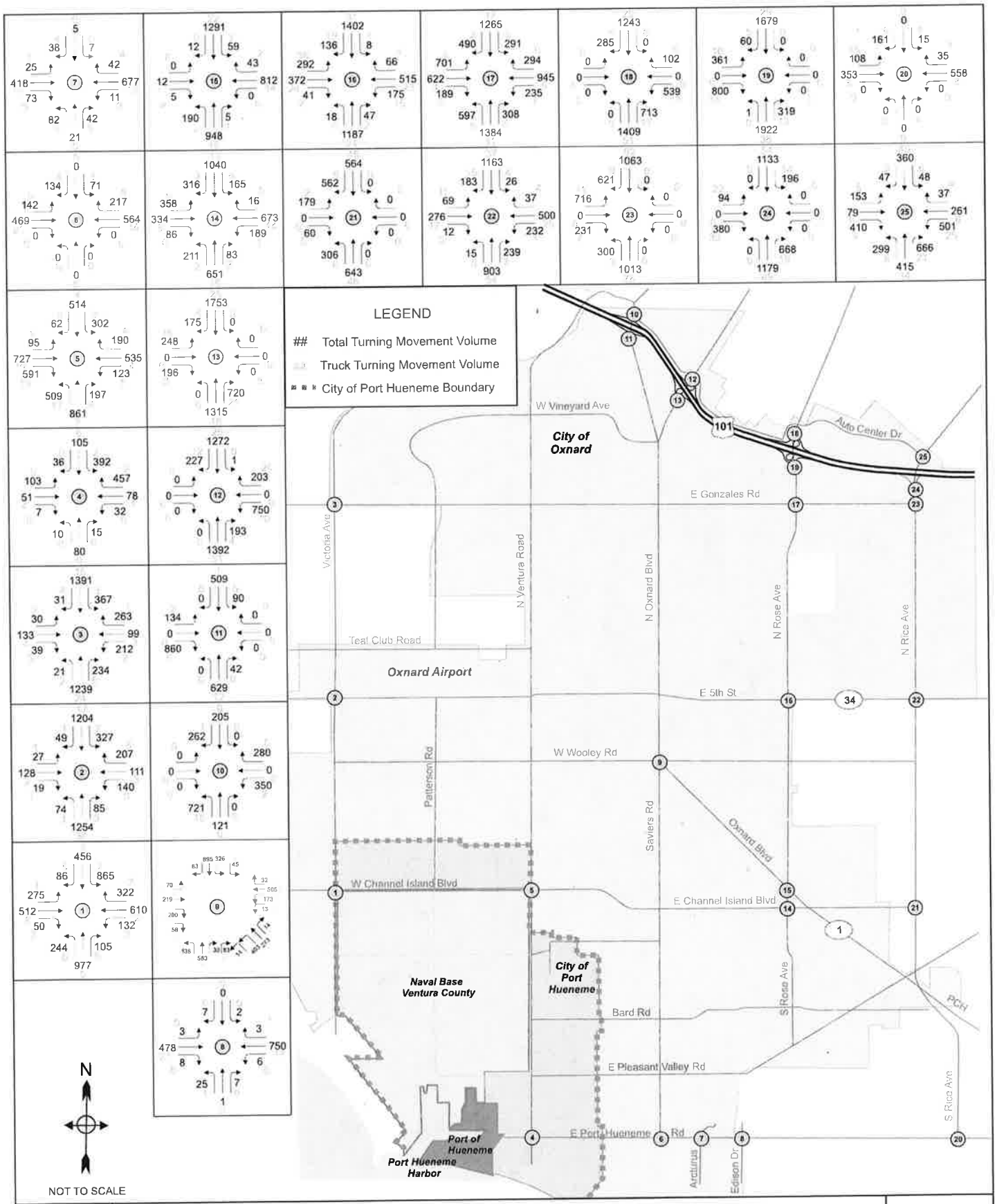


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Intersection Turning Movement Count Volumes - AM Peak

Figure 3-6

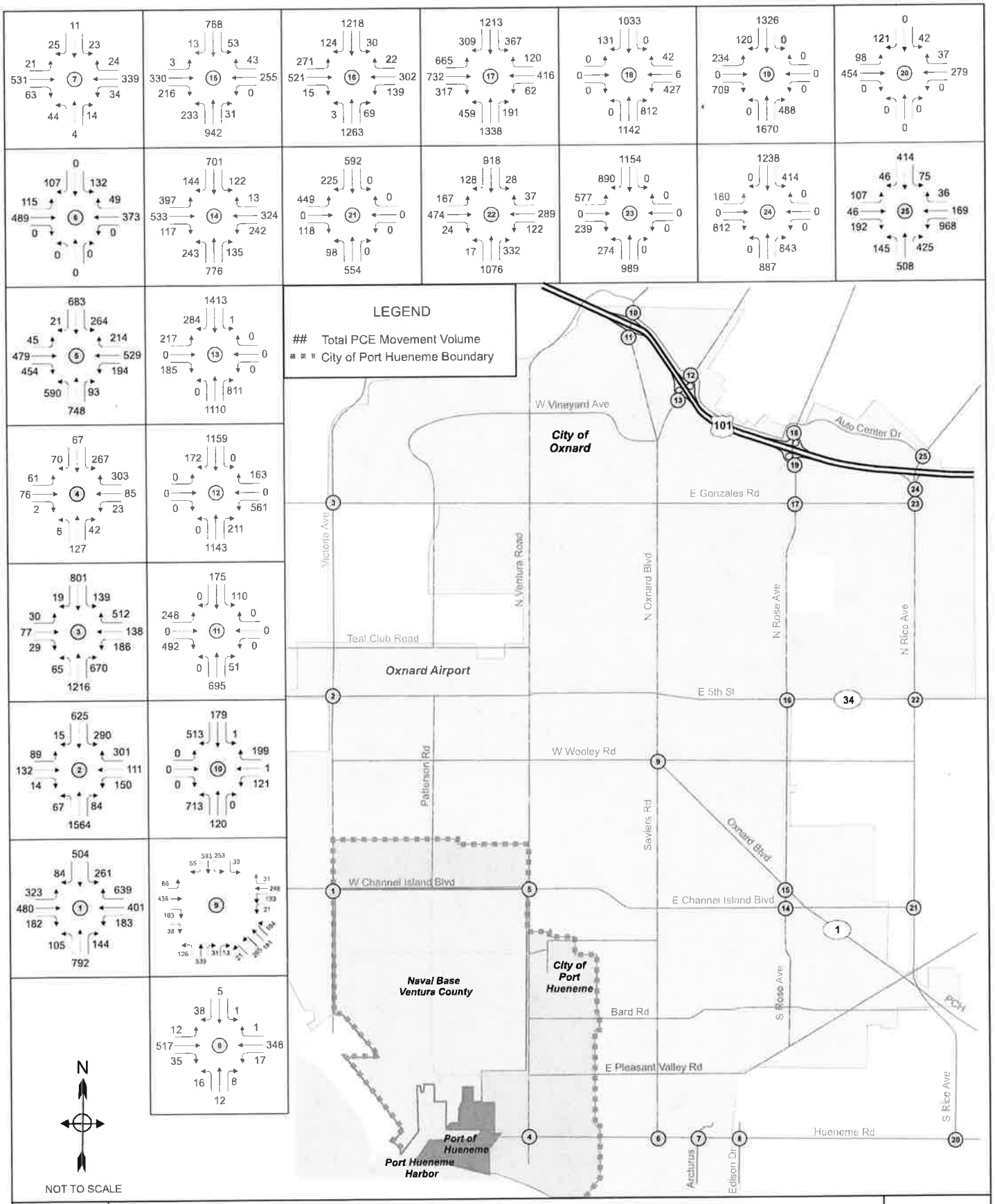


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Intersection Turning Movement Count Volumes - PM Peak

Figure 3-7

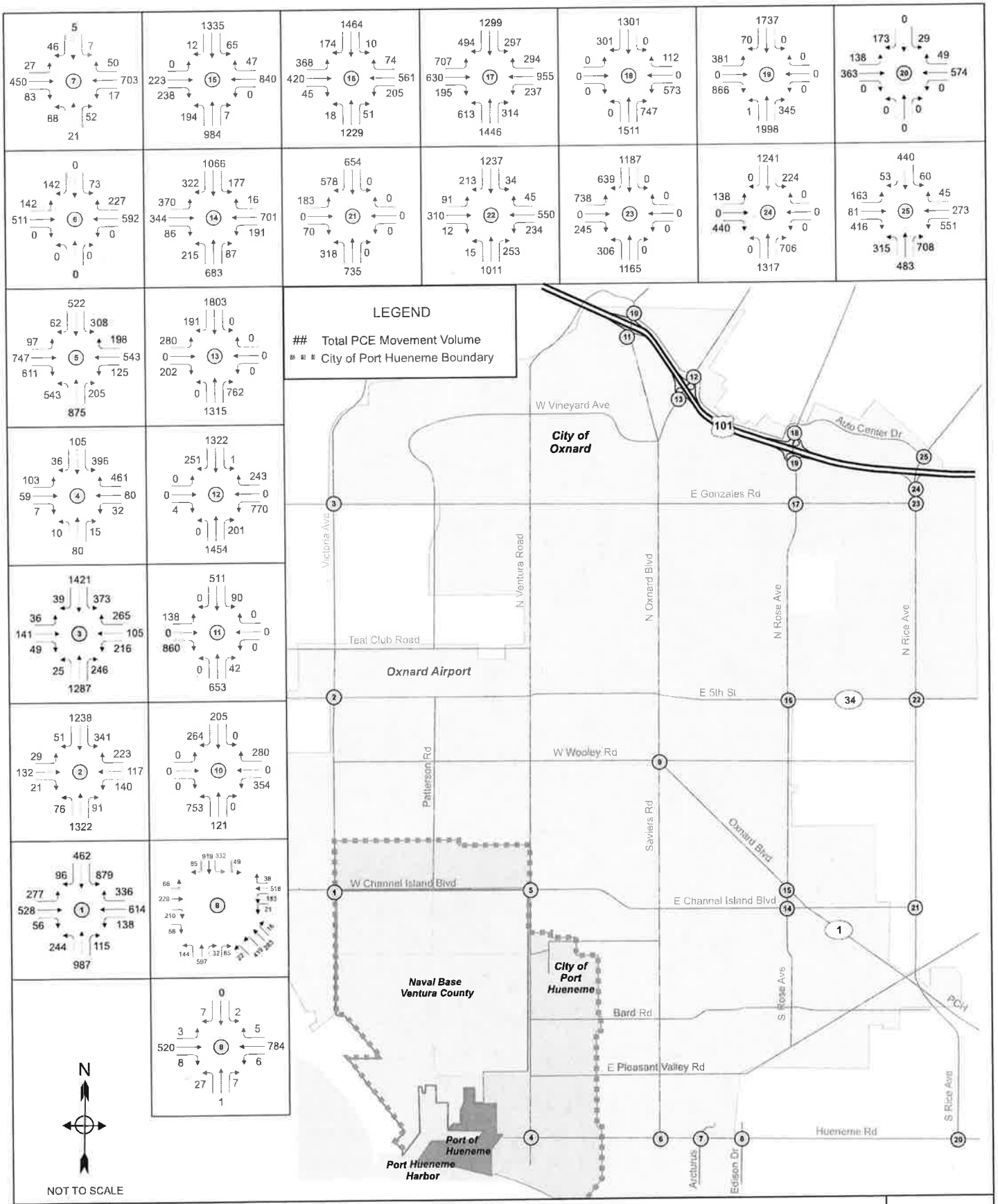


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Intersection Count Volumes With PCE Conversion - AM Peak

Figure 3-8



IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Intersection Count Volumes With PCE Conversion - PM Peak

Figure 3-9

Intersection Level of Service (LOS) Results

Peak hour intersection level of service for the existing condition is analyzed for each of the 25 study intersections. Table 3-3 summarizes the results of the AM and PM peak hour existing conditions analysis.

Table 3-3 Existing (Year 2008) AM and PM Peak Hour LOS Summary

No.	Intersection	Weekday AM Peak		Weekday PM Peak	
		V/C	LOS	V/C	LOS
1	Victoria Ave and Channel Islands Blvd	0.78	C	0.90	D
2	Victoria Ave and 5th St	0.66	B	0.54	A
3	Victoria Ave and Gonzales Rd	0.64	B	0.59	A
4	Ventura Rd and Hueneme Rd	0.35	A	0.50	A
5	Ventura Rd and Channel Islands Blvd	0.67	B	0.68	B
6	Saviers Rd and Hueneme Rd	0.27	A	0.36	A
7	Arcturus Ave and Hueneme Rd	0.28	A	0.54	A
8	Edison Dr and Hueneme Rd	0.37	A	0.51	A
9	Oxnard Blvd/Saviers Rd and Wooley Rd	0.72	C	0.91	E
10	Oxnard Blvd and NB US-101 Ramps	0.38	A	0.49	A
11	Oxnard Blvd and SB US-101 Ramps	0.22	A	0.20	A
12	Vineyard Ave and NB US-101 Ramps	0.54	A	0.66	B
13	Vineyard Ave and SB US-101 Ramps	0.48	A	0.60	A
14	Rose Ave and Channel Islands Blvd	0.56	A	0.69	B
15	Rose Ave and Oxnard Blvd	0.49	A	0.80	C
16	Rose Ave and 5th St	0.71	C	0.74	C
17	Rose Ave and Gonzales Rd	0.69	B	0.88	D
18	Rose Ave and NB US-101 Ramps	0.39	A	0.53	A
19	Rose Ave and SB US-101 Ramps	0.57	A	0.69	B
20	Rice Ave and Hueneme Rd	0.48	A	0.42	A
21	Rice Ave and Channel Islands Blvd	0.57	A	0.67	B
22	Rice Ave and 5th St	0.59	A	0.64	B
23	Rice Ave and Gonzales Rd	0.82	D	0.60	A
24	Rice Ave and US-101 SB Ramps	0.91	E	0.86	D
25	Rice/Santa Clara Ave and Auto Center Dr	0.79	C	0.78	C

Source: ICU traffic analysis completed by IBI Group

D/E/F: Intersection LOS exceeds minimum acceptable LOS established by the Cities of Port Hueneme and Oxnard

The following intersections do not operate at a satisfactory level of service in the identified peak hour:

- Victoria Avenue and Channel Islands Boulevard (#1) – PM peak hour
- Oxnard Boulevard/Saviers Road and Wooley Road (#9) – PM peak hour
- Rose Avenue and Gonzales Road (#17) – PM peak hour
- Rice Avenue and Gonzales Road (#23) – AM peak hour
- Rice Avenue and US-101 Southbound Ramps (#24) – AM and PM peak hour

Many of these intersections are located along roadway segments that have the highest observed total traffic volumes and truck traffic volumes. Several intersections are located near the US-101 freeway, where traffic volumes are typically higher as automobiles and trucks attempt to access the freeway.

A separate analysis is provided based only on the auto traffic volumes observed at each intersection to assess the impacts of truck traffic on each intersection. The results are summarized in Table 3-4.

Table 3-4 Existing (2008) AM and PM Peak Hour LOS Summary – Autos Only

No.	Intersection	Weekday AM Peak		Weekday PM Peak	
		V/C (Delay)	LOS	V/C (Delay)	LOS
1	Victoria Ave and Channel Islands Blvd	0.76	C	0.89	D
2	Victoria Ave and 5th St	0.62	B	0.51	A
3	Victoria Ave and Gonzales Rd	0.62	B	0.57	A
4	Ventura Rd and Hueneme Rd	0.35	A	0.50	A
5	Ventura Rd and Channel Islands Blvd	0.65	B	0.67	B
6	Saviers Rd and Hueneme Rd	0.25	A	0.35	A
7	Arcturus Ave and Hueneme Rd	0.23	A	0.52	A
8	Edison Dr and Hueneme Rd	0.35	A	0.49	A
9	Oxnard Blvd/Saviers Rd and Wooley Rd	0.66	B	0.88	D
10	Oxnard Blvd and NB US-101 Ramps	0.36	A	0.48	A
11	Oxnard Blvd and SB US-101 Ramps	0.22	A	0.20	A
12	Vineyard Ave and NB US-101 Ramps	0.47	A	0.63	B
13	Vineyard Ave and SB US-101 Ramps	0.68	B	0.57	A
14	Rose Ave and Channel Islands Blvd	0.52	A	0.67	B
15	Rose Ave and Oxnard Blvd	0.53	A	0.78	C
16	Rose Ave and 5th St	0.62	B	0.67	B
17	Rose Ave and Gonzales Rd	0.65	B	0.87	D
18	Rose Ave and NB US-101 Ramps	0.35	A	0.49	A
19	Rose Ave and SB US-101 Ramps	0.52	A	0.65	B
20	Rice Ave and Hueneme Rd	0.44	A	0.39	A
21	Rice Ave and Channel Islands Blvd	0.52	A	0.61	B
22	Rice Ave and 5th St	0.53	A	0.61	B
23	Rice Ave and Gonzales Rd	0.79	C	0.54	A
24	Rice Ave and US-101 SB Ramps	0.79	C	0.76	C
25	Rice/Santa Clara Ave and Auto Center Dr	0.67	B	0.73	C

Source: ICU traffic analysis completed by IBI Group

D/E/F: Intersection LOS exceeds minimum acceptable LOS established by the Cities of Port Hueneme and Oxnard

In this scenario, the following intersections do not operate at an acceptable level of service:

- Victoria Avenue and Channel Islands Boulevard (#5) – PM peak hour
- Oxnard Boulevard/Saviers Road and Wooley Road (#9) – PM peak hour
- Rose Avenue and Gonzales Road (#17) – PM peak hour

The comparison between the above mentioned analyses show that level of service at two intersections is impacted due to truck traffic. Increase in volume to capacity ratio and associated level of service at these intersections is as follows:

- Rice Avenue and Gonzales Road (#23) – During AM peak hour v/c increases by 2.8 percent and LOS changes from LOS C to LOS D due to truck traffic.

- Rice Avenue and US-101 Southbound Ramps (#24) – During AM peak hour v/c increases by 12.4 percent and LOS changes from LOS C to LOS E due to truck traffic. During PM peak hour v/c increases by 10 percent and LOS changes from LOS C to LOS D due to truck traffic.

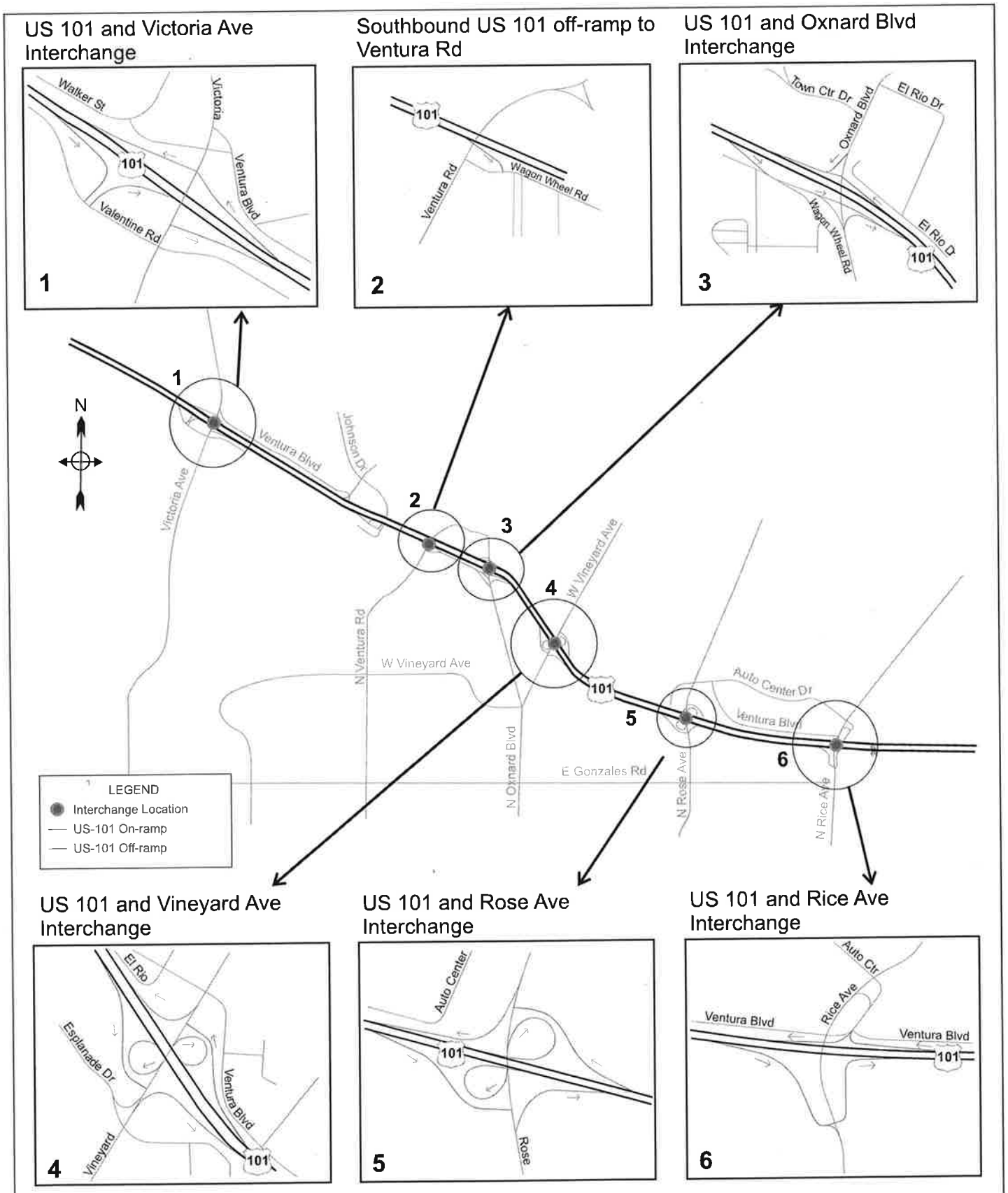
3.4 FREEWAY INTERCHANGE ASSESSMENT

The US-101 freeway is the only freeway in the study area, linking the Oxnard/Port Hueneme area to the Los Angeles Basin to the south and Ventura and Santa Barbara to the north. Trucks traveling to and from locations in the Oxnard/Port Hueneme area use the US-101 freeway as the primary access route to destinations outside of the study area. State Route 1 and State Route 126 also fulfill secondary roles as regional corridors for trucks traveling to and from the study area.

Given the important role of the US-101 freeway in serving regional truck traffic, it is essential that there be efficient and convenient connections between arterial streets and the freeway. Major freeway/arterial street interchanges in the study area are:

- US-101 at Victoria Avenue
- US-101 at Ventura Road (southbound exit only)
- US-101 at Oxnard Boulevard (State Route 1)
- US-101 at Vineyard Avenue (State Route 232)
- US-101 at Rose Avenue
- US-101 at Rice Avenue

Figure 3-10 identifies the existing interchanges and illustrates the location of on-ramps and off-ramps at each interchange. Truck and total vehicle traffic volumes on the US-101 freeway were collected from Caltrans for the year 2006, which is the most recent year available. Traffic volumes are shown in Figure 3-11.

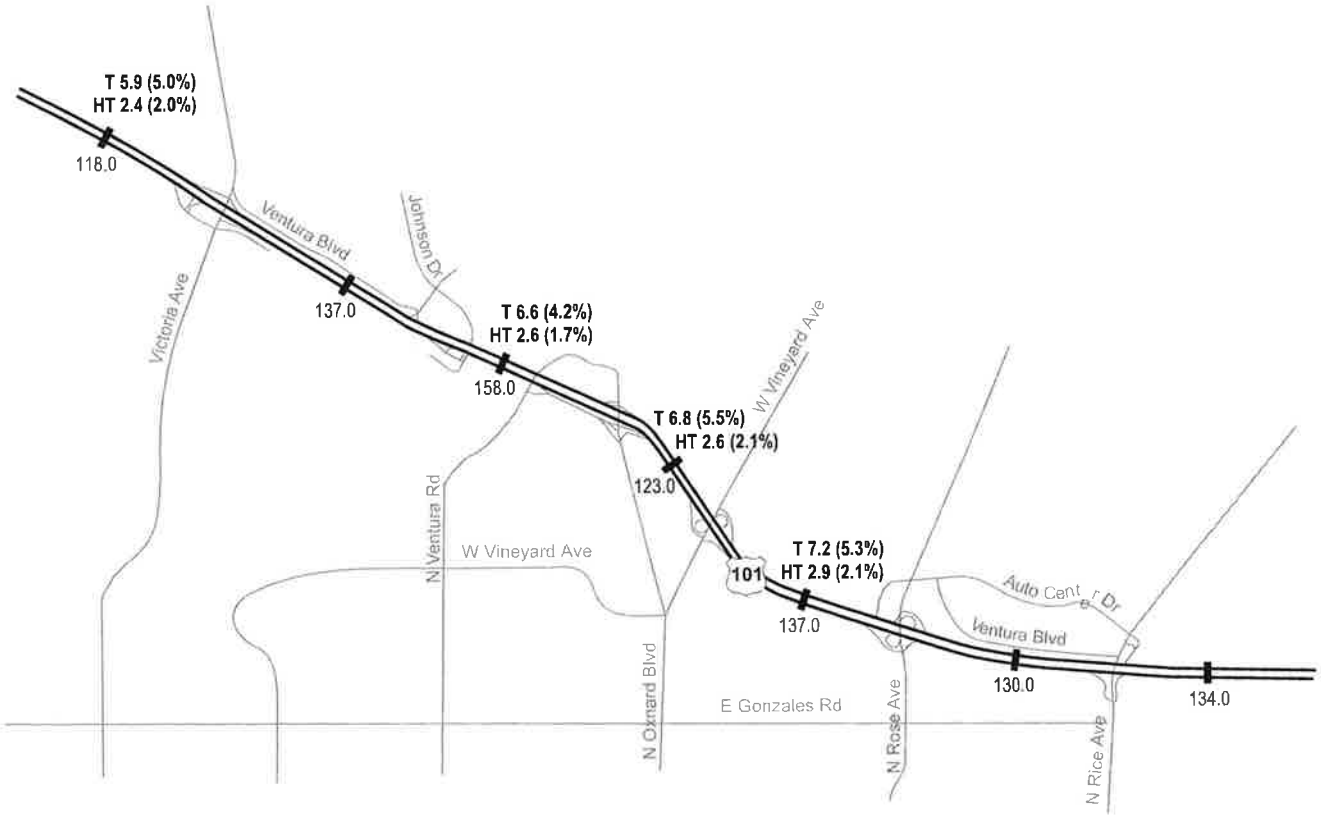


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Freeway Interchange Locations and Diagrams

Figure 3-10



N

LEGEND

▬	Count Location
#.#	ADT Volume (1000's) - All Traffic
T #.#	ADT Volume (1000's) - All Truck Traffic
HT #.#	ADT Volume (1000's) - Truck Traffic with 3 or more Axles
(#.# %)	Percent of Total Daily Vehicle Volume

IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

US-101 Freeway Total Vehicle and Truck Daily Volumes (Year 2006)

Figure 3-11

A brief summary of the existing conditions at each interchange is provided below along with a discussion of the existing connectivity between the arterial street and the freeway. Several of the existing interchanges have been recently improved or expanded to better serve traffic. These improvements are also discussed below.

US-101 at Victoria Avenue

The US-101/Victoria Avenue interchange is located in the City of Ventura. While the interchange is outside of the city limits of the City of Oxnard, the street is a major north-south truck corridor in western Oxnard and serves as a major route for trucks traveling to and from the Port of Hueneme and NBVC. This location is a full interchange, providing on and off-ramps serving both directions of the US-101. The northbound on/off-ramps are a compact diamond design, while the southbound ramps are designed as hook ramps. Vehicles exiting and entering the northbound US-101 access Victoria Avenue directly. Vehicles exiting the southbound US-101 must first turn onto Valentine Road to access Victoria Avenue. Two southbound on-ramps are provided, one from Valentine Road for vehicles traveling south on Victoria Avenue and a second ramp on Victoria Avenue for vehicles traveling northbound on Victoria Avenue.

Victoria Avenue has five through traffic lanes at the interchange, with two southbound lanes and three northbound lanes. In addition to the through lanes, two southbound right turn lanes are provided to Valentine Road and the southbound freeway on-ramp. Dual northbound left turn lanes are provided for access to the northbound freeway on ramp. The off-ramps also provide substantial traffic capacity with three turning lanes provided for the southbound off-ramp and four turning lanes for the northbound off-ramp.

Adjacent land uses include commercial retail and residential uses to the northwest and northeast of the interchange. Land uses on the south side of the interchange include a hotel to the southeast, as well as commercial uses and agricultural uses to the southwest.

US-101 at Ventura Road

The US-101/Ventura Road interchange consists of a single southbound off-ramp, providing access to Wagon Wheel Road and Ventura Road. The design of southbound off-ramp is not conducive to serving large trucks given the steep grade of the off-ramp and tight right turn necessary to access Wagon Wheel Road from the off-ramp. Trucks traveling to the study area from the north would be better served accessing the street network from the Victoria Avenue and Oxnard Boulevard interchanges.

US-101 at Oxnard Boulevard

The US-101/Oxnard Boulevard interchange was recently reconfigured and enhanced to provide additional traffic capacity. The enhancement and reconfiguration created a full interchange with on and off-ramps serving both directions of the US-101 freeway. The new interchange is designed as a compact diamond interchange per Caltrans design standards. The Oxnard Boulevard interchange serves as an important gateway from the US-101 to the new Esplanade Shopping Center and Downtown Oxnard. Oxnard Boulevard is also currently designated as State Route 1 in the City of Oxnard, serving as a major regional traffic corridor. Given the recent completion of traffic capacity and safety improvements, the existing interchange is capable of serving truck traffic.

Adjacent land uses include the RiverPark development to the northwest, industrial uses to the northeast, the Esplanade Shopping Center to the southeast and industrial uses to the southwest. The RiverPark development is a 700-acre mixed-use development that includes a town center retail development/lifestyle center, about 1,800 homes and 1,000 apartment units. Construction of several of residential communities is underway.

Table 3-5 summarizes the volume of trucks observed to enter and exit the US-101 freeway at Oxnard Boulevard during the counts made in January 2008, and identifies the percentage of trucks in comparison to the total volume of vehicles entering and exiting the freeway at this location. Trucks identified as entering the freeway are traveling from Oxnard Boulevard to the northbound or southbound US-101. Trucks identified as exiting the freeway are using the off-ramps to exit the northbound and southbound US-101 to access Oxnard Boulevard.

Table 3-5 Truck Volumes Entering and Exiting US-101 at Oxnard Boulevard

Time Period	NB Trucks Entering Freeway	Percent of Total Volume	NB Trucks Exiting Freeway	Percent of Total Volume	SB Trucks Entering Freeway	Percent of Total Volume	SB Trucks Exiting Freeway	Percent of Total Volume
AM Peak Hour	10	1%	13	4%	0	n/a	2	<1%
PM Peak Hour	17	2%	2	<1%	0	n/a	2	<1%

Source: Intersection turning movement counts made in January 2008.
NB Trucks Entering Freeway: the number of trucks from Oxnard Boulevard that enter the northbound US-101 onramp.
NB Trucks Exiting Freeway: the number of trucks from northbound US-101 that exit to Oxnard Boulevard.

Trucks comprise a small percentage of the existing traffic volumes entering and exiting the US-101 freeway at Oxnard Boulevard. In many cases, trucks are less than 1% of the total volume entering or exiting the freeway.

US-101 at Vineyard Avenue

The US-101/Vineyard Avenue is also a full interchange that provides an important connection between the US-101 corridor and Downtown Oxnard. The interchange is a partial cloverleaf design. Vineyard Avenue is designated as State Route 232 north of Oxnard Boulevard. Vineyard Avenue is identified as a truck route by the City of Oxnard. The interchange is a recent design that is capable of serving truck traffic in the existing condition.

Adjacent land uses include residential and some undeveloped property to the northwest and commercial retail and office to the northeast of the interchange. Land uses on the south side of the interchange include commercial office uses to the southeast, and the Esplanade Shopping Center to the southwest. Vineyard Avenue serves as a major gateway to Downtown Oxnard along with Oxnard Boulevard.

Table 3-6 summarizes the volume of trucks observed to enter and exit the US-101 freeway at Vineyard Avenue, and identifies the percentage of trucks in comparison to the total volume of vehicles entering and exiting the freeway at this location. Trucks identified as entering the freeway are traveling from Vineyard Avenue to the northbound or southbound US-101. Trucks identified as exiting the freeway are using the off-ramps to exit the northbound and southbound US-101 to access Vineyard Avenue.

Table 3-6 Truck Volumes Entering and Exiting US-101 at Vineyard Avenue

Time Period	NB Trucks Entering Freeway	Percent of Total Volume	NB Trucks Exiting Freeway	Percent of Total Volume	SB Trucks Entering Freeway	Percent of Total Volume	SB Trucks Exiting Freeway	Percent of Total Volume
AM Peak Hour	32	10%	30	x	59	6%	31	9%
PM Peak Hour	16	4%	30	3%	29	3%	19	4%

Source: Intersection turning movement counts made in January 2008.
NB Trucks Entering Freeway: the number of trucks from Vineyard Avenue that enter the northbound US-101 onramp.
NB Trucks Exiting Freeway: the number of trucks from northbound US-101 that exit to Vineyard Avenue.

Trucks comprise a higher percentage of the existing traffic volumes entering and exiting the US-101 freeway at Vineyard Avenue when compared to Oxnard Boulevard. Truck volumes tend to be higher during the AM peak hour when compared to the PM peak hour, and a greater number of trucks are traveling southbound on the US-101 than northbound during this time period.

US-101 at Rose Avenue

The US-101/Rose Avenue interchange was recently reconfigured and enhanced to provide additional traffic capacity. The enhancement included the expansion and reconfiguration of the old interchange to increase the traffic capacity of the on and off-ramps, improve safety, and improve traffic flow. This interchange provides an important connection to the nearby Rose Shopping Center and Saint John's Regional Medical Center. The interchange is a partial cloverleaf design, providing on and off-ramps for both directions of the US-101 freeway. Rose Avenue is identified as a truck route by the City of Oxnard. The interchange is a recent design that is capable of serving truck traffic in the existing condition.

Adjacent land uses include residential to the northwest. The Oxnard Auto Center is located to the northeast of the interchange. Land uses on the south side of the interchange include the Rose Shopping Center to the southeast, additional retail and auto sales uses to the southwest, and the Saint John's Regional Medical Center further south along Rose Avenue.

Table 3-7 summarizes the volume of trucks observed to enter and exit the US-101 freeway at Rose Avenue during intersection turning movement counts made in January 2008, and identifies the percentage of trucks in comparison to the total volume of vehicles entering and exiting the freeway at this location. Trucks identified as entering the freeway are traveling from Rose Avenue to the northbound or southbound US-101. Trucks identified as exiting the freeway are using the off-ramps to exit the northbound and southbound US-101 to access Rose Avenue.

Table 3-7 Truck Volumes Entering and Exiting US-101 at Rose Avenue

Time Period	NB Trucks Entering Freeway	Percent of Total Volume	NB Trucks Exiting Freeway	Percent of Total Volume	SB Trucks Entering Freeway	Percent of Total Volume	SB Trucks Exiting Freeway	Percent of Total Volume
AM Peak Hour	38	4%	22	5%	39	7%	29	3%
PM Peak Hour	25	2%	22	3%	18	5%	43	4%

Source: Intersection turning movement counts made in January 2008.
NB Trucks Entering Freeway: the number of trucks from Rose Avenue that enter the northbound US-101 onramp.
NB Trucks Exiting Freeway: the number of trucks from northbound US-101 that exit to Rose Avenue.

Truck volumes entering and exiting the US-101 freeway at the Rose Avenue interchange are comparable to the numbers at the Vineyard Avenue interchange. However, overall traffic volumes at Rose Avenue are higher than those at Vineyard Avenue, so trucks make up a smaller percentage of the total traffic entering and exiting the freeway at this location.

US-101 at Rice Avenue

Unlike many of the other interchanges in the project study area, the US-101/Rice Avenue interchange has not been recently enhanced. The existing interchange is an old design that does not meet current Caltrans standards for interchange design. The northbound on and off-ramp is constrained by the proximity of Ventura Boulevard, which runs directly parallel to the northbound US-101 in this location. Truck access from northbound Rice Avenue to the northbound US-101 freeway is difficult due to the tight radius of the turn from Rice Avenue to Auto Center Drive and the on-ramp to the freeway. The southbound on-ramp also has a tight radius turn immediately prior to the freeway merge, limiting the speed of trucks entering the freeway and potentially resulting in a safety hazard caused by slow-moving

trucks merging onto the freeway lanes. The capacity of the interchange is further constrained by the existing narrow Rice Avenue overpass, which provides for only one lane of travel in each direction. In the existing condition, the interchange is not configured to serve heavy volumes of truck traffic.

A Project Study Report (PSR) for improvements to the Rice Avenue interchange has been prepared by Caltrans. The interchange is set to receive funding under the Proposition 1B Trade Corridor Improvement Fund (TCIF), which includes about $2 billion for improvements to transportation facilities that are important goods movement corridors. Construction on the interchange improvements is scheduled to begin in 2010. The planned improvements would significantly improve the capacity, safety, and operation of the interchange.

Adjacent land uses include the Auto Center and some light industrial uses to the northwest. The northeast portion of the interchange is occupied by residential and agricultural uses. Land uses on the south side of the interchange include commercial office to the southwest and agricultural uses to the southeast.

Table 3-8 summarizes the volume of trucks observed to enter and exit the US-101 freeway at Rice Avenue during intersection turning movement counts made in January 2008, and identifies the percentage of trucks in comparison to the total volume of vehicles entering and exiting the freeway at this location. Trucks identified as entering the freeway are traveling from Rice Avenue to the northbound or southbound US-101. Trucks identified as exiting the freeway are using the off-ramps to exit the northbound and southbound US-101 to access Rice Avenue.

Table 3-8 Truck Volumes Entering and Exiting US-101 at Rice Avenue

Time Period	NB Trucks Entering Freeway	Percent of Total Volume	NB Trucks Exiting Freeway	Percent of Total Volume	SB Trucks Entering Freeway	Percent of Total Volume	SB Trucks Exiting Freeway	Percent of Total Volume
AM Peak Hour	45	10%	49	5%	52	5%	59	7%
PM Peak Hour	28	4%	35	4%	33	4%	52	11%

Source: Intersection turning movement counts made in January 2008.
NB Trucks Entering Freeway: the number of trucks from Rice Avenue that enter the northbound US-101 onramp.
NB Trucks Exiting Freeway: the number of trucks from northbound US-101 that exit to Rice Avenue.

Rice Avenue serves the highest number of trucks among the four interchanges profiled in this report. Trucks also comprise the highest percentage of the total volume of vehicles entering and exiting the US-101 freeway at the interchange. The data supports the observation that Rice Avenue is a major truck route in the study area. However, the truck volumes obtained for other interchanges at Vineyard Avenue and Rose Avenue show that these streets also play an important role in providing access for trucks to and from the US-101 freeway.

4 STUDY AREA TRUCK TRIPS (ORIGINS AND DESTINATIONS)

There are a variety of sources that generate truck trips in the study area. Prominent uses include the Port of Hueneme, NBVC, agricultural growers, automobile distributors, and the offshore oil industry. The daily operations, truck trip volumes, and travel patterns of each use are presented in this section.

4.1 PORT OF HUENEME TRUCK TRIPS

The Port of Hueneme is owned and operated by the Oxnard Harbor District. The Harbor District estimates that about $7 billion in cargo value moves through the Port of Hueneme on an annual basis. A significant portion of the cargo moving through the Port of Hueneme is comprised of automobiles and perishable agricultural goods (e.g. fruits). The Port is not a major cargo port like the Los Angeles and Long Beach Ports located in Los Angeles County. Instead, the port is focused on targeted cargo and goods markets such as automobiles and fruits which benefit from the quick access and limited delays associated with using a smaller, less congested port facility. The Port serves both fruit imports and exports. Agricultural goods imported through the Port also include liquid fertilizer. Major users of the Port include Del Monte Banana Company, Chiquita Banana Company, and Yara Fertilizer.

Several automobile manufacturers also import automobiles to the United States through the Port of Hueneme, including BMW, Volvo, Jaguar, Kia, and Hyundai. While the automobiles are off-loaded at the Port of Hueneme wharf, several of the auto manufacturers or auto distributors lease space on nearby NBVC property or at off-site locations. In most cases, automobiles are driven off the cargo ships in the Port, stored on site for a short period of time, and then driven off Port or NBVC property to off-site auto storage and distribution facilities located along Hueneme Road.

Historic Truck Volume Data

The Port of Hueneme provided data on total truck trips and vehicle trips entering the main Port gate for the period from 1998 through 2007. The information for the last five years is summarized in Table 4-1. The full information provided by the Port of Hueneme is included in the Appendix of the report.

Table 4-1 Port of Hueneme Main Gate Average Daily Entering Traffic Volumes

Month	2003		2004		2005		2006		2007	
	Trucks	Autos	Trucks	Autos	Trucks	Autos	Trucks	Autos	Trucks	Autos
January	184	*619*	124	*340*	122	*305*	163	*398*	147	*449*
February	201	*615*	121	*412*	137	*281*	148	*424*	148	*424*
March	197	*639*	131	*401*	137	*287*	148	*394*	139	*414*
April	206	*556*	106	*381*	161	*363*	157	*442*	146	*463*
May	147	*474*	110	*463*	163	*369*	131	*414*	145	*437*
June	163	*526*	127	*398*	137	*391*	118	*430*	130	*367*
July	130	*442*	148	*376*	116	*352*	140	*415*	119	*364*
August	88	*331*	83	*287*	137	*391*	143	*431*	114	*360*
September	81	*85*	76	*278*	116	*352*	117	*412*	109	*309*
October	102	*331*	110	*432*	128	*447*	127	*420*	118	*334*
November	119	*257*	149	*408*	138	*362*	132	*412*	154	*337*
December	113	*471*	136	*345*	122	*305*	145	*391*	130	*290*
Average Annual Daily ENTERING Trips	144	*445*	118	*377*	134	*350*	139	*415*	125	*379*
Average Annual Daily Truck Trips (ENTER and EXIT)	**288**		**236**		**268**		**278**		**250**	

Source: Port of Hueneme
Average weekday (Monday through Friday) volumes

The data provided by the Port of Hueneme indicates that the Port generated an annual average of 125 entering truck trips per day in the year 2007, or a total of about 250 entering and exiting trucks per day. The main gate traffic data also suggests that the average daily truck volumes at Port have remained relatively stable during the previous five years. This pattern appears to reaffirm observations about the role of the Port of Hueneme as a niche port that serves a defined market for goods, and has not experienced the increase in cargo volumes displayed at the Ports of Los Angeles and Long Beach.

Port of Hueneme Questionnaire

A questionnaire was developed in consultation with the Study TAC to obtain additional information regarding the number and type of trucks traveling to and from the Port of Hueneme. The objective of the questionnaire was to collect information directly from truck drivers regarding their origins and destinations, the routes they follow to travel between the Port facilities and the US-101 freeway, and the types of cargo that are commonly carried by the trucks. The questionnaire also provides truck trip generation rates for the Port, allowing for a comparison with the traffic data collected at nearby intersections and the main gate entry volumes provided by the Port. A sample of the survey is shown in Figure 4-1. The actual responses collected are provided in the Appendix of this report.

2008 Truck Survey

About this Survey: Your help in completing this survey is very important. Results from this survey will be used for a truck traffic study conducted by the Southern California Association of Governments to improve traffic flow and minimize congestion in vicinity of the Port of Hueneme. The more accurate the information you provide, the better we can identify measures to reduce congestion. The responses you give are kept strictly confidential and are used for research purposes only.

The purpose of this survey is to gather data for routes you choose to access destinations in Oxnard and Port Hueneme or US 101 freeway. Please follow the instructions below to complete the survey.

Truck and Route Information

Please provide the following information about the truck you are driving and routes you will take today.

1. Trucking Company Name *(If Applicable):* _____

2. Truck Size / Gross Weight *(Please Select One)*

- ☐ Light - Heavy (8,500 - 14,000 lbs.)
- ☐ Medium - Heavy (14,001 - 33,000 lbs.)
- ☐ Heavy - Heavy (33,001 lbs. and above)
- ☐ Oversize Load

3. Number of Axles *(Please Select One)*

- ☐ Single Unit: Specify Number of Axle _____
- ☐ Semi (All tractor-trailer combination): Specify Number of Axle _____
- ☐ Other Specify the Type and Number of Axle: _____

4. Type of Cargo you are carrying today: _____

Coming From: _____

(Please provide Address /City/ Zip Code)

Going To: _____

(Please provide Address /City/ Zip Code)

Route you followed to reach Port of Hueneme if applicable. *(Please Select All Routes Used)*

- ☐ Rice Avenue
- ☐ Hueneme Road
- ☐ Rose Avenue
- ☐ Oxnard Boulevard
- ☐ Ventura Road
- ☐ Victoria Avenue
- ☐ Other Specify: _____

Route you plan to follow to access 101 Freeway if applicable. *(Please Select All Routes Used)*

- ☐ Hueneme Road to Rice Avenue
- ☐ Ventura Road to Channel Island Boulevard to Victoria Avenue
- ☐ Ventura Road to Gonzales Road to Oxnard Boulevard
- ☐ Other Specify: _____

Sponsored by: **Southern California Association of Governments (SCAG) | City of Port Hueneme | City of Oxnard | Port Hueneme** February 2008

Note: Spanish version of the questionnaire is located in the appendix

IBI GROUP	Cities of Port Hueneme and Oxnard Truck Traffic Study	Figure 4-1
	Port of Hueneme Truck Driver Questionnaire	

The surveys included questions regarding the trucking company, size of truck, type of cargo, origins and destinations, and the route that the truck driver planned to follow to travel between the Port and the US-101 freeway. The survey was provided to truck drivers in both English and Spanish versions.

The Port of Hueneme truck survey was conducted on weekdays (Monday through Friday) over a two week period from February 25, 2008 to March 7, 2008. The survey was administered by Port of Hueneme staff with the surveys distributed to truck drivers entering and exiting the Port. Surveys were conducted from 6:00 AM to 6:00 PM each day for a total of 10 days.

Port of Hueneme staff collected 1,245 responses over the 10-day survey period, which corresponds to an average of about 125 surveys per day. Historical truck volume data provided by the Port and summarized in Table 4-1 shows that the average number of trucks entering the Port at this time of year is about 140. Based on this estimated entering truck volume, the daily average of 125 written truck driver surveys per day corresponds to a response rate of about 90%.

The written truck trip distribution surveys asked a series of questions designed to obtain information from each driver regarding the following items:

- The typical size of the trucks and types of cargo carried
- The origin point of their trip to the Port of Hueneme
- Their destination after leaving the Port of Hueneme
- The streets they used to travel to the Port of Hueneme
- The streets they planned to travel after leaving the Port of Hueneme
- The data collected for each of the above items is summarized below.

Truck Size, Type, and Cargo

Truck size data was collected for each truck entering the Port of Hueneme. This information is summarized in Table 4-2.

Table 4-2 Truck Size Data and Gross Weight Data

Truck Size / Gross Weight	Percentage of Total	Trucks
Light - Heavy (8,500 - 14,000 lbs)	3.9%	47
Medium - Heavy (14,001 - 33,000 lbs)	7.4%	89
Heavy - Heavy (33,001 lbs and above)	84.3%	1,011
Oversize Load	4.4%	53
Responses Received		1,200
Declined to State/Not Available		45

Source: Port of Hueneme Truck Survey Data
The 1,245 responses were collected over a 10-day period.

About 84% of the trucks traveling through the Port of Hueneme gate were classified as heavy size or larger (greater than 33,001 pounds). Around 4% of the trucks reported carrying an oversize load. The remaining 12% of trucks surveyed were classified as medium or light weight.

Related to the truck size data, information was also collected regarding the number of axles for each truck. The axle data for the Port of Hueneme survey is summarized in Table 4-3. A significant majority of the trucks, 91%, were classified semi-trucks. These results are different from the data collected for the NBVC survey where the proportion of single unit and semi-trucks are similar.

Table 4-3 Truck Axle Data

Number of Axles	Percentage of Total	Trucks
Single	6.2%	76
Semi	90.7%	1,116
Other	3.2%	39
Responses Received		1,231
Declined to State/Not Available		14

Source: Port of Hueneme Truck Survey Data
The 1,245 responses were collected over a 10-day period.

The type of cargo carried by individual trucks leaving the Port of Hueneme gate was also collected. Types of cargo were grouped into six categories as summarized in Table 4-4.

Table 4-4 Type of Cargo

Type of Cargo	Percentage of Total	Trucks
Perishables	66.5%	674
Non Perishables	7.8%	79
Auto	2.2%	22
Equipment	9.4%	95
Fertilizer	5.9%	60
Oil	2.9%	29
Other	5.4%	55
Responses Received		1,014
Declined to State/Not Available		231

Source: Port of Hueneme Truck Survey Data
The 1,245 responses were collected over a 10-day period.

As expected, perishable goods form the major component of the cargo transported by truck from the Port of Hueneme. No other cargo category exceeds 10% of the total.

Truck Origins and Destinations

Truck trip origin and destination data for the Port of Hueneme has been grouped into five primary categories. Local trips are those starting or ending in Ventura County. Southern California trips include Los Angeles, San Diego and other points south of Ventura County. Northern and Central California origins and destinations include Santa Barbara, Santa Maria and points north. Locations outside of California were allocated into northern and southern categories based on a reasonable estimate of the route that the driver would follow to access the Interstate Highway System. For example, Las Vegas was categorized as a southern destination since most drivers with this destination reported accessing the US-101 freeway to travel south, reaching Las Vegas via Los Angeles. A substantial portion of the truck trips originate within the vicinity of the Port of Hueneme, whereas trip destinations are evenly spread across the local area, Southern California and Northern California. The greatest regional trip destinations are located north of Port of Hueneme inside and outside of California. Table 4-5 summarizes the truck trip origins. Reported truck trip destinations are summarized in Table 4-6.

Table 4-5 Truck Trip Origins

Trip Origin Location	Percentage of Total	Trucks
Local	48.0%	562
Southern CA	5.9%	69
Northern/Central CA	12.5%	146
South beyond CA	4.4%	52
North beyond CA	27.6%	324
Unknown	1.6%	19
Responses Received		1,172
Declined to State/Not Available		73

Source: Port of Hueneme Truck Survey Data
The 1,245 responses were collected over a 10-day period.

Table 4-6 Truck Trip Destinations

Trip Destination Location	Percentage of Trucks	Trucks
Local	21.2%	254
Southern CA	21.4%	257
Northern/Central CA	18.7%	224
South beyond CA	7.1%	85
North beyond CA	29.9%	358
Unknown	1.8%	21
Answered Questions		1,199
Skipped Questions		46

Source: Port of Hueneme Truck Survey Data
The 1,245 responses were collected over a 10-day period.

Truck Routes to and from US-101 Freeway

Truck drivers were asked to provide information on the streets that they use to travel between the Port of Hueneme and the US-101 freeway. The objective of this question is to identify the most commonly used routes by trucks traveling to and from Port of Hueneme. Truck trip distribution for inbound trips to the Port of Hueneme is summarized in Table 4-7. Truck trip distribution information for trips traveling outbound from Port of Hueneme is reported in Table 4-8.

The survey data collected from the Port of Hueneme truck drivers shows Hueneme Road and Rice Avenue as the prime routes used to reach the Port main gate and to access the US-101 freeway. The results also suggest that most trucks traveling to and from the Port utilize the truck routes designated by the Cities of Port Hueneme and Oxnard.

Table 4-7 Route Traveled to Access Port of Hueneme

Route	Percentage of Total	Trucks
Rice Avenue	54.0%	627
Hueneme Road	69.1%	802
Rose Avenue	2.5%	29
Oxnard Boulevard	2.3%	27
Ventura Road	8.5%	99
Victoria Avenue	7.1%	82
Other	6.9%	80
Responses Received		1,161
Declined to State/Not Available		84

Source: Port of Hueneme Truck Survey Data
The 1,245 responses were collected over a 10-day period.

Table 4-8 Route Traveled to Access US-101 Freeway

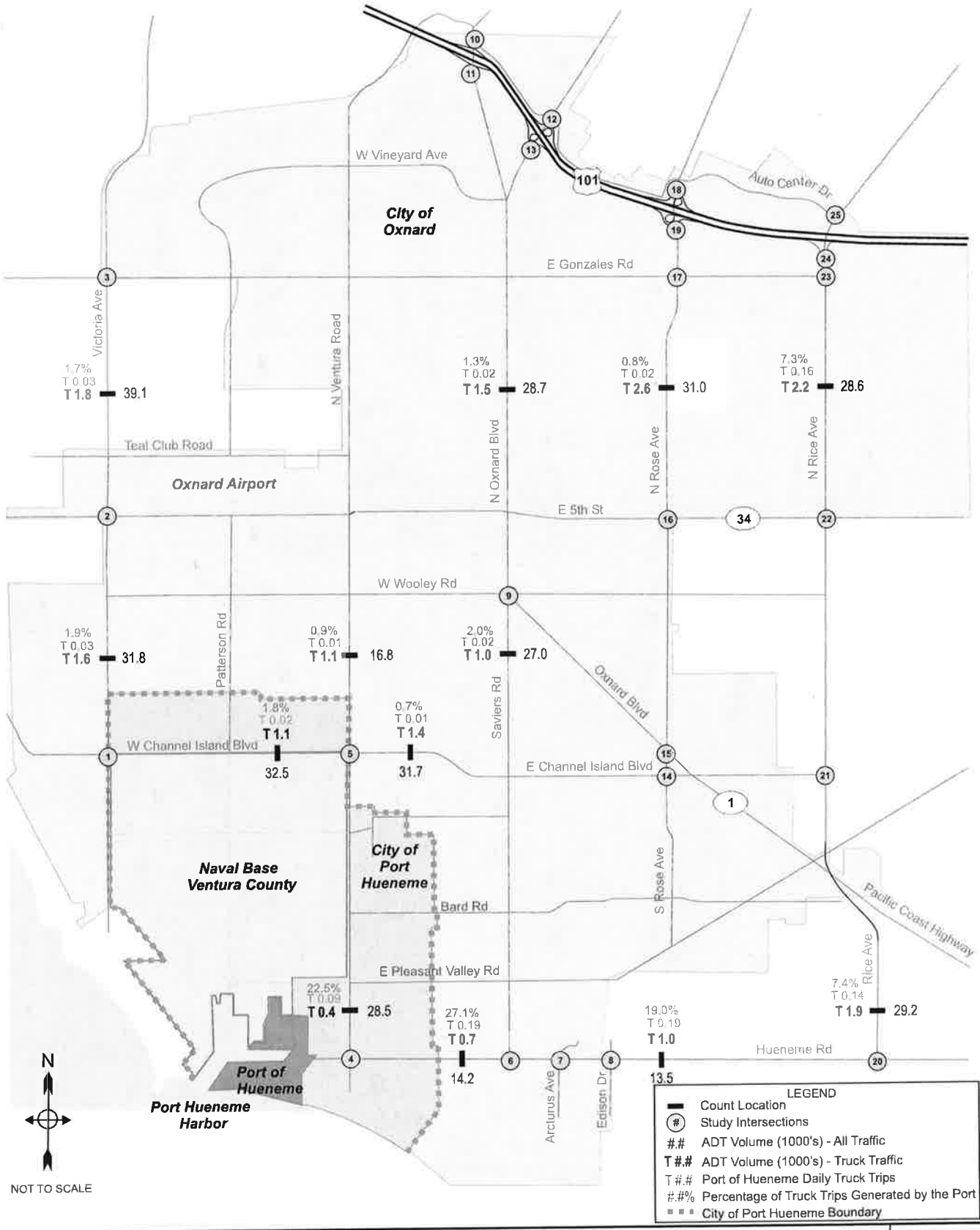
Route	Percentage of Total	Trucks
Hueneme Road to Rice Avenue	72.8%	786
Ventura Road to Channel Island Boulevard to Victoria Avenue	13.7%	148
Ventura Road to Gonzales Road to Oxnard Boulevard	3.5%	38
Other	17.8%	192
Responses Received		1,080
Declined to State/Not Available		165

Source: Port of Hueneme Truck Survey Data
The 1,245 responses were collected over a 10-day period.

Port of Hueneme Truck Trip Distribution

Based on the data collected through the Port of Hueneme Truck Questionnaire, it is estimated that the Port generates an average of 140 entering and 140 exiting trips per day in the spring season. This is consistent with the historic data provided by the Port for this time of year. The questionnaire responses related to travel routes were used to estimate the typical daily distribution of the Port generated truck trips through the study area network. The daily Port truck volumes, the total daily truck traffic count volumes, and the percentage of the total truck trips attributable to the Port of Hueneme on selected arterials are shown in Figure 4-2.

The data collected for this study suggest that the Port generates approximately 25% of the truck traffic on Hueneme Road and Ventura Road in the immediate vicinity of the Port, and this percentage diminishes rapidly with increased distance from the Port. Most of the trucks traveling to and from the Port of Hueneme utilize Hueneme Road and Rice Avenue, with a small percentage traveling along other City of Oxnard designated truck routes throughout the study area.



IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Estimated Daily Truck Trips Generated by the Port of Hueneme

Figure 4-2

4.2 NAVAL BASE VENTURA COUNTY TRUCK TRIPS

Naval Base Ventura County (NBVC) encompasses Navy operations at both the Port Hueneme site and the Point Mugu site, which is locate southeast of the project study area. NBVC, Port Hueneme site, serves as a mobilization site for the Pacific Fleet as a result of good rail and truck access to the Port of Hueneme. The Port Hueneme site of NBVC is the focus of this study, as the Point Mugu site is located outside of the study area.

The Navy currently leases a portion of their Port Hueneme Base property to automobile distribution operators. In these cases, some automobiles are delivered to the Base via rail and then driven to off-site distribution facilities. Very few of the incoming vehicles are loaded onto auto carrier trucks and driven off-base on the trucks.

NBVC staff provided information regarding peak truck travel times into and out of the Base gates, peak days of the week for truck traffic and other relevant information. Based on the responses provided, it was determined that the Victoria Gate, located on the western side of NBVC along Victoria Avenue served a majority of the heavy trucks traveling to and from the base. Truck trips are typically generated both by military operations and commercial operators that are either delivering goods to military uses on NBVC or are leasing space on the base, such as Global Auto Processing Services (GAPS). Navy staff identified the peak truck trip generation time period as weekdays between 6:00 AM and 12:00 PM. Peak days for truck trips to and from NBVC are typically Monday through Thursday.

Naval Base Ventura County Questionnaire

A questionnaire was developed for the NBVC to obtain information from truck drivers regarding the number and types of trucks traveling to and from Base, as well as their origins and destinations. The NBVC survey was performed over a three day period from March 4 to March 6, 2008. Surveys were conducted between 6:00 AM and 6:00 PM each day. The surveys were conducted by a data collection firm experienced in survey administration and collection. Staff members were stationed at the NBVC Victoria Gate, and performed oral interviews with the driver as each truck entered for security inspection. Given the multiple destinations possible for trucks on the base, it was determined in consultation with Navy staff that administering the survey at the NBVC entrance would be the most effective method for conducting the survey and ensuring a return of the survey materials.

A total of 276 responses were collected for NBVC trucks over the three-day survey period, which corresponds to an average of 92 responses per day. It is estimated that the NBVC survey had about a 90% response rate. Some truck drivers refused to participate due to time conflicts and others declined on the second and third day of the survey if they were making repeat trips to the base. Repeat trips were typically made by UPS or FedEx delivery trucks. The NBVC Truck Driver Questionnaire is included as Figure 4-3.

2008 NBVC Truck Survey

About this Survey: Your help in completing this survey is very important. Results from this survey will be used for a truck traffic study conducted by the Southern California Association of Governments to improve traffic flow and minimize congestion in vicinity of the Port of Hueneme. The more accurate the information you provide, the better we can identify measures to reduce congestion. The responses you give are kept strictly confidential and are used for research purposes only.

The purpose of this survey is to gather data for routes you choose to access destinations in Oxnard and Port Hueneme or US 101 freeway. Please follow the instructions below to complete the survey.

Truck and Route Information

Please provide the following information about the truck you are driving and routes you will take today.

1. Trucking Company Name *(If Applicable)*: _____

2. Truck Size / Gross Weight *(Please Select One)*

- ☐ Light - Heavy (8,500 - 14,000 lbs.)
- ☐ Medium - Heavy (14,001 - 33,000 lbs.)
- ☐ Heavy - Heavy (33,001 lbs. and above)
- ☐ Oversize Load

3. Number of Axles *(Please Select One)*

- ☐ Single Unit: Specify Number of Axle _____
- ☐ Semi (All tractor-trailer combination): Specify Number of Axle _____
- ☐ Other Specify the Type and Number of Axle: _____

4. Type of Cargo you are carrying today:

☐ Perishables ☐ Non-Perishable goods ☐ Construction ☐ Auto ☐ Other

Coming From *(What City)*: _____

Going To *(What City, when leaving the Base)*: _____

Route you followed to reach Port of Hueneme if applicable. *(Please Select All Routes Used)*

- ☐ Rice Avenue
- ☐ Hueneme Road
- ☐ Rose Avenue
- ☐ Oxnard Boulevard
- ☐ Ventura Road
- ☐ Victoria Avenue
- ☐ Other Specify: _____

Route you plan to follow to access 101 Freeway if applicable. *(Please Select All Routes Used)*

- ☐ Hueneme Road to Rice Avenue
- ☐ Ventura Road to Channel Island Boulevard to Victoria Avenue
- ☐ Ventura Road to Gonzales Road to Oxnard Boulevard
- ☐ Other Specify: _____

Sponsored by: **Southern California Association of Governments (SCAG) | City of Port Hueneme | City of Oxnard | Port Hueneme** February 2008

Note: Spanish version of the questionnaire is located in the appendix

IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Naval Base Ventura County Truck Driver Questionnaire

Figure 4-3

NBVC Truck Trip Generation

An average of 92 surveys responses were collected per day over the three-day survey period. Assuming that each truck that enters the NBVC Victoria Gate also exits the base on the same day, an average of 184 truck trips are generated by NBVC out at the Victoria Gate on a daily basis. This is slightly less than the average daily trip generation rate observed for the Port of Hueneme. The time of day was noted for each NBVC survey response. Table 4-9 summarizes the time period data collected for truck entry movements to NBVC.

Table 4-9 NBVC Truck Driver Questionnaire Response Times

Hours	Number of Trucks	Percent of Total Trucks
6:00 AM - 8:00 AM	84	32%
8:01 AM - 10:00 AM	52	20%
10:01 AM - 12:00 PM	30	11%
12:01 PM - 2:00 PM	51	19%
2:01 PM - 4:00 PM	31	12%
4:01 PM - 6:00 PM	17	6%
Total Responses		265
Unknown Time		11

Source: NBVC Truck Survey Data
The 276 survey responses were collected over a three-day period.

Of the trucks surveyed, about half entered NBVC between the hours of 6:00 AM and 10:00 AM, with 32% traveling during the AM peak period of 6:00 AM to 8:00 AM. Only 6% of the trucks surveyed entered NBVC during the PM peak period between 4:00 PM and 6:00 PM.

NBVC Truck Trip Distribution

Most of the trucks traveling to and from the Port of Hueneme are related to goods shipped in and out of the Port. The trucks traveling to and from NBVC have a greater variety of trip purposes ranging from local package and food deliveries, construction activities, military applications, and goods movement. In the case of the NBVC survey, the information collected regarding the trucking company name and the origins and destinations of each truck become more important in order to draw conclusions about the types of trucks traveling through the NBVC Victoria Gate. The series of questions designed to obtain information from each driver included the following items:

- Trucking company name
- The typical size of the trucks and types of cargo carried
- The origin point of their trip to the Base
- Their destination after leaving the Base
- The streets they used to travel to the Base
- The streets they planned to travel after leaving the Base

The data collected for each of these items is summarized in the following section.

Truck Company, Size, Type, and Cargo

The analysis of the types of trucks traveling to and from NBVC included two components. The first element is a review of the trucking company name recorded as part of the survey. This information was then combined with responses received regarding the origin and destination of the truck to determine if the truck was a local delivery-related vehicle or truck that was engaged in more of freight-related activity such as auto transport. The trucks participating in the survey were allocated into two primary groups based on the company and origins and destinations. Local trucks are considered to be trucks making local deliveries (ex: FedEx, food and beverage companies, etc). These trips were observed to typically involve smaller trucks with origins and destinations in the Port Hueneme, Oxnard, Ventura, and Camarillo area. Regional trucks were typically larger trucks that were engaged in some form of goods movement (auto shipping, etc) or were making a larger delivery to NBVC facilities. Table 4-10 summarizes the trucking company data by local and regional sources.

Table 4-10 Trucking Company Data

Type of Trip	Percentage of Total	Responses Received
Local Delivery	35%	94
Regional/Goods-Freight Related	62%	168
Unknown	3%	8
	Reponses Received	270
	Declined to State	6

Source: NBVC Truck Survey Data
The 276 survey responses were collected over a three-day period.

The majority of trucks surveyed made regional trips, meaning that the driver reported an origin or destination outside of the Port Hueneme, Oxnard, and Ventura area.

Truck size data was also collected for each truck entering the NBVC Victoria Gate. This information is summarized in Table 4-11.

Table 4-11 Truck Size Data

Truck Size / Gross Weight	Percentage of Total	Trucks
Light (8,500 - 14,000 lbs)	20%	53
Medium (14,001 - 33,000 lbs)	39%	103
Heavy (33,001 lbs and above)	41%	107
Oversize Load	0%	0
	Responses Received	263
	Declined to State	13

Source: NBVC Truck Survey Data
The 276 survey responses were collected over a three-day period.

The majority of trucks traveling through the NBVC Victoria Gate were classified as medium size or larger (greater than 14,001 pounds). The remaining 20% of trucks surveyed were classified as light weight, and none reported carrying an oversize load. These results are different from the data collected from

the Port of Hueneme survey, where the significant majority of trucks surveyed were classified as heavy (over 33,001 pounds).

Information was also collected regarding the number of axles for each truck. The axle data for the NBVC survey is summarized in Table 4-12.

Table 4-12 Number of Axles

Number of Axles	Percentage of Total	Trucks
Single Unit	43%	114
Semi (all tractor-trailer combinations)	56%	151
Other	1%	3
Responses Received		268
Declined to State		8

Source: NBVC Truck Survey Data
The 276 survey responses were collected over a three-day period.

Similar to the truck size data, the truck axle data suggests a greater diversity of truck types accessing NBVC when compared to the Port of Hueneme. The distribution between single unit trucks and semi-trucks is substantially closer in the NBVC survey results.

Cargo type data was also collected for each truck entering the NBVC Victoria Gate. The survey included five categories, with military cargo allocated to the "Other" category so as to avoid security issues. The cargo data from the NBVC survey is summarized in Table 4-13.

Table 4-13 Type of Cargo

Type of Cargo	Percentage of Total	Trucks
Perishables	16%	43
Non-Perishable goods	6%	17
Construction	6%	16
Auto	27%	72
Other	44%	116
Responses Received		264
Declined to State		12

Source: NBVC Truck Survey Data
The 276 survey responses were collected over a three-day period.

The NBVC data shows a greater percentage of trucks involved in the transport of autos when compared to the Port of Hueneme. Perishable goods, which are a major component of truck trips traveling to and from the Port of Hueneme, are a much smaller component of truck trips at NBVC. Additionally, many of the trucks classified into the perishables category were engaged in delivering items such as groceries or produce to the base retail outlets rather than shipping the goods as cargo. A substantial majority of the freight or goods related cargo accessing the NBVC Victoria Gate were observed to be auto transport related. This observation would be expected given the presence of Global Auto Processing Services (GAPS) operating on the base under a lease with the Navy.

Truck Origins and Destinations

Truck trip origin and destination data for NBVC has been grouped into five primary categories. Local trips are those starting or ending in Ventura County. Southern California trips include Los Angeles, San Diego and other points south of Ventura County. Northern and Central California origins and destinations include Santa Barbara, Santa Maria and points north. Locations outside of California were allocated into northern and southern categories based on a reasonable estimate of the route that the driver would follow to access the Interstate Highway System. For example, Las Vegas was categorized as a southern destination since most drivers with this destination reporting accessing the US-101 freeway to travel south, reaching Las Vegas via Los Angeles. Table 4-14 summarizes the truck trip origins. Reported truck trip destinations are summarized in Table 4-15.

Table 4-14 NBVC Truck Trip Origins

Coming From	Percentage of Total	Trucks
Local	42%	109
Southern California	37%	97
Northern / Central California	9%	24
South beyond California	3%	9
North beyond California	7%	17
Unknown	1%	3
Responses Received		259
Declined to State		17

Source: NBVC Truck Survey Data
The 276 survey responses were collected over a three-day period.

Table 4-15 Truck Trip Destinations

Going to	Percentage of Total	Trucks
Local	45%	114
Southern California	37%	94
Northern / Central California	10%	26
South beyond California	1%	3
North beyond California	2%	4
Unknown	6%	15
Responses Received		256
Declined to State		20

Source: NBVC Truck Survey Data
The 276 survey responses were collected over a three-day period.

When the NBVC survey data is compared to the survey data collected from the Port of Hueneme truck survey, some similarities and some differences between truck distribution patterns become apparent. Similarities include the percentage of local origins for trucks traveling to each facility. Both surveys

reported between 40% and 50% of trip origins in local (Ventura County) area. In contrast, NBVC survey shows that a much higher percentage trucks traveling both to and from the base have an origin or destination in Southern California (about 37% for both directions of travel). The Port of Hueneme survey showed a much lower percentage of truck origins from Southern California (about 6%) and destinations in Southern California (about 21%). Destinations to the north, in Central California, Northern California, and beyond the State comprise a significant percentage of truck trips destinations for the Port of Hueneme (48.6%).

Truck Trip Distribution

Truck drivers were asked to provide information on the streets that they used to travel between the NBVC Victoria Gate and the US-101 freeway for their trip on the day of the survey. The objective of this question is to identify the most commonly used routes by trucks, particularly regional cargo trucks, traveling to and from NBVC. Truck drivers were asked to provide the origin of their trip to NBVC and the destination that they would be traveling to once they left NBVC. Truck trip distribution for inbound trips to NBVC is summarized in Table 4-16. Truck trip distribution information for trips traveling outbound from NBVC is reported in Table 4-17. The total responses for each route add up to more than 100 percent due to truck drivers reporting multiple routes. For example, a driver may follow a route along Hueneme Road and Rice Avenue to access US-101. In this case, both streets are reported in the survey.

Table 4-16 Route Traveled to Access NBVC

Route	Percentage of Total	Trucks
Rice Avenue	5%	12
Hueneme Road	5%	13
Rose Avenue	2%	5
Oxnard Boulevard	1%	2
Ventura Road	4%	11
Victoria Avenue	64%	167
Other	32%	82
Responses Received		259
Declined to State		17

Source: NBVC Truck Survey Data
The 276 survey responses were collected over a three-day period.

Table 4-17 Route Traveled to Access US-101 Freeway

Route	Percentage of Total	Trucks
Hueneme Road to Rice Avenue	5%	14
Victoria Avenue	54%	139
Ventura Road to Gonzales Road to Oxnard Boulevard	3%	7
Other	40%	103

Route	Percentage of Total	Trucks
	Responses Received	257
	Declined to State	19

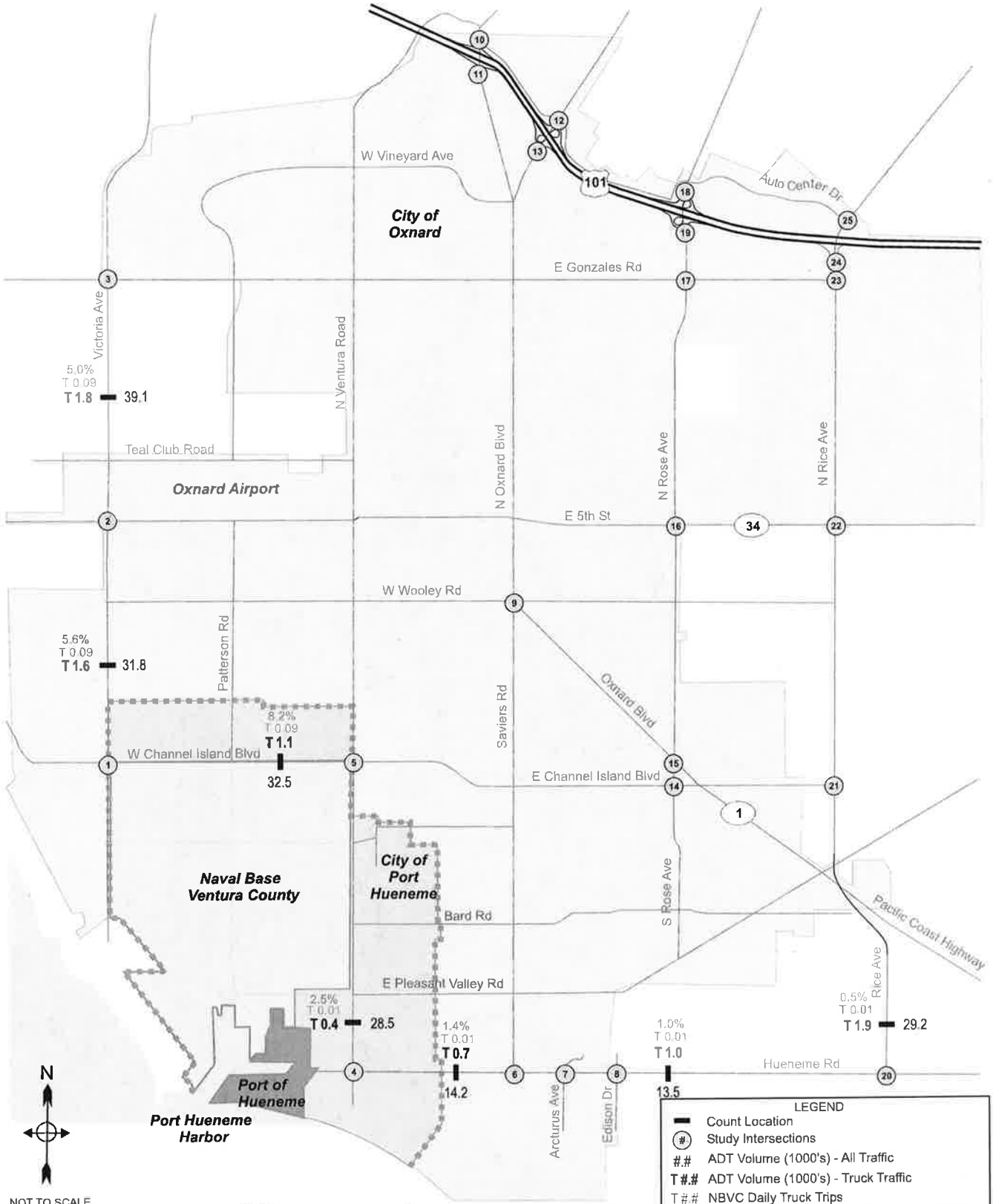
Source: NBVC Truck Survey Data
The 276 survey responses were collected over a three-day period.

The survey data collected from NBVC shows a much higher rate of use of Victoria Avenue to access the US-101 freeway compared to trucks traveling to and from the Port of Hueneme. The high percentage of routes classified as "Other" reflects the higher percentage of local trucks accessing the NBVC Victoria Gate compared to the Port of Hueneme. Many of the local truck trips, remaining in the Port Hueneme, Oxnard, and Ventura area did not report a specific route on their survey, so it is not possible to allocate these local trips to a specific corridor. However, the regional truck trips do show strong usage of the Victoria Avenue corridor for traveling between NBVC and the US-101 freeway.

NBVC Truck Trip Distribution

Based on the data collected through the NBVC Truck Questionnaire, it is estimated that the Base generates an average of 92 entering and 92 exiting trips per day in the spring season. The questionnaire responses related to travel routes were used to estimate the typical daily distribution of the NBVC generated truck trips through the study area network. The daily Base truck volumes, the total daily truck traffic count volumes, and the percentage of the total truck trips attributable to the Base on selected arterials are shown in Figure 4-4.

The data collected for this study suggest that most of the trucks traveling to and from the Base utilize Victoria Avenue, and the Base generates approximately 5% of the truck traffic volume on Victoria Avenue. About 40% of the truck traffic generated by NBVC has origins and destinations in the local area, and may utilize a variety of different truck routes. Less than 1% of the truck volume on Hueneme Road and Rice Road is estimated to be generated by the Base.



NOT TO SCALE

Note: This figure only shows estimated NBVC truck trips on Victoria Avenue, Hueneme Road, and Rice Avenue. The distribution of other truck trip through the study area can not be inferred from survey data.

IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Estimated Daily Truck Trips Generated by Naval Base Ventura County on Selected Routes

Figure 4-4

4.3 TELEPHONE SURVEY RESULTS

Private businesses also generate daily truck trips throughout the Cities of Port Hueneme and Oxnard. Major generators include agricultural growers and distributors, automobile distributors, off-shore oil supply companies, and other uses. A small sample of private businesses were surveyed by telephone for this study to identify the number of truck trips generated by the businesses, the distribution of the trips on the surrounding street network and the peak time periods, days, and months of truck activity for each business.

The private business survey is not intended to be an exhaustive review of every business that generates truck trips. Instead, this information is intended to supplement the daily and peak hour traffic and truck volumes presented earlier in this report. The survey results provide a snapshot of selected land uses that generate truck trips and seek to provide the reader with an understanding of diversity of truck trip generation rates, the distribution of trucks on major streets in the study area, and the peak time periods when trucks would travel through the study area.

Port of Hueneme staff provided contact information for 16 different private companies that maintain operations in or near the study area. These companies either typically do business with the Port, generating truck trips between their base of operation and the Port, or operate businesses (agriculture, sod farms, automobile distribution) that generate a substantial number of truck trips on a daily basis. Several of the businesses generate truck trips that originate at the Port of Hueneme, for example Del Monte Foods picks up shipments of bananas at the Port and then transports them throughout the Western United States.

Automobile transport operations can provide one example of how the supply chain works and where truck trips associated with this activity enter the study area roadway network. Pacific Vehicle Processors is a major auto transport company operating in the study area. This business stores automobiles that are shipped into the Port of Hueneme at off-site private facilities located along Hueneme Road. In this case, automobiles are off-loaded from ships and then driven to the private off-site storage lot located along Hueneme Road. The trip from the Port to the private storage lot is an auto trip, not a truck trip, and is therefore not considered in this analysis. At the off-site storage facility, automobiles are then loaded onto trucks and transported to various destinations in the Western United States. The truck trip originates from the off-site facility rather than the Port of Hueneme.

A second example of an off-site business with operations that are interrelated to the Port of Hueneme is Channel Island Logistics. This business operates a produce storage and distribution operation located in study area along Hueneme Road. The operations conducted by Channel Islands Logistics generate truck trips that are of interest to this study effort. In this case, the truck trips generated by this business have two components. The first is a trip between the off-site location and the Port of Hueneme (as well as the return trip), where the trucks are picking up a load of produce cargo directly from the Port and transporting to the off-site storage/distribution facility. This trip is accounted for in the Port of Hueneme gate and survey data. The second component is the truck trip generated from the off-site facility to a regional destination outside of the study area. This trip would involve a potential greater impact to the study area roadway network since it would involve traveling a greater distance and involve accessing the US-101 freeway.

Making a distinction between the two types of private business truck trips identified above and those trips generated by the Port of Hueneme and NBVC is important in order to have an understanding of the various origin points that truck trips have in the study area. In this case, the regional truck trips generated by businesses like Pacific Vehicle Processors and Channel Island Logistics traveling to and from US-101 do not have origins on Port of Hueneme or NBVC property, but the activities maintained by the businesses that create the truck trips are directly related to cargo that enters the study area through the Port.

The third type of private business operating in the study area is an operation that generates a substantial number of truck trips on a daily basis, but is not related to the Port of Hueneme/NBVC activities. An example of this type of business is Southland Sod Farms, which maintains a large sod farm located west of the Hueneme Road and Rice Avenue intersection. Truck trips generated by this business utilize the same truck routes and roadways as truck trips generated by the Port of Hueneme and NBVC, but these truck trips have no relationship to the port area. There are numerous other private businesses in the study area that would also fall into this third category, from small generators such as grocery stores and big-box home improvement stores to other industrial land uses such as the distribution centers located along Rice Road in Oxnard.

Representatives from each of the 16 companies were contacted by IBI Group via telephone, and asked a series of survey questions designed to obtain information regarding the average number of daily truck trips generated by the business, the distribution of the truck trips, major destinations, and the peak hours, days, and months for truck operations. Fourteen of the contacted companies agreed to participate in the survey and provided answers to the survey questions. The companies that participated in the survey are:

1. AG RX
2. BMW North America
3. Channel Islands Logistics
4. Chiquita Fresh
5. Del Monte Fresh Produce
6. General Petroleum
7. Hoskins Brothers Trucking
8. OST Trucks and Cranes
9. Pacific Fruits-Bonita
10. Southland SOD Farms
11. T&T Truck and Crane Service
12. Terminal Freezers
13. Waggoners Trucking
14. Yara North America

The following companies were contacted via telephone about the survey, but declined to participate:

1. Pacific Vehicle Processors
2. Sysco Foods of Ventura

Table 4-18 summarizes the information collected from each of the contacted businesses. Figure 4-5 shows the approximate location of each company contacted for this survey. A sample of the survey is shown in Figure 4-6. The routes that each company reported to be used by their trucks are identified in Figures 4-7 through 4-20.

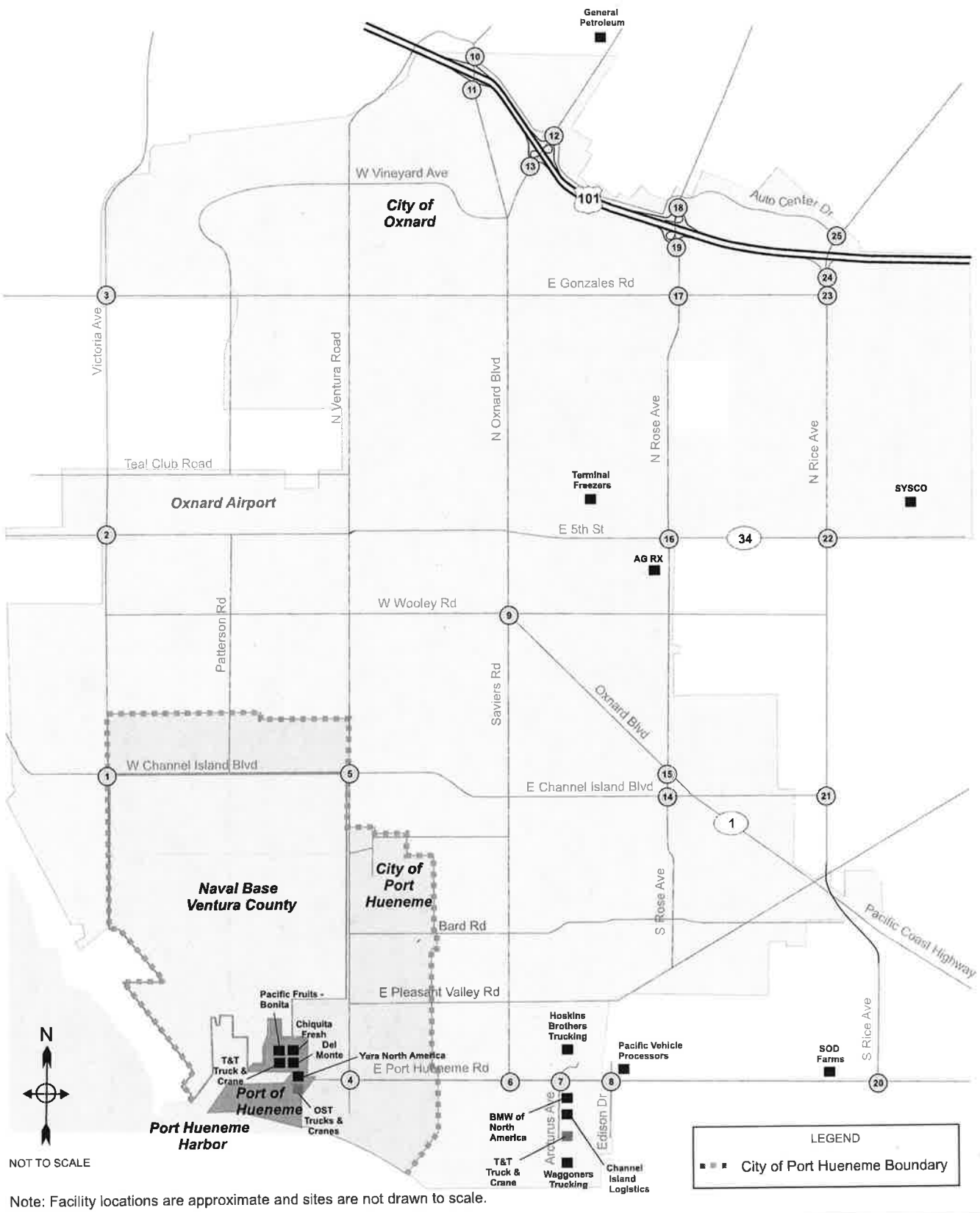
While a variety of routes are used by companies for travel to and from regional origins and destinations, the most common route used by drivers to access the US-101 is Hueneme Road to Rice Avenue. Companies also reported various other routes taken by drivers to access the 101 freeway, including Rose Avenue, Ventura Road, Las Posas Road and Pleasant Valley Road. About half of the companies reported that their drivers sometimes stop when getting on or off the US-101 freeway at a gas station, small shopping center or restaurant close to the freeway. On average, companies reported about 50 truck trips per day as a high estimate. The number of truck trips per day reported by each company ranged from 12 trips to a maximum of 100 trips.

Table 4-18. Telephone Survey Data Summary

Business Contacted	Type of Cargo	Origin/ Destination	Typical Route	Intermediate Stops	Peak Seasonal Activity	Peak Weekly Activity	Peak Activity Time Period	Typical Truck Size	Maximum Number Daily Truck Trips
Southland SOD Farms	Sod, Fertilizer	Greater LA area	North-Rice Avenue South-Hueneme Road to Lewis	Doughnut shop along Pleasant Valley right before freeway	Long peak May-Sept	Saturday morning Friday	2 am -5 am	18 wheeler 80,000 lbs	80 trucks 160 total trips
AG RX	Agricultural	Northern Santa Barbara County	Rose Avenue	Don't know	May-October but Mostly stable	No—Mon-Fri	Before 3:00pm	8-10 tons, 6 tons	50-60 max
Waggoners Trucking	BMW automobiles	Nine Western states	Rice Avenue	No stops	Sept-Dec	No	Afternoon	8 car hauler	50 trucks
Hoskins Brothers Trucking	Mostly Paper	North-Salinas Ventura South- Los Angeles	North and South- Hueneme to Rice, One truck takes Ventura	Las Posas by US-101	None	5 days/week Sat/Sun not busy	4am-7am and early afternoon around 3:00pm	3 axel-80,000 lbs.	12-13 a day
Channel Islands Logistics	Fresh Fruit	Western United States	50% take Rice 50% take Las Posas	Mac Valley Oil (Sturgis/Del Norte)	Nov/Dec-May	Mon, Tues, Fri	Mid Morning (9-11) Evening (3-5:30)	48-53 feet	70-80 max
Pacific Fruit Bonita	Agricultural	Western United States	Hueneme Road/Rice Avenue	Don't know	None	No	8-4, 7-8am loading and right after lunch	42-56 feet	25-30 trucks

Business Contacted	Type of Cargo	Origin/ Destination	Typical Route	Intermediate Stops	Peak Seasonal Activity	Peak Weekly Activity	Peak Activity Time Period	Typical Truck Size	Maximum Number Daily Truck Trips
Del Monte	Agricultural	Pacific Northwest	Hueneme Road to Rice Avenue	Direct	Dec-May	Mon, Tues, Fri	8am - 4:30pm	45-53 feet trailers	70-80 day, 400 week
Yara North America	Liquid Fertilizer	Throughout California	Hueneme Road to Rice Avenue	Hueneme Road, Mexican Rest. 2 miles east of Harbor	Spring, March-May/June	Mon-Fri, 24/7	No Peak Period 24/7, 6am-5pm	Tanker, 40 feet, Single/double Tanker	Slow time-15/day Busy time-70-100 Per day
T & T Truck & Crane Service	N/A	Multiple destinations	Ventura to Victoria or Hueneme to Rice	Shopping Center at 5th/Victoria	None	No, 7 days	No, 24/7	Class 8 semis - 5 axel	20 - 25
Chiquita Fresh	Agricultural - bananas	Multiple destinations	Hueneme Road to Rice Avenue	Don't know	Fall season	Monday & Friday	8 am - 5pm	18 wheeler semis	50 trucks
BMW North America	Automobiles	Western United States	Most trucks – Hueneme Road to Rice Avenue	Gas station on Rice near US-101	All months except September	Depends on arrival of shipments	24 hours – Local cargo loads during day and regional cargo at night.	53 foot trailers	38
Terminal Freezers	Frozen fruits and vegetables	Multiple Destinations	Rose to 101 (5th to Del Norte	MacValley Oil @ Sturgis/Del Norte	May to June (8 weeks)	Friday	6 am to 5 pm	45 foot refrigerated trailers	20

Business Contacted	Type of Cargo	Origin/ Destination	Typical Route	Intermediate Stops	Peak Seasonal Activity	Peak Weekly Activity	Peak Activity Time Period	Typical Truck Size	Maximum Number Daily Truck Trips
General Petroleum	Fuel, gasoline, diesel, chemica	Central and Southern California	Vineyard to US-101 or SR-126	Don't usually stop, only sometimes at donut shop near Vineyard/101	Summer	Middle of the week	5 am to 5 pm	3 axel fuel trucks, flat bed trucks	8 trucks – 16 trips maximum
OST Trucks & Cranes	Various	Multiple Destinations	Hueneme Road to Rice Avenue	No stops	None	Mon, Tues, Wed	8 am to 5 pm	50 foot trailers	50 to 60 maximum



Note: Facility locations are approximate and sites are not drawn to scale.

IBI GROUP	Cities of Port Hueneme and Oxnard Truck Traffic Study	Figure 4-5
	Locations of Private Companies that Participated in Telephone Survey	

Business: _____

Contact Person: _____

Phone Number: _____

Introduction: We are working with the City of Hueneme and the Port of Hueneme on a Truck Traffic Study. As part of the study we are conducting research on how trucks travel through the area surrounding Port of Hueneme. Port of Hueneme has provided your contact. The information you provide will be used only for the purpose of this study.

1. Type of Cargo handled through your facility?

2. Where are Origin / Destination located – local or regional?

3. Typical routes their drivers follow to:
   - To access 101 freeway – for outgoing trucks?
   - To reach their facility – for incoming trucks?

4. Do truck drivers like to stop for refreshments getting on/ off from the 101 freeway? Where?

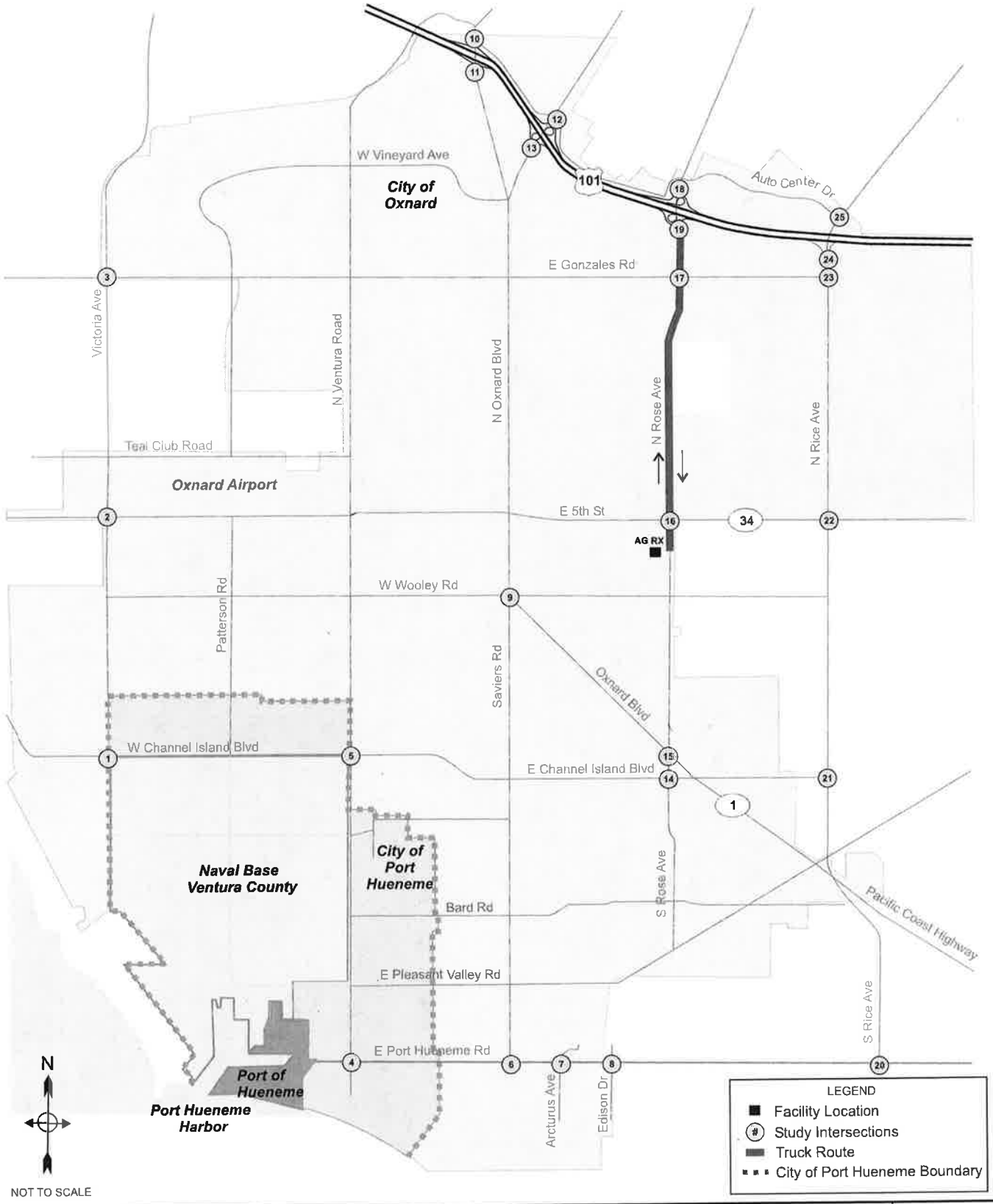
5. Seasonality? Peak activity period during the year?

6. Peak days of activities during the week?

7. Peak time periods of activities during the day?

8. Typical Truck Size?

9. Average / maximum number of truck trips in a day?

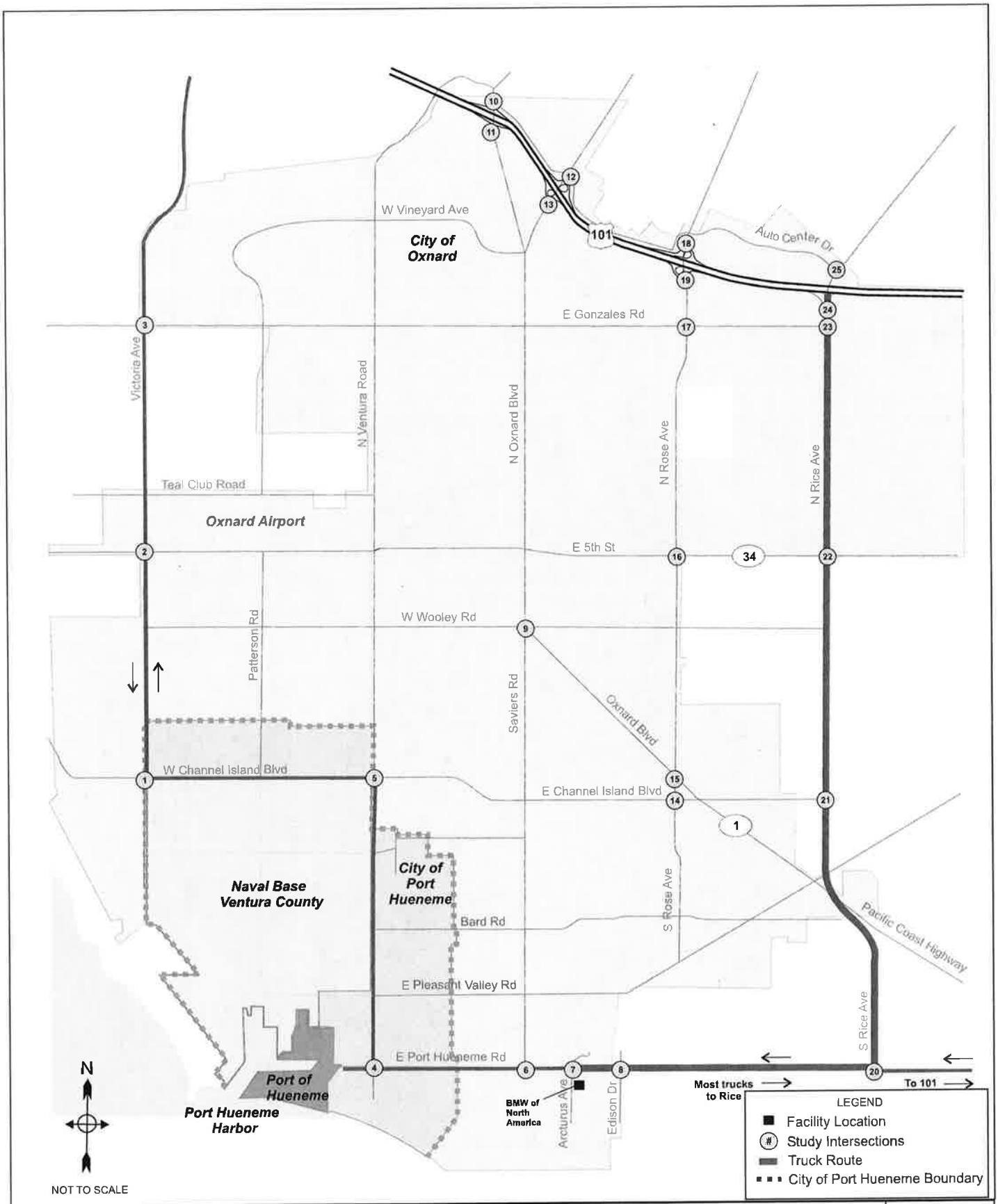


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Truck Routes - AG RX

Figure 4-7

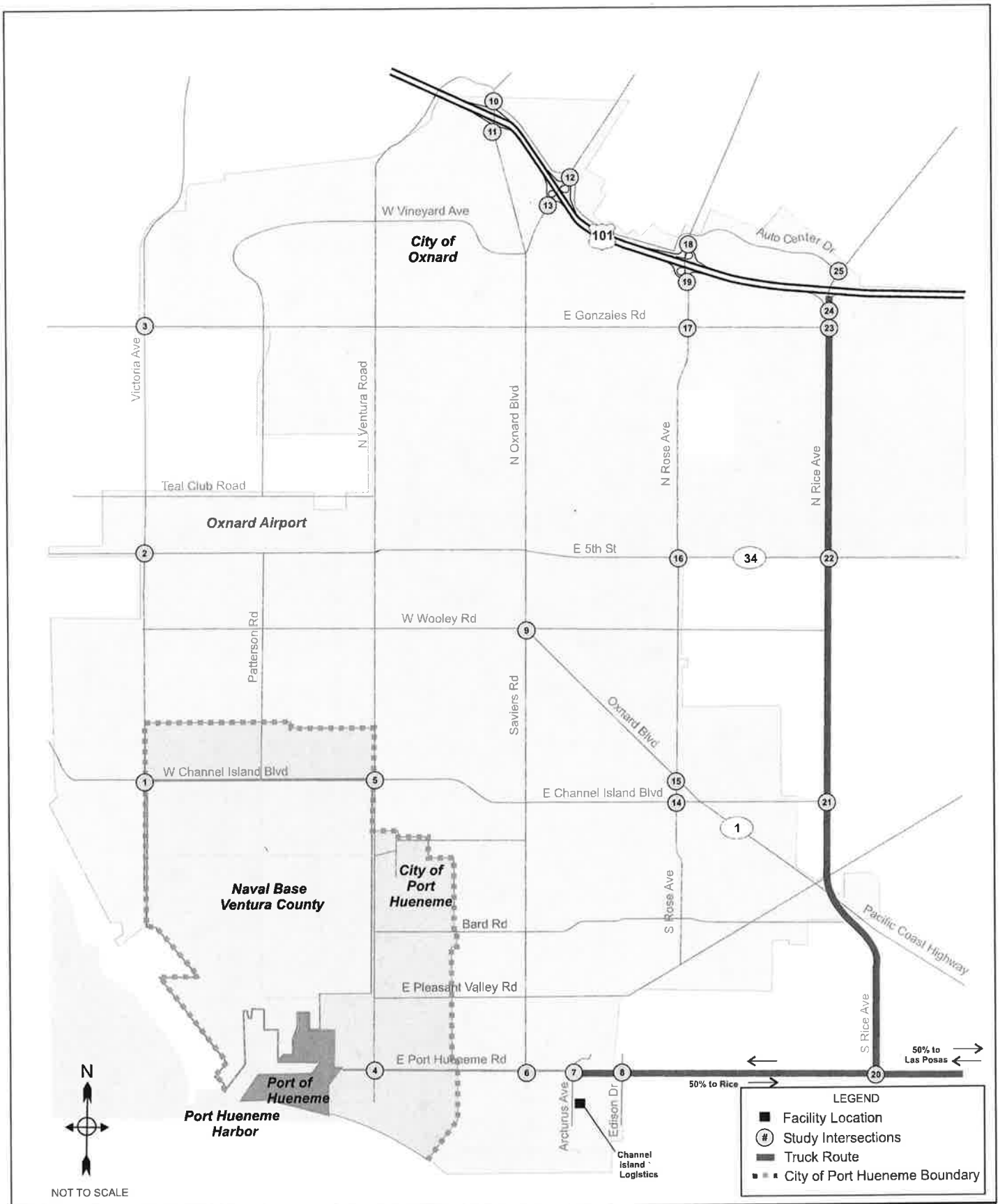


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Truck Routes - BMW North America

Figure 4-8

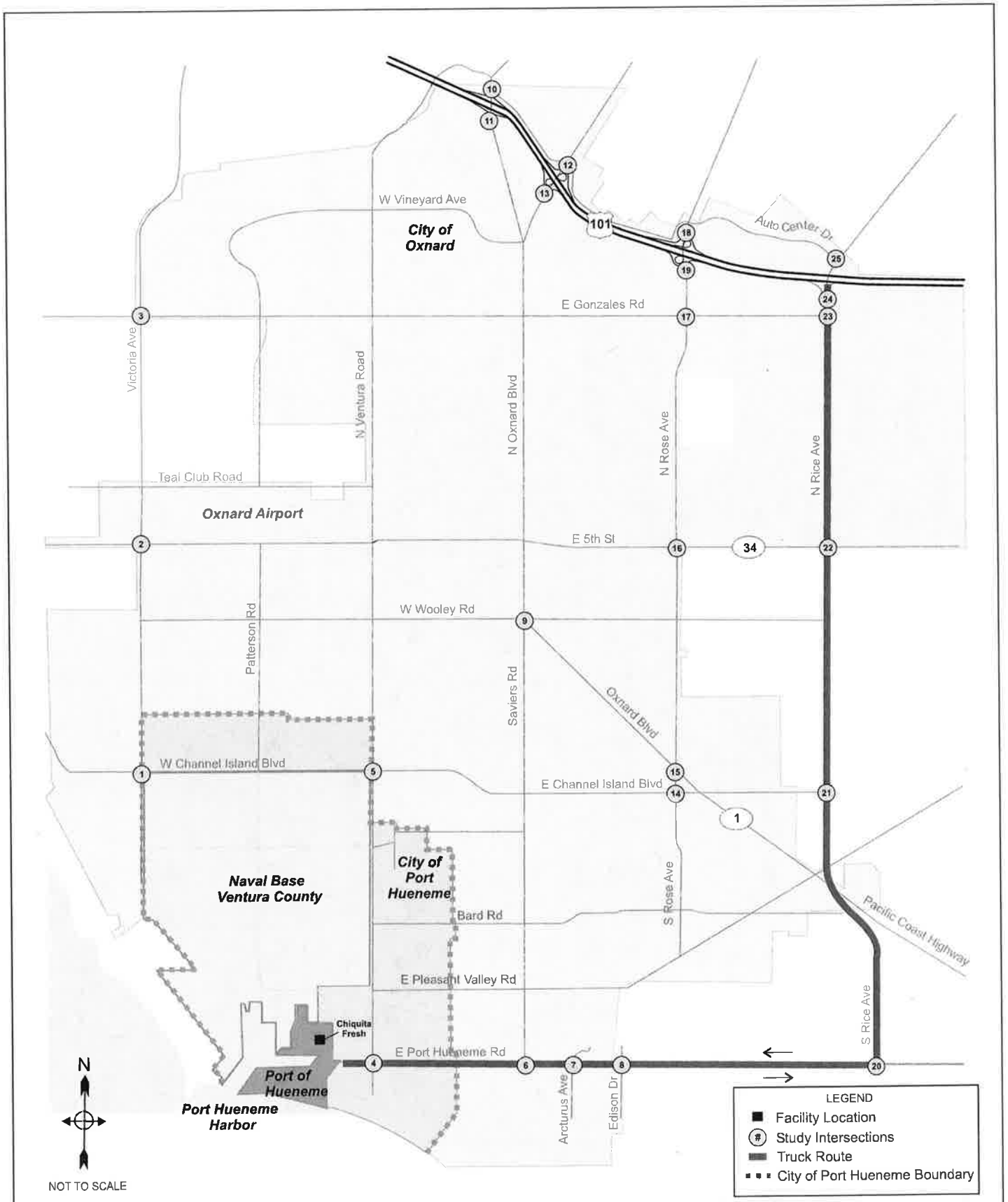


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Truck Routes - Channel Islands Logistics

Figure 4-9

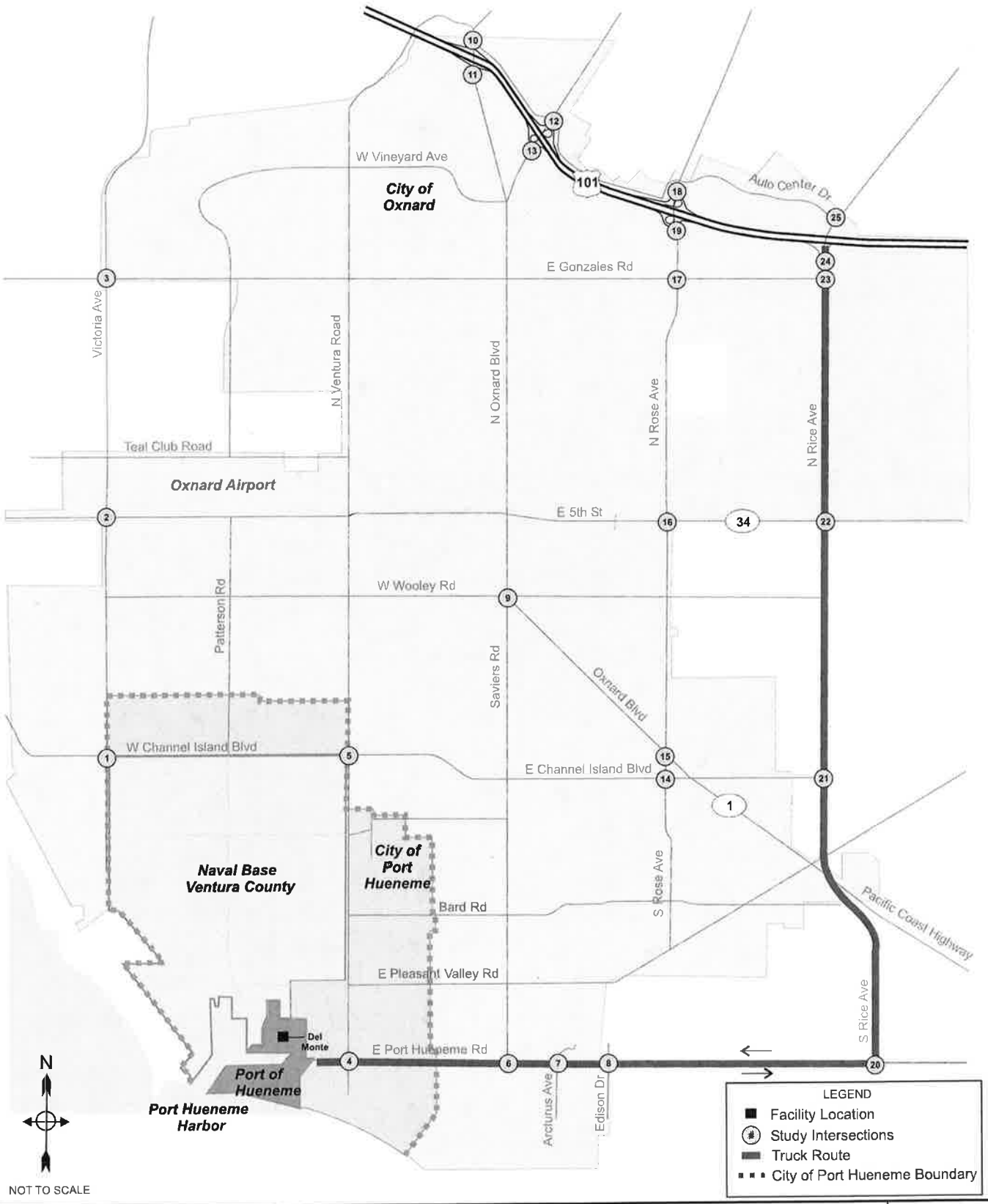


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Truck Routes - Chiquita Fresh

Figure 4-10

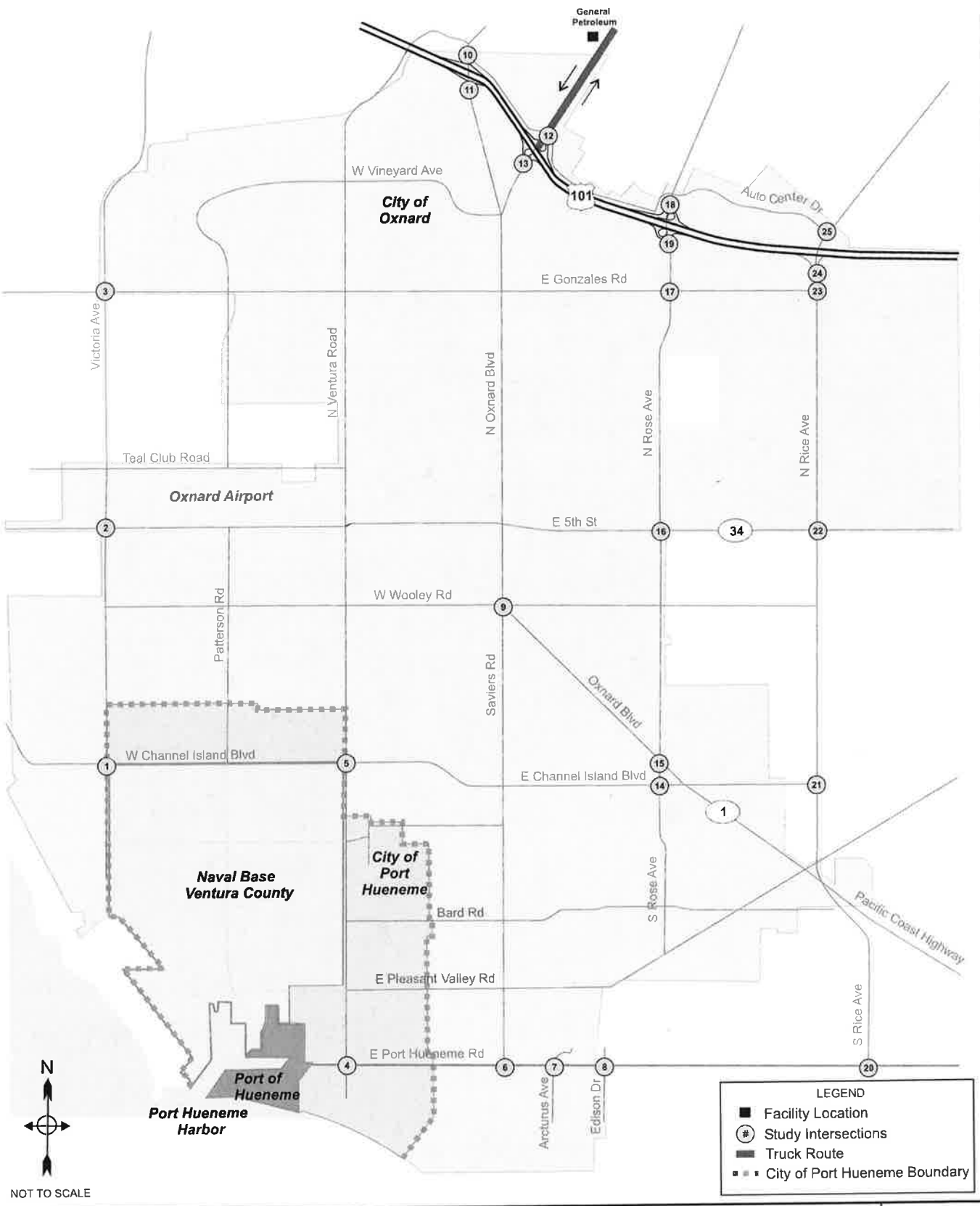


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Truck Routes - Del Monte Fresh Produce

Figure 4-11

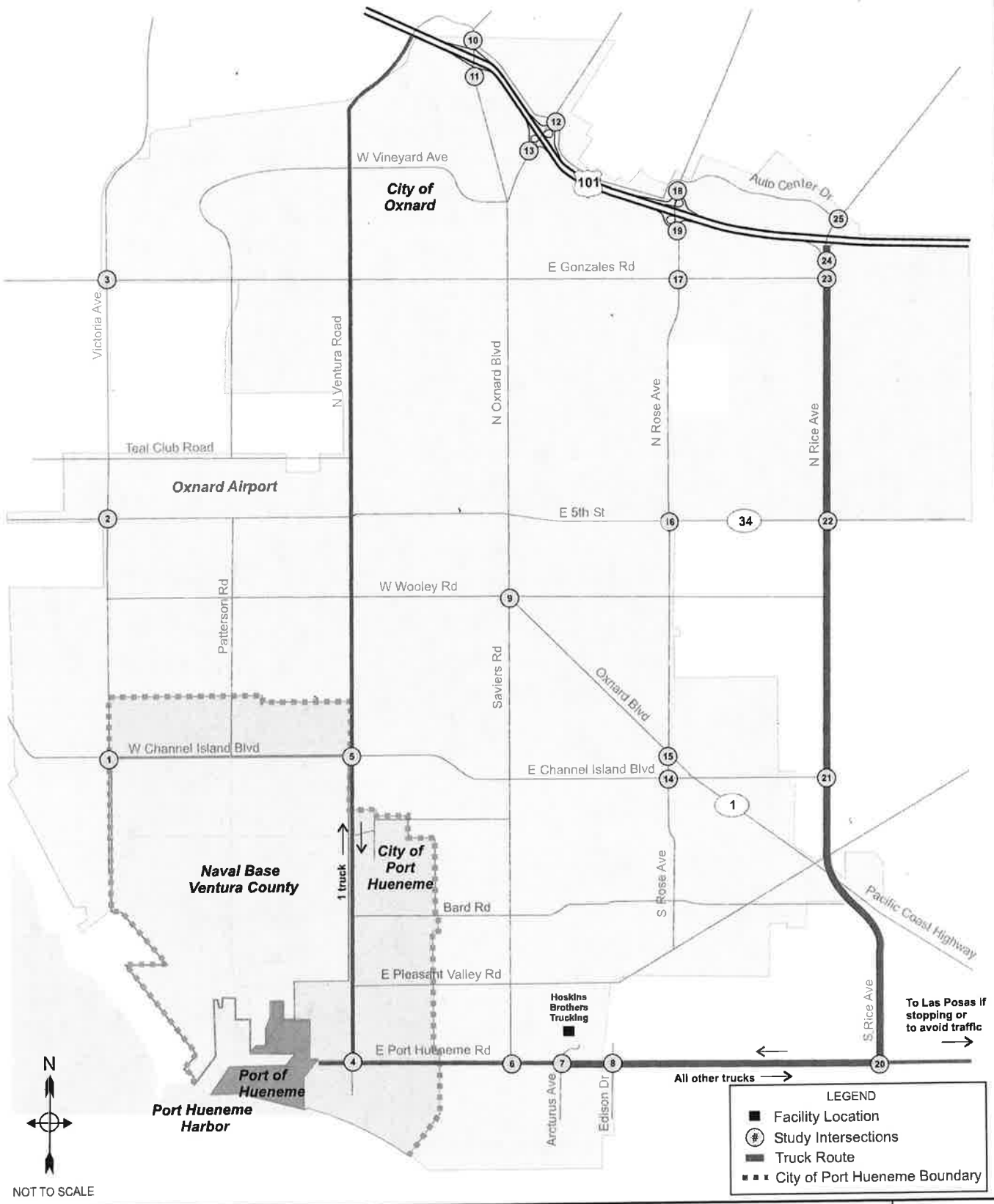


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Truck Routes - General Petroleum

Figure 4-12

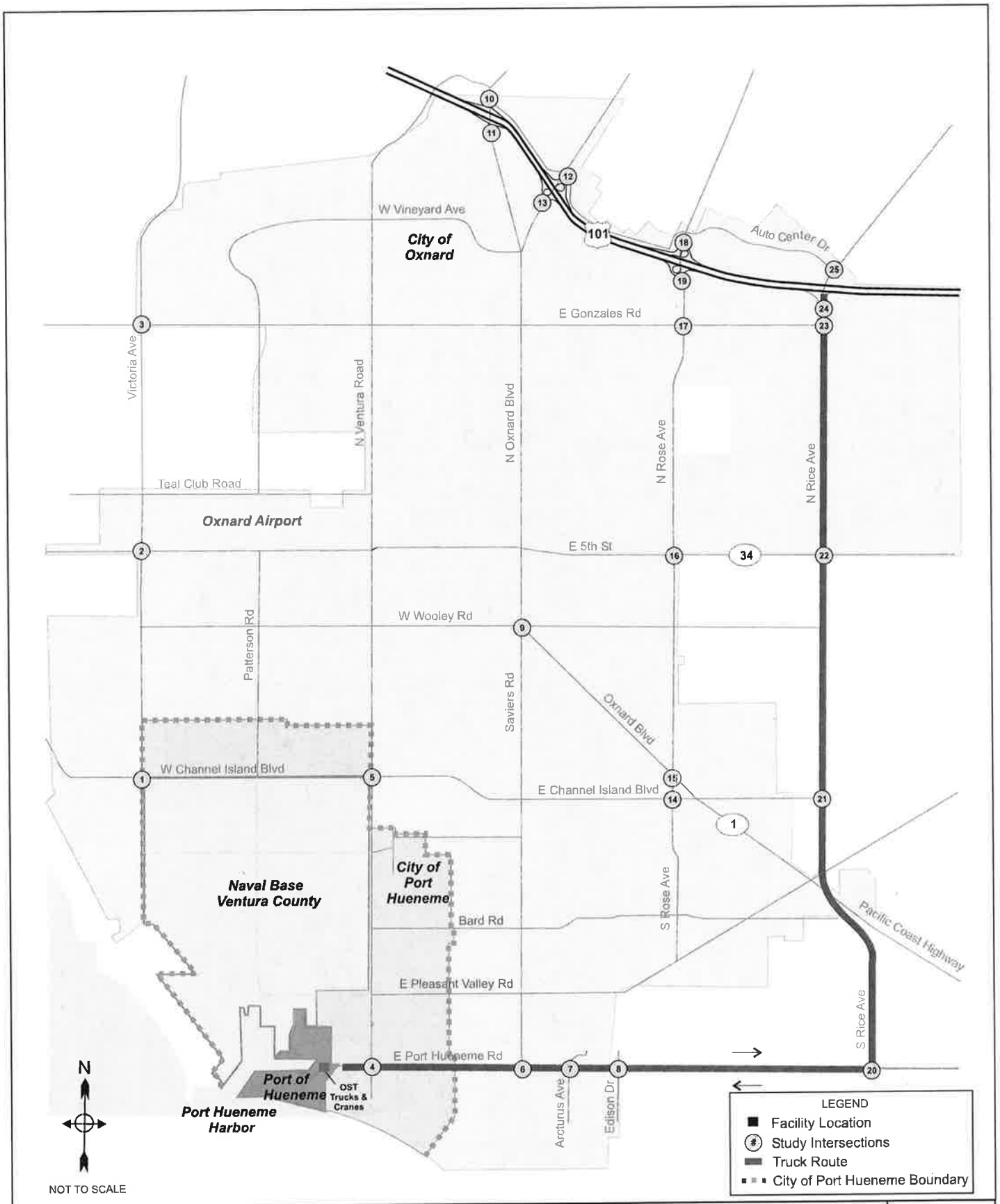


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Truck Routes - Hoskins Brothers Trucking

Figure 4-13

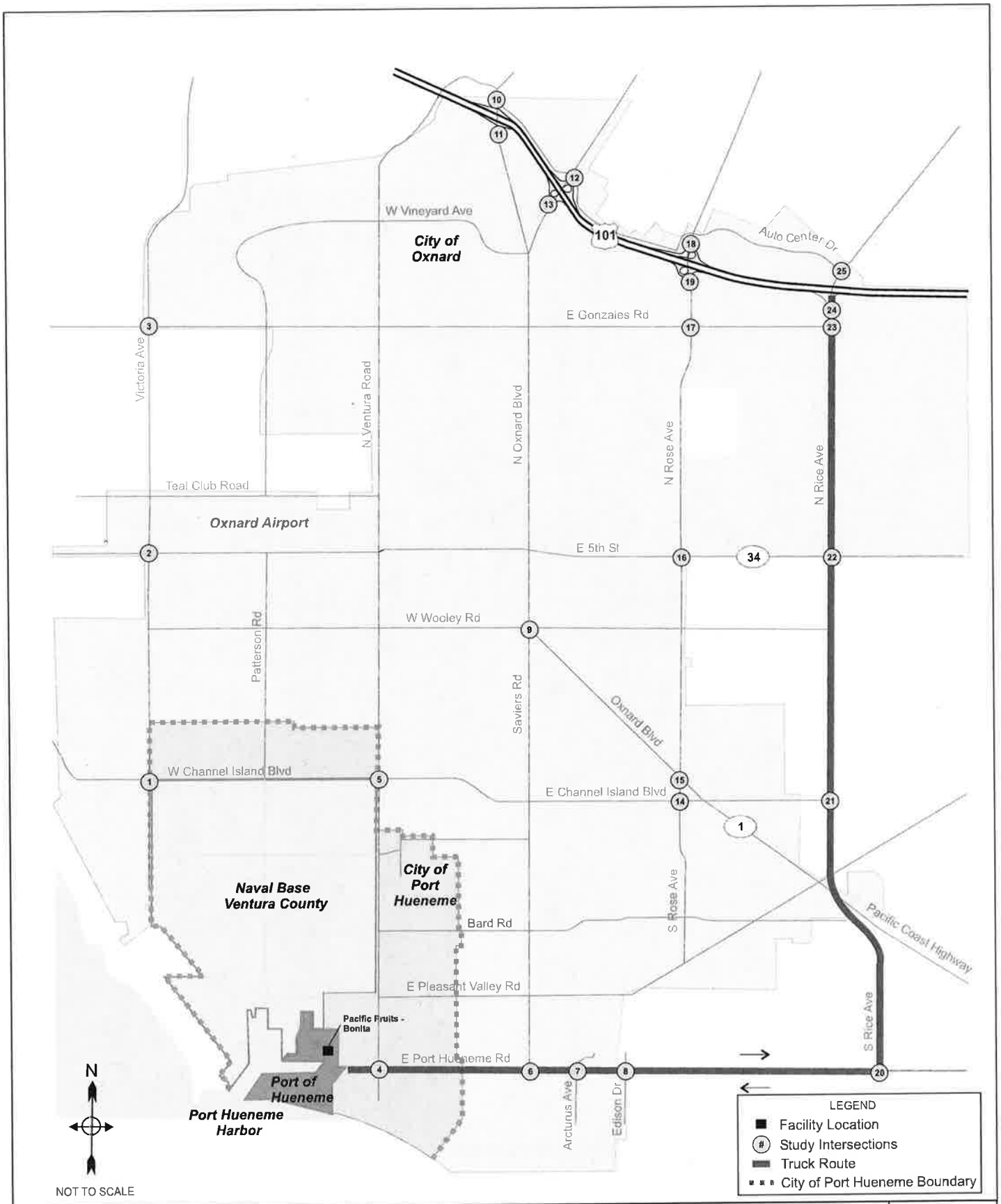


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Truck Routes - OST Trucks and Cranes

Figure 4-14

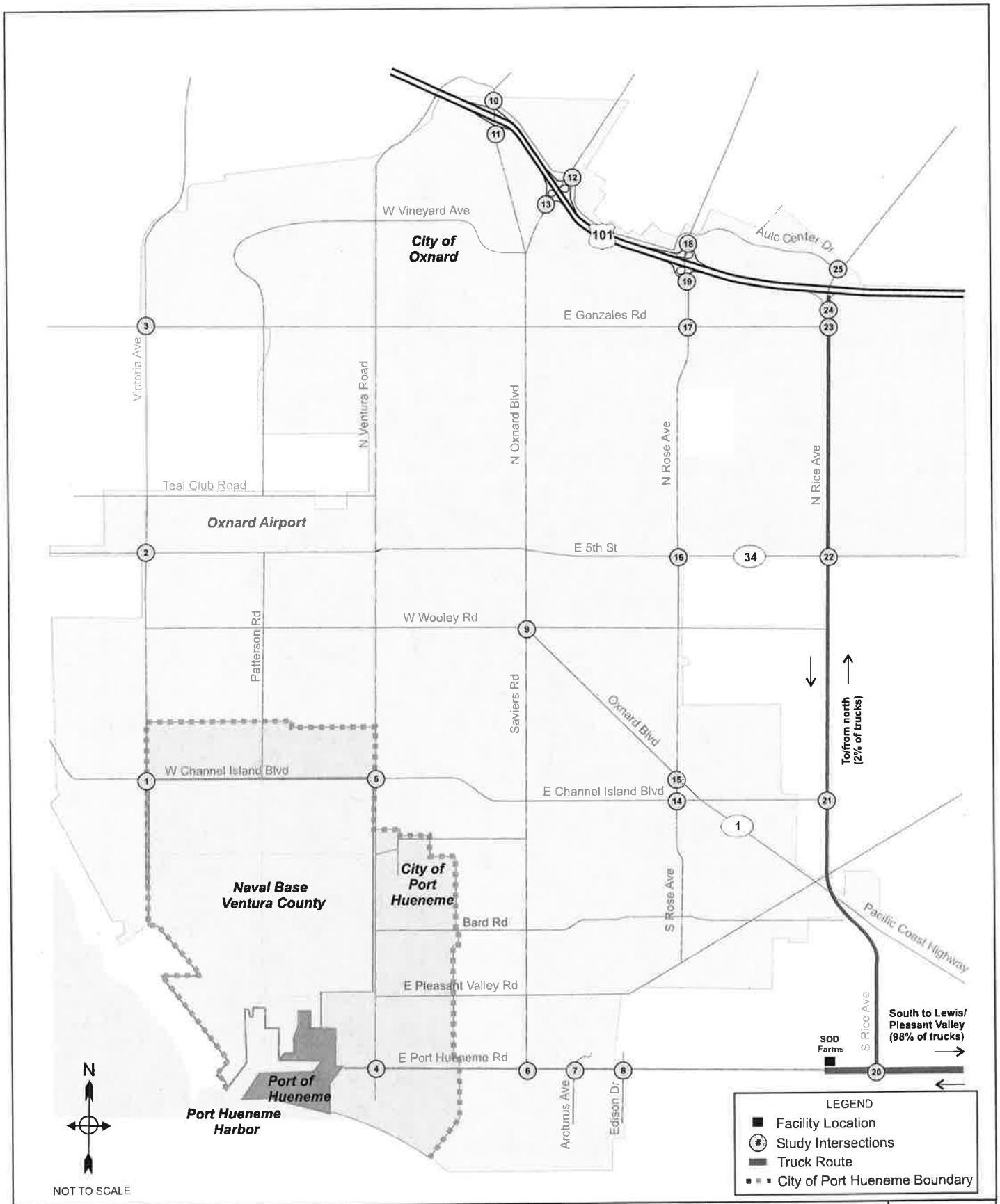


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Truck Routes - Pacific Fruits Bonita

Figure 4-15

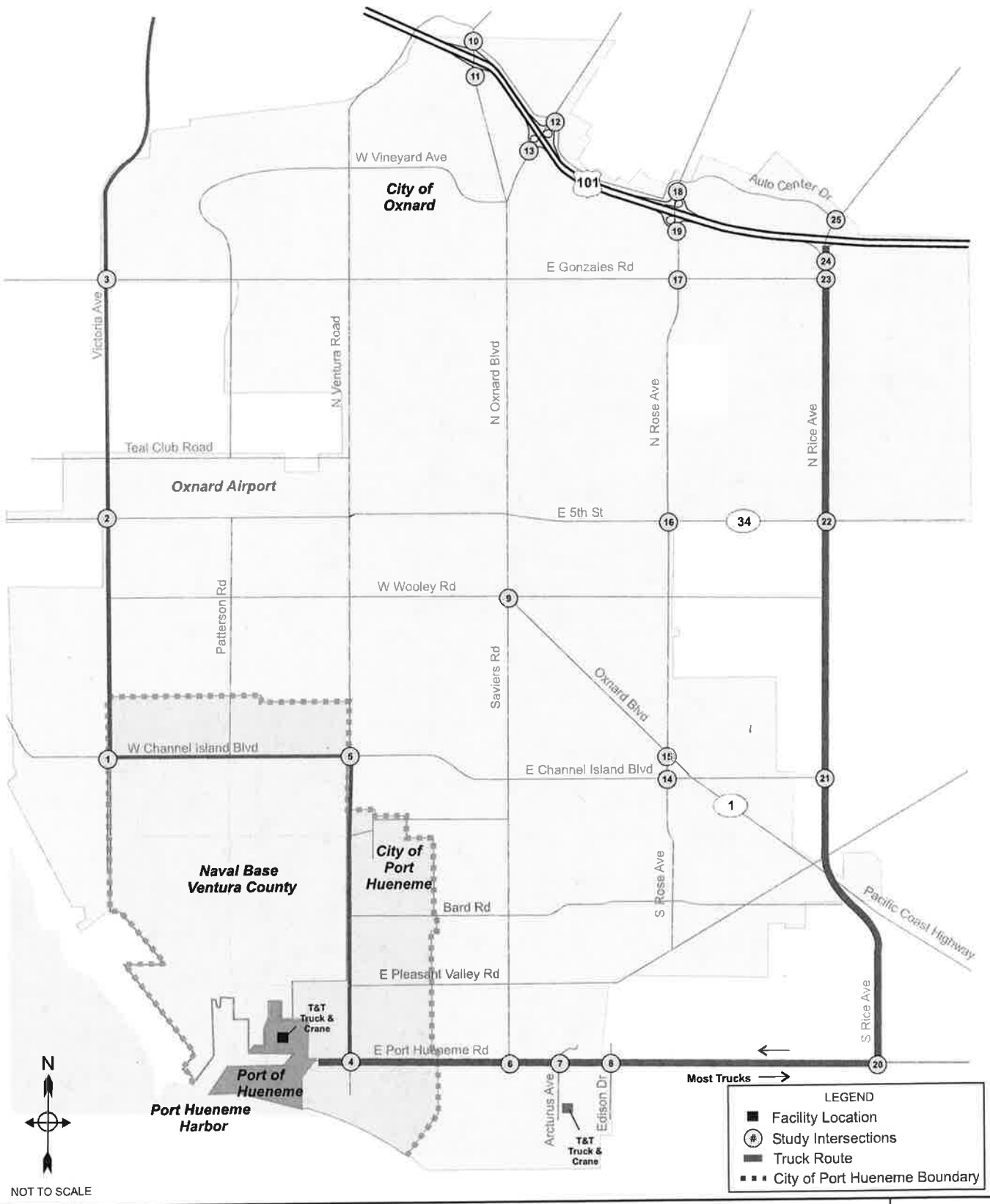


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Truck Routes - Southland SOD Farms

Figure 4-16

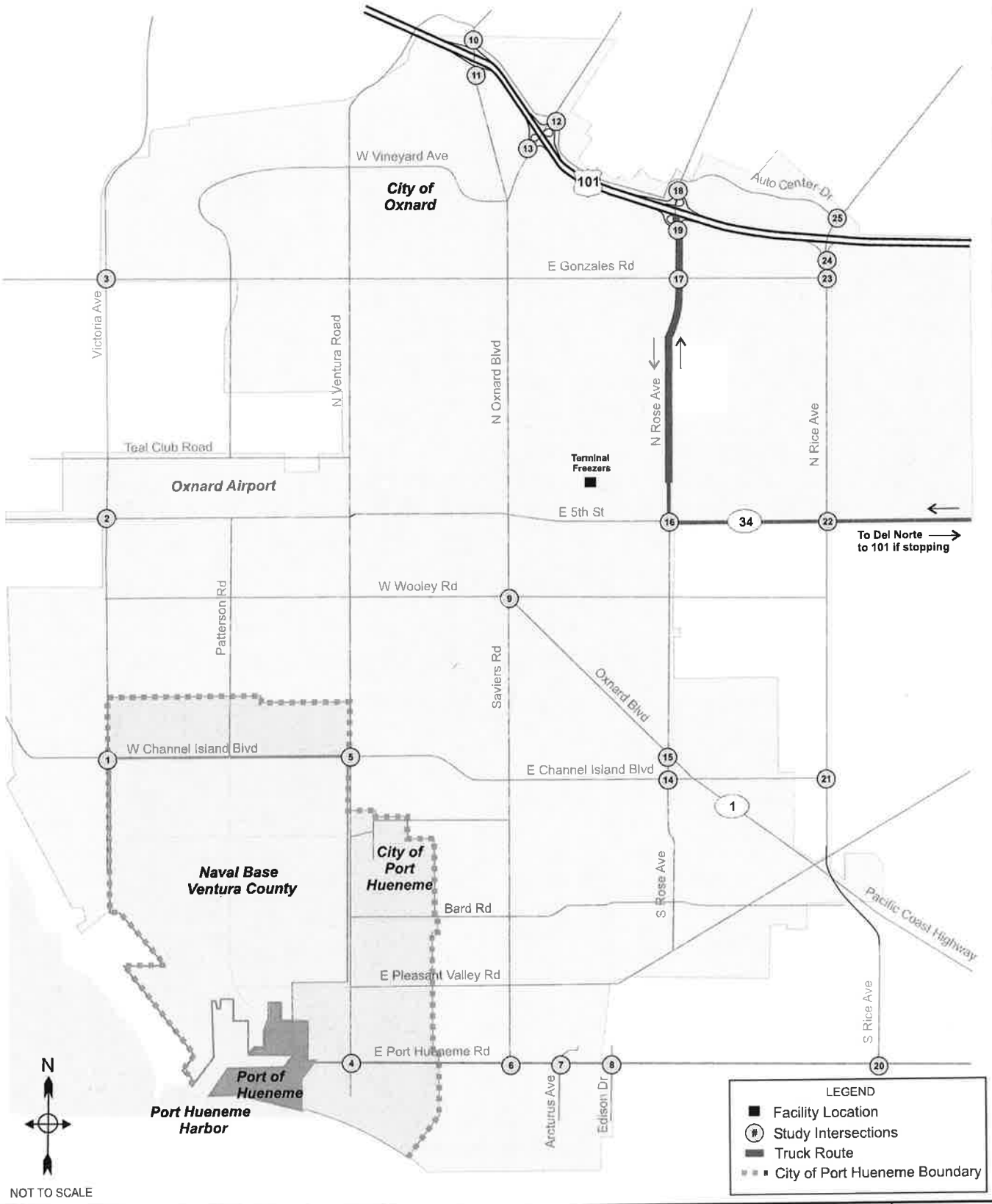


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Truck Routes - T & T Trucks and Cranes

Figure 4-17

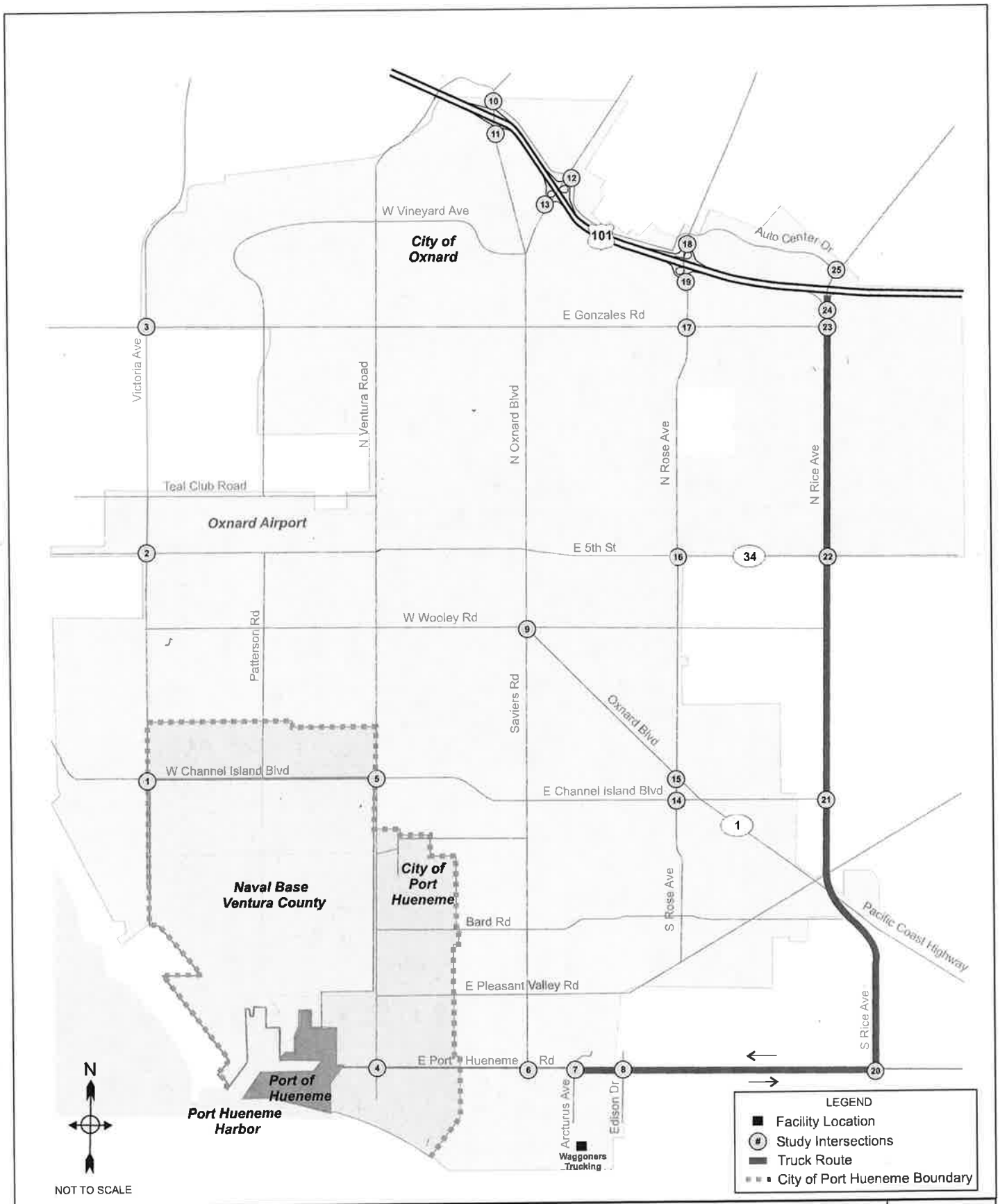


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Truck Routes - Terminal Freezers

Figure 4-18

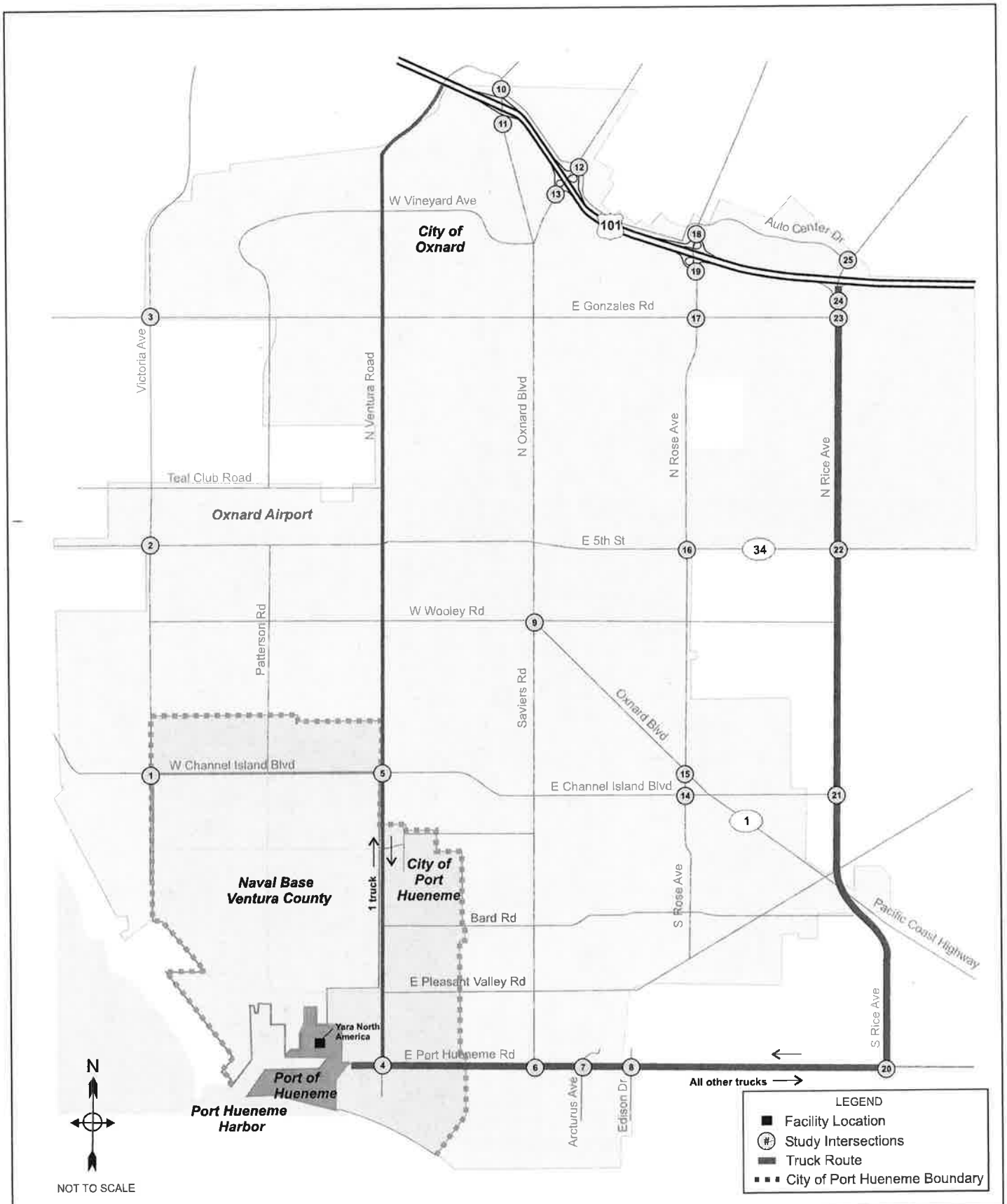


IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Truck Routes - Waggoners Trucking

Figure 4-19



IBI GROUP

Cities of Port Hueneme and Oxnard Truck Traffic Study

Truck Routes - Yara North America

Figure 4-20

5 IMPACTS OF TRUCK TRAFFIC THROUGH RESIDENTIAL NEIGHBORHOODS

An established network of truck routes is important to ensure the efficient flow of trucks through a city and to reduce potential impacts from truck trips on sensitive land uses. The study area includes an extensive network of truck routes that provide access to the US-101 freeway and land uses that are generators of truck trips. The survey data collected from the Port of Hueneme, NBVC, and selected private businesses in the study area suggests that the existing designated study area truck routes are well utilized by trucks traveling to and from the US-101 freeway.

Figure 5-1 is an excerpt from the City of Oxnard General Plan Land Use Map that shows the large percentage of the study area that is zoned for residential use. This truck traffic study includes a review and evaluation of the impacts of truck traffic on residential neighborhoods in Port Hueneme and Oxnard. As the two cities continue to grow and develop, new residential development is occurring or is planned in areas that have historically been used for agricultural or other uses. There are several examples in both the City of Port Hueneme and the City of Oxnard of new residential developments along identified major truck routes such as Hueneme Road and Victoria Avenue. These developments will expose more people to the existing traffic on the truck routes, and increase the magnitude of the impacts created when incompatible land uses are combined.

The Recommendations section of this report identifies selected measures that could be implemented to further strengthen truck drivers' awareness and use of existing truck routes, along with recommendations related to land use design for residential or other sensitive land uses that may be planned adjacent to designated arterial roadway truck routes.

5.1 CITY OF OXNARD RESIDENTIAL DEVELOPMENT PROJECTS ALONG TRUCK ROUTES

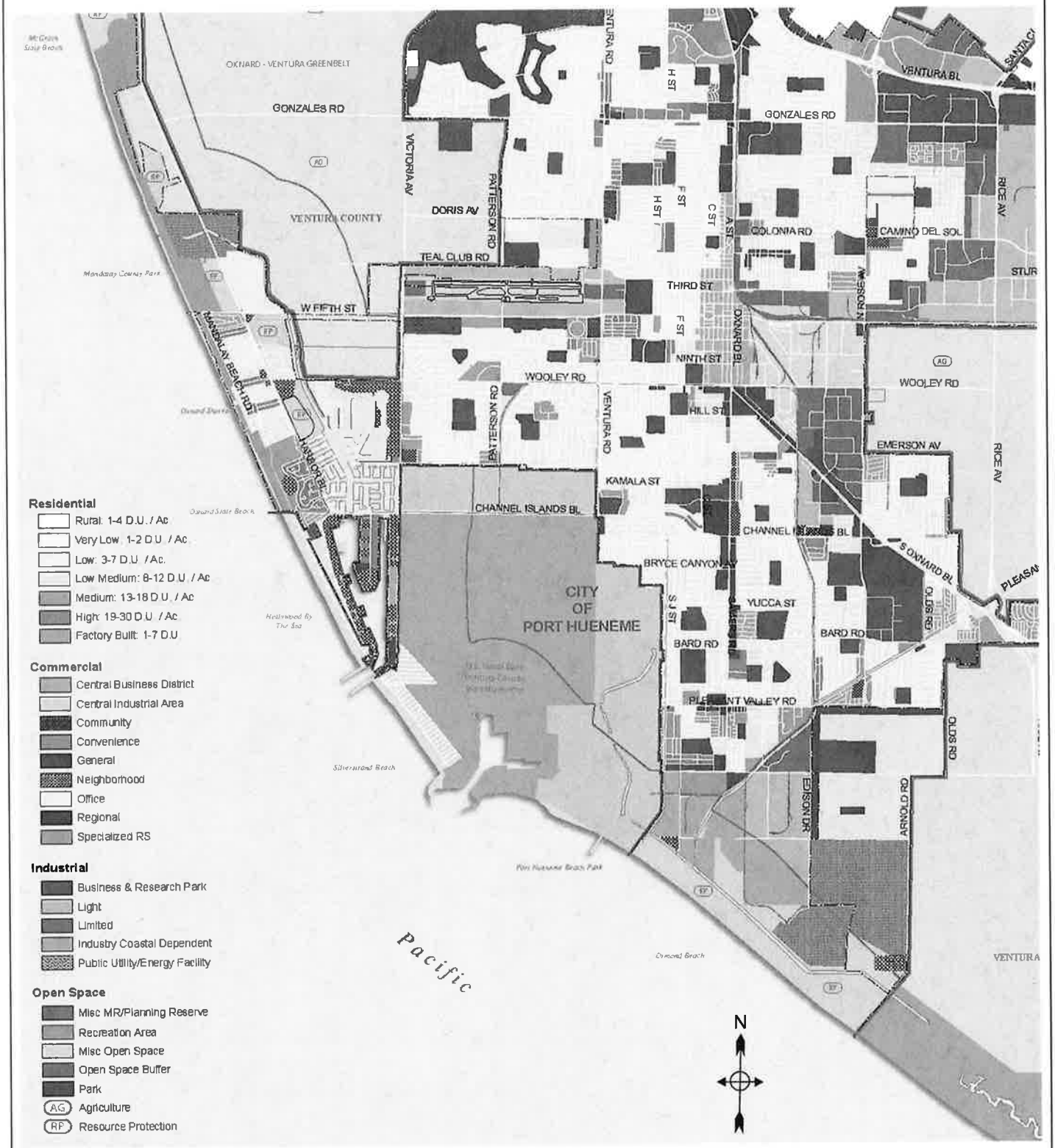
Residential development projects proposed or planned along roadways that serve as truck routes through the study area are noted in this section. Project information was obtained from the City of Oxnard Planning Division Development Project List dated January 2008.

Victoria Avenue

Victoria Avenue is a north-south designated truck route located along the western edge of the project study area. It travels through the City of Port Hueneme, the City of Oxnard, and unincorporated Ventura County. South of Channel Islands Boulevard, Victoria Avenue is bordered by the Naval Base Ventura County (NBVC) and Boat Landings Park. There are primarily residential uses adjacent to Victoria Avenue between Channel Islands Boulevard and 5th Street, and recreational and agricultural uses between 5th Street and the US-101 freeway.

There are three residential projects on Victoria Avenue within the City of Oxnard that are currently in the planning phases or under construction.

- The Seabridge project is being built on the southwest corner of Victoria Avenue and Wooley Road. It consists of 276 single family dwelling units, 432 multi-family dwelling units, 240 public docks, and a 16-acre park.
- The Orbela project includes 105 condominium units on the southeast corner of Victoria Avenue and 5th Street, and is currently under construction.
- Tucker Investments plans to build 112 condominium units on the northeast corner of Victoria Avenue and Hemlock Street.



IBI GROUP	Cities of Port Hueneme and Oxnard Truck Traffic Study	Figure 5-1
	City of Oxnard General Plan Land Use Map	

Hueneme Road

Hueneme Road is an east-west truck route that is located along the southern edge of the project study area. It is bordered by primarily residential uses and undeveloped land between Ventura Road and Cypress Road, and industrial and agricultural uses between Cypress Road and Rice Avenue.

There are three residential projects and one Specific Plan project on Hueneme Road that are currently in the planning phases or under construction.

- Paragon Communities is constructing 159 residential condominiums north of Hueneme Road between Saviers Road and Cypress Road.
- The Westwinds II project is located at 5482 Cypress Road and includes 48 condominium units. This approved project involves a General Plan Amendment.
- The proposed Paseo Nuevo project is located north of Hueneme Road and east of Cypress Road, and includes 60 residential condominiums in multi-family buildings.
- The Hearthside Homes Ormond Beach project site is located on approximately 300 acres north of Hueneme Road between Edison Drive and Olds Road. The Ormond Beach project includes the construction of up to 1,293 residential units of varying density, 50,000 square feet of retail, a commercial self storage facility, an elementary school, a high school, and 39,000 square feet of parks and community open space.

Pleasant Valley Road

Pleasant Valley Road is an east-west truck route that travels through the southern portion of the study area between the Naval Base Ventura County and the Highway 1/Rice Avenue interchange. Adjacent land uses are mainly low and medium density residential, with some general commercial and light industrial uses. There are two residential projects in the planning stages along Pleasant Valley Road.

- The Villa San Lorenzo project includes 16 condominium units on the southwest corner of Saviers Road and Pleasant Valley Road. This approved project is currently in the plan check stage.
- Tucker Investments has proposed to build 98 condominium units and 12 live/work units on the southwest corner of Rose Avenue and Pleasant Valley Road.

Channel Islands Boulevard

Channel Islands Boulevard is an east-west truck route that travels through the center of the project study area. Within the City of Port Hueneme, Channel Islands Boulevard is bordered by commercial and open space land uses. Between Ventura Road and Rice Avenue in the City of Oxnard, Channel Islands Boulevard is bordered by residential and commercial uses. The Cervantes Condo complex project is located south of Channel Islands Boulevard on Cheyenne Way, and includes three residential units.

Wooley Road

Wooley Road is an east-west truck route that travels through the center of the project study area. It is bordered by residential land uses between Victoria Avenue and "E" Street, and central business commercial and industrial uses between "E" Street and Rose Avenue. Shea Homes is constructing the Cottages project on a 5 acre site near the southeast corner of Wooley Road and Patterson Road. The Cottages project includes 52 detached condominiums.

5th Street

Fifth Street is an east-west truck route that travels through the center of the project study area. Oxnard Airport is located on the north side of 5th Street between Victoria Avenue and Ventura Road. Fifth Street is bordered by residential land uses between "H" Street and "D" Street, and central business commercial and industrial uses between "D" Street and Rice Avenue. The proposed Arbor View (Mira Loma) project includes 103 apartments and 188 townhouses with 51 affordable units on the south side of 5th Street just west of Ventura Road.

Gonzales Road

Gonzales Road is an east-west truck route in the northern portion of the study area. It is bordered by residential and commercial land uses. Shea Properties has proposed the East Village Apartments project on the southeast corner of Williams Drive and Gonzales Road, which would include 272 apartment units.

Rose Avenue

The portion of Rose Avenue north of Wooley Road within the project study area is designated as a truck route. Adjacent land use types include residential, industrial, and commercial. The Courts is a proposed project on the west side of Rose Avenue on Carmelita Court, and consists of 340 apartments, 101 single family dwellings, and 60 condominiums. A total of 362 units would be affordable, including 10 single family dwellings, 340 apartments, and 12 condominiums.

Oxnard Boulevard/Highway 1

Oxnard Boulevard/Highway 1 is a north-south truck route that travels through the center of the project study area. Adjacent land uses are primarily commercial and industrial, with some residential developments on the north side of the street between Rose Avenue and Rice Avenue. There are six residential projects on Oxnard Boulevard/Highway 1 that are currently in the planning phases or under construction.

- Gateway Walk has been approved for construction at 1250 S Oxnard Blvd. The project consists of 190 residential units, including 104 town homes, 28 three-story townhouses, 49 single family homes, and 9 commercial condos with 14 affordable units to be built onsite.
- One single family dwelling unit is under construction at 525 E. First St.
- The proposed Press Courier Lofts project is located at 3000 W Ninth St. and involves the conversion of an existing 52,000 square foot industrial building into 52 condominiums, including 4 affordable units.
- Two single family homes are proposed for 128 N Hayes Ave. on a vacant lot. The homes would be 1,616 and 1,522 square feet.
- Habitat for Humanity has proposed an affordable duplex project at 315 Cooper Rd., including one studio unit and one 1-3 bedroom unit.
- The Colonial House mixed use project is proposed at 747 and 711 N Oxnard Blvd. The project includes 40 residential units (6 affordable) with 16,000 square feet of commercial.

Ventura Road

Ventura Road is a north-south truck route that travels through the center of the project study area. The Oxnard Airport is located on the west side of Ventura Road between 5th Street and Teal Club Road.

Other land uses along Ventura Road are primarily residential with some community commercial and agricultural uses. Four new single family residences are proposed by Lauterbach and Associates as the Oneida Courts project on the west side of Ventura Road near Oneida Place.

5.2 TECHNOLOGICAL AND DESIGN PRACTICES TO REDUCE THE IMPACTS OF TRUCK TRAFFIC THROUGH RESIDENTIAL AREAS

If a project with a residential component is proposed near an existing truck route, there are design features that may be implemented to reduce noise and vibration impacts. Roads paved with rubberized asphalt have been shown to reduce road noise by as much as 12 decibels. Acoustical site design uses the placement of buildings, open space, nonresidential land uses, and barrier buildings to shield noise sensitive areas such as residential buildings from busy roadways. The strategic placement of rooms can also reduce noise impacts within a residential building. Other architectural design features that may be implemented to reduce noise impacts include:

- Permanent window seals
- Window mountings made of rubber, cork, or felt
- Reduced window sizes
- Increased window glass thickness
- Double-paned windows
- Window coatings
- Central air conditioning systems
- Sound-dampening insulation

6 RECOMMENDATIONS

The Cities of Port Hueneme and Oxnard truck traffic study provides an overview of existing traffic conditions and truck volumes at selected locations within the designated project study area. The study effort also included a survey process to obtain information regarding the generation and distribution of truck trips from the Port of Hueneme and NBVC, as well as a sampling of private businesses that operate in the study.

This section of the report identifies a series of recommendations for the Study TAC to consider to address existing traffic deficiencies present in the study area, improve the identification and use of existing truck routes, and strategies for future improvements or studies that would be intended to maintain or enhance traffic operations for both trucks and general traffic in the study area.

The recommendations outlined in this section are presented in the following groupings:

- Intersection and Roadway Improvements
- Strategies to Address Residential Neighborhood Impacts
- Improving Awareness and Use of Designated Truck Routes
- Next Steps

Intersection and Roadway Improvements

An unacceptable LOS was observed in the existing condition for either AM or PM peak hours at six intersections. Potential measures to improve the LOS have been identified at each intersection. In the interest of encouraging trucks to utilize these designated truck routes, it is recommended that traffic improvements be focused on existing truck corridors to improve traffic and flow and reduce congestion.

- Intersection of Victoria Avenue and Channel Islands Boulevard operates at LOS D (v/c of 0.898) during the PM peak hour. Existing northbound geometry at the intersection is dual left turn lanes, one through and one shared through/ right turn lane. Widening the northbound approach to provide two left turn lanes, two thru lanes, and one shared thru right turn lane will improve the level of service to LOS C (v/c of 0.783).

- Intersection of Oxnard Boulevard/Saviers Road and Wooley Road operates at unsatisfactory conditions under both the AM and PM peak hours. The area surrounding the intersection is built-out and there is no room to construct additional lanes. Discouraging trucks from using this intersection will improve the LOS in the AM peak hour from LOS F to LOS E and decrease the volume to capacity ratio from 1.07 to 1.03 (both being LOS F) in the PM peak hour. Note that this does not restore operations to satisfactory conditions per City of Oxnard standards. Directional signage can be used along Hueneme Road south of this intersection at Saviers Road to direct trucks to more preferred routes such as Rice Avenue.

- Intersection of Rose Avenue and Gonzales Road operates at LOS D (v/c of 0.882) during the PM peak hour. The improvements necessary to bring this intersection back to an acceptable level of service (LOS C or better) would likely result in significant right of way impacts as a fourth southbound through lane and a third eastbound left turn lane would need to be considered. This intersection is located in close proximity to the Rice Avenue corridor, which will be significantly improved as part of the now-funded interchange reconfiguration at the US-101 freeway. Improvements to the Rice Avenue interchange may divert some traffic from Rose Avenue to Rice Avenue, potentially reducing the impacts to this intersection. The City of Oxnard should revaluate this intersection after the completion of the Rice Avenue improvements.

- Intersection of Rice Avenue and Gonzales Road operates at LOS D (v/c of 0.822) during AM peak hour. By installing overlap signal phasing for existing southbound right turn lane, level of service would improve to LOS B (v/c of 0.642).

- Intersection of Rice Avenue and US-101 Southbound Ramps operates at LOS E (v/c of 0.912) during AM peak hour and LOS D (v/c of 0.858) during PM peak hour. Existing northbound geometry at the intersection is one through and one shared through/ right turn lane. A specific improvement is not identified for this location, as this intersection will be improved as part of the proposed reconfiguration of the interchange. The proposed reconfiguration was recently approved for funding through the Proposition 1B Trade Corridors Improvement Fund.

Order of magnitude cost estimates are identified for each of the proposed improvements identified above. Costs are capital dollars only and do not include estimates for right-of-way costs. Table 6-1 summarizes the cost estimate information.

Table 6-1 Order of Magnitude Cost Estimates for Recommended Intersection Improvements

Intersection	Proposed Improvement	Order of Magnitude Cost Estimate (Year 2008$)
Victoria Avenue and Channel Islands Boulevard	Widening the northbound approach to provide two left turn lanes, two thru lanes, and one shared thru right turn lane.	$200,000 to $300,000
Oxnard Boulevard and Saviers Road/Wooley Road	No feasible capacity improvement possible. Implement directional signage to discourage trucks from traveling through intersection.	< $10,000 for new signage
Rose Avenue and Gonzales Road	Future study of the intersection is recommended after completion of Rice Avenue/US-101 interchange improvements.	N/A
Rice Avenue and Gonzales Road	By installing overlap signal phasing for existing southbound right turn lane, level of service would improve to LOS B (v/c of 0.642)	$10,000 for signal modifications
Rice Avenue and US-101 Southbound Ramps	Not applicable. To be improved as part of US-101 interchange project.	N/A

Strategies to Address Residential Neighborhood Impacts

Two primary strategies are recommended to address concerns and potential impacts associated with trucks traveling on major arterial roadways and truck routes located adjacent to residential neighborhoods. These strategies are:

- Encourage trucks traveling to and from major generators in the study area (Port of Hueneme, NBVC, private businesses) to utilize the established preferred truck routes on Hueneme Road/Rice Avenue and Victoria Avenue as much as possible to limit the potential impacts of high truck volumes on other streets through residential areas such as Ventura Road and Channel Islands Boulevard. Measures could include the installation of directional signage, restrictions placed on heavy trucks prohibiting them from traveling certain arterials such as Channel Islands Boulevard, and capacity or traffic signal improvements to Victoria Avenue, Hueneme Road, and Rice Avenue to make these corridors more attractive to travel.

- Consider truck volumes on adjacent arterial roadways when designing adjacent residential neighborhoods. If residential developments are proposed along the preferred truck routes, the design of the neighborhoods should consider the potential impacts caused by trucks traveling

on the adjacent truck route. Strategies to address this issue include larger setbacks for homes located along the truck route and/or the construction of walls between the truck routes and the residential neighborhood to reduce noise impacts.

These strategies are intended to serve as suggestions for the Cities of Port Hueneme and Oxnard to consider when approving new residential projects near existing truck routes. There are several well-established truck routes in the study area (Victoria Avenue, Hueneme Road, Rice Avenue), and these routes will continue to be utilized by truck traffic into the future. Ensuring that land uses developed adjacent to these corridors incorporate design features that are sensitive to the existing street and traffic context will be essential to minimize potential impacts associated with truck traffic.

Improving Knowledge and Use of Designated Truck Routes

The survey data collected from the Port of Hueneme, NBVC, and selected private businesses suggest that the existing designated truck routes in Port Hueneme and Oxnard are well utilized by a majority of trucks operating in the study area. However, the survey was not a comprehensive collection of all land uses that generate truck trips within the study area, and there may be instances of trucks traveling on routes that are not designated as truck routes. To address this condition, a series of recommendations have been identified to increase the awareness of truck routes for truck drivers traveling through Port Hueneme and Oxnard, and to implement specific measures to improve traffic flow along designated truck routes to encourage more use of the corridor by improving traffic flow and travel times. The recommended improvements are:

- Continue to emphasize the use of Port Hueneme Road/Hueneme Road and Rice Avenue as the primary truck access corridors to the Port of Hueneme. The existing designation of this route as the primary access corridor for the Port appears to be very successful in focusing truck traffic in this corridor. Additional steps should be taken by the Cities of Port Hueneme and Oxnard to work with local distribution, agriculture, and industrial uses to encourage these businesses to utilize these roadways to the extent feasible for their operations.

- Install directional signage along Port Hueneme Road/Hueneme Road and Rice Avenue directing trucks exiting the Port of Hueneme main gate to access the US-101 freeway via this route.

- Explore the feasibility of implementing traffic signal coordination along Port Hueneme Road/Hueneme Road between Ventura Road and Rice Avenue to improve traffic flow and truck travel times in the corridor.

- Continue to pursue grade separation at Rice Avenue at the Union Pacific rail corridor immediately north of Fifth Street. The City of Oxnard should continue to pursue this improvement. Train traffic operating in the rail corridor creates traffic congestion at the Rice Avenue/Fifth Street intersection, and eliminating this conflict would improve traffic safety and traffic operations for trucks traveling on Rice Avenue.

- Widen Hueneme Road to a full four lane divided arterial street for the full length between Ventura Road and Rice Avenue. Portions of this corridor are already improved to four lanes west of Saviers Road, and the City of Oxnard plans to widen the portion between Arcturus Avenue and Saviers Road to provide two lanes in each direction. Widening the full corridor would further improve traffic flow and enhance the connection to Rice Avenue not only for trucks traveling to and from the Port of Hueneme, but also for trucks origination from the private distribution, industrial, and agricultural uses located along Hueneme Road.

- Work with Caltrans District 7 to install signage along US-101 identifying Rice Avenue as a designated access truck route to the Port of Hueneme.

- Work with Caltrans District 7 to install signage along US-101 identifying Victoria Avenue as a designated access truck route to NBVC Port Hueneme.

Next Steps

As noted above, the analysis completed as part of this study provides a snapshot of existing traffic conditions and truck volumes in the study area. Specific recommendations are included to address existing traffic impacts that occur as a result of truck traffic in Port Hueneme and Oxnard. This study effort should be seen as a first step to a coordinated plan of action for addressing not only the existing condition for truck traffic, but potential future increases in truck and automobile traffic in the study area. Recommended next steps include the following:

- Identify potential funding sources and the responsible agencies for implementing the recommendations identified in this report.

- The recommended improvements identified in this report are tailored towards existing traffic impacts and deficiencies identified through the review of existing traffic data and truck trips. Analyze future traffic conditions, truck trip generation rates, and the operation of the future study area roadway network. The benefit of this approach would be to identify additional improvements that would supplement the recommendations identified in this report and address future increases in traffic volumes and truck volumes.

- Explore the feasibility of installing intelligent transportation system (ITS) improvements to track and direct truck trips between major traffic generators and the US-101 freeway. Funding sources for these types of improvement could include source tied to goods movement-related improvements (Proposition 1B Trade Corridor Improvement Fund), funding tied to Homeland Security improvements for the Port of Hueneme or NBVC, or local and regional sources (sales tax measures, regional funding grants, etc).

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

Attachment 8

VCAPCD Greenhouse Gas Emissions Estimates_PL14-0103

Renaissance Petroleum Project

Case No. PL14-0103
(Minor Modification of CUP 4384)

GHG emissions
Stationary sources
(333 MT CO2e/year)

Renaissance Petroleum PL14-0103 Greenhouse Gas Emissions Calculations

VCAPCD Emission Factor Conversion

VCAPCD ROC emission factor	2	lb ROC/well/day	
ROC emissions increase	0.365	short tons ROC/well-year	
conversion to metric tonnes	0.9072	MT/short ton	MT = metric tonnes = 1,000 kg = 2,200 lb
ROC emissions increase per well	0.3311	MT ROC/well-year	

Direct Project GHG Emissions

number of wells 4

Fugitive Methane Emissions

estimated ROC emissions	0.3311	MT ROC/well-year	
methane content of produced gas	67%	gas analysis 07/13/2005	
ROC content of produced gas	22%	gas analysis 07/13/2005	California average CH4 emissions per well (2005 data)
ratio of methane emission to ROC	3.04		
estimated methane emissions per project well	1.01	MT CH4/well-year	1.27 MT CH4/well year
estimated project methane emissions increase	**4.0**	MT CH4/year	**0.79** ratio of project (worst case) to average

Fugitive CO2 Emissions

estimated ROC emissions	0.3311	MT ROC/well-year
ROC content of produced gas	22%	gas analysis 07/13/2005
CO2 content of produced gas	0%	gas analysis 07/13/2005
ratio of CO2 emissions to ROC	0.00	
estimated CO2 emissions per well	0.00	MT CO2/well-year
estimated project CO2 emissions increase	**0.0**	MT CO2/year

Flare Emissions

Average heat input	0.46	MMBtu/hr	Max input	51.0	MMBtu/hr
CO2 emission factor for methane combustion	117.0	lb CO2/MMBtu		117.0	lb CO2/MMBtu
CO2 emission factor for non-methane (ROC+ethane) combustion	139.0	lb CO2/MMBtu		139.0	lb CO2/MMBtu
flare maximum CO2 emission rate (combustion)	56.9	lb CO2/hr		6,325.4	lb CO2/hr
Maximum produced gas fuel flow rate through flare	377	cubic feet/hour		41,906	cubic feet/hour
Produced CO2 flow rate through flare	0.0	cubic feet CO2/hr		0.0	cubic feet CO2/hr
conversion factor (at STP)	0.1235	lb CO2/cubic foot CO2		0.1235	lb CO2/cubic foot CO2
total flare CO2 emission rate	56.9	lb CO2/hr		6,325.4	lb CO2/hr
estimated flare CO2 emissions increase	**226.4**	MT CO2/year		**25,186.4**	MT CO2/year

THC emission factor (uncombusted flare fuel)	0.14	lb total hydrocarbons/MMBtu (AP-42 Table 13.5-1)
methane fraction of total hydrocarbons (THC)	0.944	lb methane/lb THC emissions
flare combustion methane emission factor	0.13	lb CH4/MMBtu
flare combustion methane emission rate	0.061	lb CH4/hr
estimated flare methane emissions increase	**0.24**	MT CH4/year

ROC fraction of THC	0.056	lb ROC/lb THC
flare combustion ROC emission factor	0.0078	lb ROC/MMBtu
ROC emission rate	0.0036	lb ROC/hr
estimated flare combustion ROC emission increase	0.086	lb ROC/day

Global Warming Potential of Methane	Total Project Direct CO2e (CO2 + CH4) Emissions Increase (MT/year)
25	**333**
28	346
34	372
36	380
72	534
86	593
100	653

Flare Potential and Estimated NOx Emissions

Flare rated heat input	51	MMBtu/hr (permit/inspection file)	
NOx emission factor	0.068	lb NOx/MMBtu (AP-42 Table 13.5-1)	
Maximum flare hourly emission rate	3.468	lb NOx/hr	
Maximum flare daily emission rate	83.232	lb NOx/day	
Heating value of produced gas	1217	MMBtu/MMdscf	
2014 gas throughput	3.3	MMcf	
2014 heat input	4016.1	MMBtu	
Average daily heat input	11.0	MMBtu/day	0.46 MMBtu/hr
Average daily NOx emission rate	**0.75**	**lb NOx/day**	

Maximum hourly NOx for exempt flare (less than 1 MMBtu/hr heat input)	0.068	lb NOx/hr
	1.632	lb NOx/day

Produced gas mole percent to mass percent conversion

Mole % data from Capco Analytical Services gas analysis dated 07/13/05

Constituent	Moleculate Weight	Mole %	Molar Mass	mass %
Oxygen	31.9988	0.00	0	0.00%
Nitrogen	28.0134	1.10	0.308	1.52%
Carbon Dioxide	44.01	0.00	0	0.00%
Methane	16.043	84.56	13.57	**67.03%**
Ethane	30.07	6.33	1.903	9.40%
Propane	44.097	3.96	1.746	8.63%
Iso-Butane	58.124	0.78	0.453	2.24%
n-Butane	58.124	1.49	0.866	4.28%
Neo-Pentane	72.151	0	0	0.00%
Iso-Pentane	72.151	0.50	0.361	1.78%
n-Pentane	72.151	0.52	0.375	1.85%
Hexane plus *	86.178	0.767	0.661	3.27%
		Total molar mass	20.2	1.00
			ROC † %	**22.05%**

* Used molecular weight of hexane since expect it to be main component

† For this calculation, ROC is non-methane, non-ethane hydrocarbons

Pounds of CO_2 emitted per million British thermal units (Btu) of energy for various fuels:

Coal (anthracite)	228.6
Coal (bituminous)	205.7
Coal (lignite)	215.4
Coal (subbituminous)	214.3
Diesel fuel and heating oil	161.3
Gasoline	157.2
Propane	139
Natural gas	117

Source: http://www.eia.gov/tools/faqs/faq.cfm?id=73&t=11

GHG estimated emissions
Oil tanker trucks
(357 MTCO2e/year)

PL14-0103 Renaissance Petroleum
Ventura County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Commercial	4.00	User Defined Unit	0.00	0.00	0
User Defined Commercial	0.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	31
Climate Zone	8			**Operational Year**	2017
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -
Land Use - Per applicant
Vehicle Trips - Per applicant
Vehicle Emission Factors - Per applicant
Vehicle Emission Factors - Per applicant

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	OperationalYear	2018	2017
tblVehicleEF	HHD	1.03	1.00
tblVehicleEF	LHD1	6.2090e-003	0.00
tblVehicleEF	LHD2	4.9020e-003	0.00
tblVehicleEF	MHD	0.02	0.00
tblVehicleEF	OBUS	0.01	0.00
tblVehicleEF	SBUS	0.91	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	75.00
tblVehicleTrips	CNW_TTP	0.00	100.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	HW_TL	0.00	4.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	4.00
tblVehicleTrips	SU_TR	0.00	4.00
tblVehicleTrips	WD_TR	0.00	4.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0538	0.3714	1.2379	3.9000e-003	0.1892	5.2200e-003	0.1945	0.0538	4.9300e-003	0.0587	0.0000	356.6994	356.6994	0.0147	0.0000	357.0679
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0538**	**0.3714**	**1.2379**	**3.9000e-003**	**0.1892**	**5.2200e-003**	**0.1945**	**0.0538**	**4.9300e-003**	**0.0587**	**0.0000**	**356.6994**	**356.6994**	**0.0147**	**0.0000**	**357.0679**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0536	0.3714	1.2379	3.9000e-003	0.1892	5.2200e-003	0.1945	0.0538	4.9300e-003	0.0587	0.0000	356.6994	356.6994	0.0147	0.0000	357.0679
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0536**	**0.3714**	**1.2379**	**3.9000e-003**	**0.1892**	**5.2200e-003**	**0.1945**	**0.0538**	**4.9300e-003**	**0.0587**	**0.0000**	**356.6994**	**356.6994**	**0.0147**	**0.0000**	**357.0679**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/6/2017	2/5/2017	5	0	
2	Site Preparation	Site Preparation	2/6/2017	2/5/2017	5	0	
3	Grading	Grading	2/6/2017	2/5/2017	5	0	
4	Building Construction	Building Construction	2/6/2017	2/5/2017	5	0	
5	Paving	Paving	2/6/2017	2/5/2017	5	0	
6	Architectural Coating	Architectural Coating	2/6/2017	2/5/2017	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2017

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

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

3.2 Demolition - 2017

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

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

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

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

3.3 Site Preparation - 2017

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

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

3.4 Grading - 2017

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

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

3.4 Grading - 2017

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

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

3.5 Building Construction - 2017

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

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

3.5 Building Construction - 2017

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

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

3.6 Paving - 2017

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

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

3.6 Paving - 2017

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

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

3.7 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

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

3.7 Architectural Coating - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0538	0.3714	1.2379	3.9000e-003	0.1892	5.2200e-003	0.1945	0.0538	4.9300e-003	0.0587	0.0000	356.6994	356.6994	0.0147	0.0000	357.0679
Unmitigated	0.0538	0.3714	1.2379	3.9000e-003	0.1892	5.2200e-003	0.1945	0.0538	4.9300e-003	0.0587	0.0000	356.6994	356.6994	0.0147	0.0000	357.0679

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Commercial	16.00	16.00	16.00	436,800	436,800
User Defined Commercial	0.00	0.00	0.00		
Total	16.00	16.00	16.00	436,800	436,800

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Commercial	0.00	0.00	75.00	0.00	0.00	100.00	100	0	0
User Defined Commercial	0.00	0.00	75.00	0.00	0.00	100.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Commercial	0.552019	0.046052	0.193997	0.131334	0.026004	0.007247	0.018140	0.016504	0.001080	0.000912	0.004204	0.000361	0.002146
User Defined Commercial	0.552019	0.046052	0.193997	0.131334	0.026004	0.007247	0.018140	0.016504	0.001080	0.000912	0.004204	0.000361	0.002146

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Commercial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005
Unmitigated	0.0000	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005
Total	**0.0000**	**0.0000**	**4.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**0.0000**	**8.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.0000e-005	7.0000e-005	0.0000	0.0000	8.0000e-005
Total	**0.0000**	**0.0000**	**4.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.0000e-005**	**7.0000e-005**	**0.0000**	**0.0000**	**8.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

Attachment 9

NOx Flaring Emissions Estimates Spreadsheet for 2006-2016

Renaissance Petroleum Project

Case No. PL14-0103
(Minor Modification of CUP 4384)

Renaissance Petroleum

NOx Emissions from flaring

2006-2016

Year	Gas Production (MCF)	Gas volume flared (MCF)	Gas volume sold (MCF)	Energy factor (MMBTU/MCF)	Energy generated by flaring (MMBTU)	NOx emission factor (Pounds per MMBTU)	NOx emissions due to flaring (Pounds)
2016	47991.4	7256.6	40734.8	1.128	8185.4	0.068	556.6
2015	62601.7	1516.3	61085.4	1.128	1710.4	0.068	116.3
2014	85980.7	3373.3	82607.4	1.128	3805.1	0.068	258.7
2013	158385.0	8770.0	149615.0	1.128	9892.6	0.068	672.7
2012	229516.5	14648.5	214868.0	1.128	16523.5	0.068	1123.6
2011	301283.0	31974.0	269309.0	1.128	36066.7	0.068	2452.5
2010	173183.3	31034.7	142148.6	1.128	35007.1	0.068	2380.5
2009	135427.8	10959.2	124468.6	1.128	12362.0	0.068	840.6
2008	81837.8	3446.2	78391.6	1.128	3887.3	0.068	264.3
2007	62769.8	9338.2	53431.6	1.128	10533.5	0.068	716.3
2006	51074.2	3308.8	47765.4	1.128	3732.3	0.068	253.8
Total =	1390051.2	125625.8	1264425.4				9636.00

2006-2016 Average pounds per day NOx emissions = 2.40 (involves production from 9 wells at Rosenmund and Naumann)

% of gas sold = 91.0

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

Attachment 10

NOx Off-site Mobile Sources Emissions Spreadsheet

Renaissance Petroleum Project

Case No. PL14-0103
(Minor Modification of CUP 4384)

Renaissance Petroleum

NOx Emissions from off-site mobile sources

NOx emission rates from CalEEMod v2016.3.2*

Commuter Vehicle:	0.00045	lb NOx/vehicle-mile
Heavy Heavy Duty Truck:	0.1125	lb NOx/vehicle-mile

Commuter Emissions

Daily staff	2	
Daily trips	4	
Trip length	10	miles
Commuter Em	0.018	lb NOx/day

Produced Water Haul Truck Emissions

Traffic Source	Avg. Daily One-Way Truck Trips	Current Trip Length (miles)	NOx Emissions (lb NOx/day)	Maximum Potential Trip Length (miles)†	Maximum NOx Emissions (lb NOx/day)
Existing Production	3.3	3.8	1.4	30	11.1
Proposed Project Increase (4 wells)	1.5	3.8	0.6	30	5.1
Permitted Rosenmund Increase (7 wells)	2.5	3.8	1.1	30	8.4
Cumulative Increase (11 wells)	4.0	3.8	1.7	30	13.5

Crude Oil Haul Truck Emissions

Traffic Source	Avg. Daily One-Way Truck Trips	Trip Length† (miles)	NOx Emissions (lb NOx/day)
Existing Production	1.6	30	5.4
Proposed Project Increase (4 wells)	0.73	30	2.5
Permitted Rosenmund Increase (7 wells)	1.3	30	4.4
Cumulative Increase (11 wells)	2.0	30	6.8

TOTAL‡

Oil + Water NOx Emissions (lb NOx/day)
6.8
3.1
5.5
8.5

* CalEEMod assumptions:
Ventura County APCD
Summer
Operational Year 2017

† Distance from project site to US 101 as it enters the San Fernando Valley, leaving the SCC air basin

‡ Current water haul truck emissions (to local injection well) plus crude oil haul truck emissions

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

Attachment 11

VCAPCD Memorandum
(Estimate of Drilling Emissions)

Renaissance Petroleum Project
Case No. PL14-0103
(Minor Modification of CUP 4384)

VENTURA COUNTY
AIR POLLUTION CONTROL DISTRICT
Memorandum

TO: Brian Baca
Planning/RMA

DATE: September 6, 2017

FROM: Chuck Thomas, Manager CT
Planning/Rules/Incentives

SUBJECT: Renaissance Petroleum Project (PL14-0103)

As you requested, we've estimated daily air emissions from drilling one generic oil well and 15 daily employee commute trips associated with the proposed Renaissance Petroleum Project near Oxnard.

Oil Well Drilling: 90 lbs/day (NOx + ROG)
Assumptions: Tier 3 diesel engine: 3.0 grams/BHP-hr
1,000 gallons diesel fuel/day

15 Daily Employee Commute Trips: 0.06 lbs/day NOx; 0.06 lbs/day ROG
Assumptions: 15 employees, 30 one-way trips/day; 10 miles/one-way trip

If you have any questions, please contact me at chuck@vcapcd.org or 805/645-1427.

c: Mike Villegas, VCAPCD
Kerby Zozula, VCAPCD

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

Attachment 12

APCD Memoranda on Health Risk

1. **October 3, 2018 Health Risk Assessment**
2. **October 4, 2018 Summary of Health Risk Representation and Health Risk Assessment**

Renaissance Petroleum Project

Case No. PL14-0103
(Minor Modification of CUP 4384)

VENTURA COUNTY
AIR POLLUTION CONTROL DISTRICT
Memorandum

TO: Mike Villegas DATE: October 3, 2018

FROM: Ali Ghasemi,
Division Manager
Planning, Rules, & Incentive Programs

SUBJECT: Health Risk Assessment for Naumann Drill Site
(VCAPCD Permit No. 01383)

The Naumann Drill Site is operated by Renaissance Petroleum, LLC (RenPet). The facility is located at 3214 Etting Road, about one-third of a mile southeast of the City of Oxnard, near the intersection of Pleasant Valley Road and Highway 1, in the unincorporated area of Ventura County. The facility is in an agricultural area with the nearest sites being a greenhouse building, a residence, and the Oxnard Pacific Mobile Estates, about 138, 210, and 570 meters northwest of the facility, respectively.

The facility currently has one active oil well, two 500 barrel-capacity oil storage tanks, one 500 barrel-capacity Produced Water Tank (PWT), one oil loading operation, one Liquid Petroleum Gas (LPG) loading operation, one emergency flare, and one 0.25 MMBTU/HR glycol reboiler. The facility is proposing to install four additional oil wells and replace the two 500 barrel-capacity oil storage tanks with two 1000 barrel-capacity oil storage tanks.

According to the Ventura County Air Quality Assessment Guidelines (AQAG), in order to assess whether a project may have a significant adverse impact on air quality in Ventura County, staff has to make the air quality impact assessments for both criteria and toxics air contaminants. The operation from this facility will emit a number of toxic compounds that are carcinogenic and that have chronic and acute noncancer adverse health effects. The impact from toxics air contaminants (TACs) may be estimated by performing a health risk assessment (HRA). Per AQAG, the significant thresholds for TACs are specified below:

Toxics:
- Cancer Risk > 10 in a million
- Non-Cancer Risk (Chronic & Acute) Hazardous Index (HI) > 1

Staff has performed a HRA using AERMOD and Hotspots Analysis and Reporting Program version 2 (HARP2). HARP2 will calculate all four OEHHA Tiers and both the Derived Risk Calculations (as designated by OEHHA) and CARB's Risk Management Policy Inhalation Rates for Residential Cancer Risk Calculations. The residential cancer risk assumed a 30-year exposure and it included the following pathways: inhalation, home grown produce, dermal absorption, soil ingestion, and mother's milk. A deposition velocity of 0.02 m/s was assumed for non-inhalation pathways. The HRA also assumed

default values in HARP2 for all pathways. The "RMP Using the Derived Method" risk calculation option was used for estimating cancer risk at residential receptors. To estimate chronic non-cancer risks at residential/worker receptors the "OEHHA Derived Method" risk calculation option was used. The worker cancer risk assumed a 25-year exposure and it included the inhalation, dermal absorption and soil ingestion pathways, 0.02 m/s deposition velocity, and default values in HARP2.

Staff has also estimated the facility's emissions based on maximum rated capacity of the equipment and/or maximum allowable permit limits.

Based on the above information and HRA results, the Maximum Exposed Individual Residential (MEIR) cancer risk was calculated to be 0.903 in a million at a residential receptor 210 meters northwest of the property. The Maximum Exposed Individual Worker (MEIW) cancer risk was calculated to be 0.125 in a million at a worker receptor (Greenhouse Building), 138 meters northwest of the property. The maximum chronic noncancer hazard index was 0.125, and the maximum acute non-cancer hazard index was 0.577 which both occurred at receptor (#56). Receptor #56 is located 8 meters from the eastern boundary of CUP 4384 (see attached map).

Equipment, Emissions, and Assumptions

VCAPCD Permit to Operate No. 01383 currently limits this facility to a maximum of one (1) oil well and an annual oil production limit of 365,000 barrels of oil per year (1,000 barrels of oil per day). As detailed below, the "future proposed" scenario assumes a total of five (5) oil wells with a crude oil production limit remaining at 365,000 barrels per year. Also, it should be noted that the facility's actual crude oil throughput in 2017 was approximately 23,000 barrels of oil per year, which represents about 6 percent of its maximum production rate.

For this project, the facility's criteria emissions were calculated using the facility's permit limits and/or maximum equipment capacity. The current Permit to Operate includes one (1) oil well, two 500 barrel-capacity storage tanks, and a crude oil production limit of 365,000 barrels per year. However, the emissions calculations were based on five (5) oil wells and two 1000 barrel-capacity storage tanks. The emergency flare combustion emissions were calculated based on the permit limit of 50.2 MMCF per year of annual gas burned. This represents approximately 13 percent of the emergency flare's rated annual capacity of 51.1 MMBTU's per hour, at 8,760 hours per year, using a natural gas heating value of 1128 BTU per cubic feet. The glycol reboiler combustion emissions were calculated based on full-time operation of 24 hours per day and 365 days per year (8,760 hours per year) at the glycol reboiler' s permitted capacity of 0.25 MMBTU's per hour. It has also accounted for the fugitive emissions from the glycol dehydrator portion of the glycol reboiler.

The air toxics emissions were calculated using the "proposed" emissions of VCAPCD Permit to Operate No. 01383, based on the information received from the County of Ventura Planning Division. The "proposed" Permit to Operate includes five (5) oil wells and larger 1,000 barrel-capacity storage tanks. As discussed below, no changes are

proposed to the crude oil production limit of 365,000 barrels of oil per year and the limit of 50.2 MMCF annual gas burned in emergency flare. For this project, staff has also accounted for the fugitive emissions from the glycol dehydrator portion of the glycol reboiler.

The air toxics emission factors for the fugitive emissions, the glycol reboiler, and emergency flare were based on the San Joaquin Valley Air Pollution Control District (SJVAPCD) AB-2588 Hot Spots Air Toxics Profiles (attached).

For the fugitive emissions, SJVAPCD Toxic Profile ID 204 was used for benzene, toluene, and xylenes. Based on the natural gas testing at the Naumann Drill Site, hydrogen sulfide emissions were not detected and were not included in this calculation.

To calculate the emissions from the combustion of natural gas in the glycol reboiler and emergency flare, SJVAPCD Toxic Profile ID 9 was used for acetaldehyde, acrolein, benzene, ethyl benzene, formaldehyde, hexane, naphthalene, PAH's, propylene, toluene, and xylenes. The summary of devices and their emissions are listed in Table-1 below:

Table-1: Summary of Devices and Emissions

DEV ID	PROC DESC	POLLUTANT	Annual Emissions (lbs/yr)	Maximum Hourly Emissions (lbs/hr)
1	OIL WELLS (5 wells)	Benzene	12.78	0.0015
		Toluene	12.41	0.0014
		Xylene	25.55	0.0029
2	2-1000 BBL STORAGE TANKS	Benzene	3.64	0.0004
		Toluene	3.54	0.0004
		Xylene	7.29	0.0008
3	1-500 BBL PWT	Benzene	0.13	0.0000
		Toluene	0.13	0.0000
		Xylene	0.26	0.0000
4	OIL LOADING FACILITY	Benzene	14.70	0.0017
		Toluene	14.28	0.0016
		Xylene	29.40	0.0034
6	51.1 MMBTU/HR FLARE	Acetaldehyde	2.16	0.0019
		Acrolein	0.50	0.0005
		Benzene	7.98	0.0072
		Ethyl benzene	72.28	0.0652
		Formaldehyde	58.73	0.0530
		Hexane	1.46	0.0013
		Naphthalene	0.55	0.0005
		PAHs, Total	0.15	0.0001
		Propylene	122.48	0.1105

		Toluene	2.91	0.0026
		Xylene	1.46	0.0013
7	LPG TRUCK LOADING	Benzene	1.32	0.0002
		Toluene	1.29	0.0001
		Xylene	2.65	0.0003
8	GLYCOL DEHYDRATOR	Benzene	0.57	0.0001
		Toluene	0.55	0.0001
		Xylene	1.14	0.0001
8	.25 MMBTU/HR GLYCOL REBOILER	Acetaldehyde	0.09	0.0000
		Acrolein	0.02	0.0000
		Benzene	0.33	0.0000
		Ethyl benzene	3.00	0.0003
		Formaldehyde	2.44	0.0003
		Hexane	0.06	0.0000
		Naphthalene	0.02	0.0000
		PAHs, Total	0.01	0.0000
		Propylene	5.09	0.0006
		Toluene	0.12	0.0000
		Xylene	0.06	0.0000

Stack Parameters

The fugitive emissions, the tanks, and the loading racks are modeled as volume sources. The fuel burning equipment was modeled as point sources. The following stack parameters were used for each emission source.

Wells- Volume (5)

Release height	0 feet
Initial lateral dimension	3.49 feet
Initial vertical dimension	6.98 feet

Tanks-Volume (3)

Release height	16 feet
Initial lateral dimension	14.65 feet
Initial vertical dimension	29.3 feet

Loading Rack-Volume Source

Release height	3.5 feet
Initial lateral dimension	0.97 feet
Initial vertical dimension	1.64 feet

Emergency Flare-Point Source

Release height	25 feet
Stack diameter	0.25 feet
Stack gas velocity	3213 feet/min

Temperature	1500° F

Glycol Dehydrator-Reboiler-Volume

Release height	11 feet
Initial lateral dimension	7.44 feet
Initial vertical dimension	5.14 feet/min

Setting

The facility is located in an agricultural area. There are no nearby schools, hospitals, or other sensitive receptors. There is one residential property, a greenhouse building, and the Oxnard Pacific Mobile Estates located near the facility boundaries.

Receptor Locations

The cancer and non-cancer risks were calculated at gridded receptors located every 100 meters around the facility to a distance of 1000 meters, and at the receptors on the nearest residence, greenhouse building, and the Oxnard Pacific Mobile Estates.

Meteorological Data

The Oxnard Airport meteorological data was used in the health risk assessment.

Risk Results

The California Air Resources Board HARP2-Emission Inventory, Air Dispersion, and risk modules were used for emission inventory, dispersion modeling, and risk assessment. The HARP2 model implements the OEHHA Air Toxics Hot Spots Risk Assessment Guidelines and CARB's Risk Management Policy Inhalation Rates for Residential Cancer Risk Calculations.

The summary of the results is listed below:

Receptor Location	Lifetime Excess Cancer Risk	Chronic Noncancer Hazard Index	Acute Noncancer Hazard Index
Maximum Workplace (138 m)	0.125 in a million	0.005	0.123
Maximum Nearest Residence (210 m)	0.903 in a million	0.002	0.069
Oxnard Pacific Mobile Estates (570 m)	0.222 in a million	0.0003	0.034

The calculated risk impact due to the proposed project does not exceed the Ventura County Air Quality Assessment Guideline (AQAG) significance thresholds for cancer or non-cancer risk. Therefore, based on the above results, the toxics emissions resulted from this project would not result in a significant adverse impact.

VENTURA COUNTY
AIR POLLUTION CONTROL DISTRICT
Memorandum

TO: Kim L. Prillhart
Director, Ventura County Planning Division

DATE: October 4, 2018

FROM: Michael Villegas MV
Air Pollution Control Officer

SUBJECT: Summary of Health Risk Representation and Health Risk Assessment for Renaissance Petroleum, LLC – Naumann Drill Site, Ventura County APCD Permit to Operate No. 01383

Ventura County APCD staff conducted a health risk representation using the facility prioritization procedures for the air toxic emissions associated with Permit to Operate No. 01383 issued to the Renaissance Petroleum, LLC - Naumann Drill Site oilfield facility. This facility prioritization was conducted using the updated California Air Toxic Hot Spots Program Facility Prioritization Guidelines (CAPCOA Prioritization Guidelines, August 2016) developed by the California Air Pollution Control Officers Association (CAPCOA). This procedure is consistent with the revised Ventura County APCD Air Toxics "Hot Spots" Prioritization Procedures, which were approved by the Air Pollution Control Board on November 8, 2016.

Pursuant to the Ventura County APCD Prioritization Procedures and CAPCOA Prioritization Guidelines, operators of facilities with a "low" prioritization score (less than one) or an intermediate prioritization score (more than 1 and less than 10), are not subject to the requirement to perform a health risk assessment. Operators of facilities with a prioritization score of 10 or more are required to prepare a detailed health risk assessment. This is because prioritization results are only a conservative risk representation and a detailed health risk assessment would provide a more accurate representation with likely lower risk results.

The following "future" priority scores were calculated for the facility as proposed (four new oil wells and larger storage tanks) for cancer risk, non-carcinogenic short-term (acute) health risk, and non-carcinogenic long-term (chronic) health risk (Reference: Memo of September 28, 2018, from Michael Villegas to Kim Prillhart):

"Future/Proposed" Priority Score	Cancer Risk	Chronic Risk	Acute Risk
Fugitive Emissions	1.84	0.0489	0.0525
Flare & Glycol Reboiler Emissions	1.92	0.0481	0.5745
Total:	3.76	0.0970	0.6270

The results above indicate that all priority scores are less than ten; therefore, this facility is not considered to be a high priority facility and is not required to perform a detailed health risk assessment. According to the Ventura County APCD Air Toxics "Hot Spots" Prioritization Procedure, a prioritization score of 10 or greater is considered to be a high score that requires a detailed health risk assessment. Prioritization scores below ten indicate that the facility is not considered likely to have the potential to pose a significant health risk.

To illustrate why it is the standard practice of the APCD to not perform a detailed Health Risk Assessment (HRA) for a facility with a prioritization score of less than 10, staff prepared a HRA for the proposed "future" facility. This HRA is described in the memo of October 3, 2018 from Ali Ghasemi to me. The HRA provides results showing the maximum cancer risk is 0.903 in a million (well below the significance threshold of 10 in a million) and the maximum non-cancer hazard index (acute) is 0.123 (well below the significance threshold of 1.0).

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

Attachment 13

Ventura County Oil Fields – 2014 Annual Production, Well Statistics

Renaissance Petroleum Project

Case No. PL14-0103
(Minor Modification of CUP 4384)

VENTURA COUNTY OIL FIELDS - 2014 ANNUAL PRODUCTION - WELL STATISTICS

FIELD	OPERATOR(S)	OIL (BARRELS)	WATER (BARRELS)	GAS (MCF)	OG Active	OG Idle	UIC Active	UIC Idle	TOTAL
BARDSDALE	VPC, Vaquero, Thompco	170,049	570,291	295,997	49	24	4	3	80
BIG MOUNTAIN	Vintage Production California LLC (VPC)	28,992	70,884	115,191	11	2	0	1	14
CABRILLO	Renaissance Petroleum, LLC	24,378	57,007	89,354	7	2	0	0	9
CANADA LARGA	Hammond Canyon #2 Inc.	1,319	2,515	0	2	1	0	0	3
CHAFFEE CANYON	Concordia Resources Inc.	1,550	1,618	21,668	5	0	0	0	5
EUREKA CANYON	TEG Oil and Gas USA Inc.	2,138	29,112	320	8	0	1	0	9
FILLMORE	PRE Resources	583	4,578	255	2	0	0	0	2
HOLSER	Mirada Petroleum Inc.	18,383	20,591	26,343	15	0	2	0	17
HOPPER CANYON	DCOR, LLC	3,477	20,459	15,873	9	8	2	0	19
MONTALVO, WEST	Vintage Production California LLC	572,639	1,160,865	254,013	50	19	10	3	82
MOORPARK, WEST	Thompco Inc.	1,846	6,638	596	1	1	0	0	2
OAK PARK	Vintage Production California LLC	17,116	63,265	6,088	15	1	3	0	19
OAKRIDGE	Vintage Production California LLC	147,570	856,089	89,147	23	10	7	17	57
OJAI	Numerous Operators	264,077	1,278,743	1,349,444	186	58	13	6	263
OXNARD	Numerous Operators	336,359	768,140	15,769	60	48	52	33	193
RAMONA	Numerous Operators	42,709	49,834	100,508	89	24	3	1	117
RINCON	VPC, RILP, LBTH, Inc.	292,997	3,274,861	245,265	83	259	23	25	390
SAN MIGUELITO	Vintage Production California LLC	451,169	5,330,210	370,368	71	56	43	33	203
SANTA CLARA AVE	Vintage Production California LLC	53,044	195,452	38,901	20	11	2	1	34
SANTA SUSANA	Vintage Production California LLC	15,871	26,434	102,575	9	7	0	1	17
SATICOY	VPC, Peak Operator	39,774	92,605	43,504	17	17	3	6	43
SESPE	Seneca, Vaquero, Chemassist, TB Prop.	477,032	436,194	994,771	247	87	11	0	345
SHIELLS CANYON	VPC, Joro, Chemassist	81,063	313,685	358,583	48	3	3	0	54
SIMI	Seneca, C. Barnett	0	0	0	3	1	0	0	4
SOUTH MOUNTAIN	Numerous Operators	741,363	1,256,708	843,296	360	27	8	17	412
TAPO CANYON, SOUTH	Vintage Production California LLC	9,283	6,269	1,675	25	5	0	0	30

TAPO RIDGE	Vintage Production California LLC	528	755	748	2	0	0	0	2
TAPO, NORTH	Berco Oil	4,580	56,340	0	17	0	1	0	18
TEMESCAL	Ample Resources, DCOR	72,793	212,112	92,370	20	2	2	1	25
TIMBER CANYON	VPC, Ridgeway Corp.	31,586	6,581	101,695	29	3	0	1	33
TORREY CANYON	Vintage Production California LLC	118,353	152,427	171,660	46	12	0	7	65
VENTURA	Aera Energy LLC	5,089,921	46,939,666	2,837,593	548	275	469	102	1,394
WEST MOUNTAIN	Vintage Production California LLC	9,239	11,817	10,237	9	4	0	0	13
	VENTURA COUNTY TOTALS	**9,121,781**	**63,272,745**	**8,593,807**	**2086**	**967**	**662**	**258**	**3,973**

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

Attachment 14

APCD Memorandum (AQMP Emissions Inventory)

Renaissance Petroleum Project

Case No. PL14-0103
(Minor Modification of CUP 4384)

VENTURA COUNTY
AIR POLLUTION CONTROL DISTRICT
Memorandum

TO: Brian Baca
Planning/RMA

DATE: September 5, 2017

FROM: Chuck Thomas, Manager CT
Planning/Rules/Incentives

SUBJECT: 2016 Ventura County Air Quality Management Plan Base Year Emissions Inventory and Emissions Forecasts

Attached are Table A-7 and A-8 from Appendix A, Ventura County Emissions Inventory Documentation, of the 2016 Ventura County Air Quality Management Plan (AQMP) (February 2017). The 2016 AQMP presents Ventura County's strategy to attain the 2008 federal 8-hour ozone standard; as required by the federal Clean Air Act Amendments of 1990. Photochemical air quality modeling conducted by the South Coast Air Quality Management District indicates that Ventura County will attain the 2008 federal 8-hour ozone standard by 2020 using local, state, and federal clean air programs.

The 2016 AQMP was adopted by the Ventura County Air Pollution Control Board on February 14, 2017 and by the California Air Resources Board on March 23, 2017. Plan approval by the U.S. Environmental Protection Agency is pending.

Table A-7 presents the 2012 base year and future year emissions by summary category for reactive organic gases (ROG). Table A-8 presents 2012 base year and emissions forecasts by summary category for nitrogen oxides (NOx). ROG and NOx emissions chemically react in the atmosphere to form ozone, Ventura County's most serious air pollution problem.

The base year emissions inventory of ROG and NOx forms the basis for all future year emission projections and also establishes the emission levels against which progress in emission reductions are measured. Forecasted inventories are a projection of the base year inventory that reflects expected growth trends for each emissions source category and emission reductions due to adopted control measures. Emission inventories and projections of an area's ROG and NOx emissions are fundamental components of an ozone clean air plan and are the primary input to air quality models used to assess future year ozone levels and demonstrate attainment of the federal ozone standard.

Forecasts of future year ROG and NOx emissions are a product of two principal components: growth factors and control factors. The forecast methodology involves applying growth and control factors to 2012 base year emissions by pollutant-emitting process category. Growth and control factors are calculated by analyzing the 2012 actual emissions, future socioeconomic assumptions, and the future impact of district, state, and federal control

strategies. Development of the Ventura County base year emissions inventory and forecasts for the 2016 AQMP was a joint effort of the Air District and the California Air Resources Board.

Table A-7 shows that countywide ROG emissions were 37.76 tons per day in 2012 and are projected to be 32.27 tons per day in 2035 (14.5% reduction). Similarly, Table A-8 shows that countywide NOx emissions were 40.55 tons per day in 2012 and are projected to be 23.93 tons per day in 2035 (41% reduction). Emissions in the Outer Continental Shelf (OCS) air basin are included in these total emissions.

Countywide ROG emissions associated with onshore oil and gas production were 1.48 tons per day in 2012 and are projected to be 1.05 tons per day in 2035 (29% reduction).

Countywide NOx emissions associated with onshore oil and gas production were 0.17 tons per day in 2012 and are projected to be 0.12 tons per day in 2035 (29% reduction).

Countywide ROG emissions associated with heavy-heavy duty diesel trucks of the type that transport produced crude oil and water were 0.16 tons per day in 2012 and are projected to be 0.03 tons per day in 2035 (81% reduction).

Countywide NOx emissions associated with heavy-heavy duty diesel trucks of the type that transport produced crude oil and water were 2.69 tons per day in 2012 and are projected to be 0.73 tons per day in 2035 (73% reduction).

If you have any questions regarding this issue, feel free to contact by email at chuck@vcapcd.org or by telephone at (805) 645-1427.

c: Mike Villegas, VCAPCD
Alan Ballard, VCAPCD

Base Year and Forecast Emissions Summaries

Tables A-7 and A-8 contain summaries of 2012 base year and forecast year ROG and NOx planning day emissions by summary category and air basin.

Table A-7
ROG Planning Emissions Forecast by Summary Category and Air Basin

Ventura County EIC Summary Category Name	ROG (tons/summer day) 2012	2018	2020	2025	2030	2035
SCC AIR BASIN						
STATIONARY SOURCES						
Fuel Combustion						
Electric Utilities	0.10	0.08	0.09	0.09	0.09	0.09
Cogeneration	0.00	0.00	0.00	0.00	0.00	0.00
Oil And Gas Production (Combustion)	0.03	0.02	0.02	0.02	0.02	0.02
Petroleum Refining (Combustion)	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing And Industrial	0.02	0.02	0.03	0.03	0.03	0.03
Food And Agricultural Processing	0.03	0.02	0.02	0.02	0.02	0.02
Service And Commercial	0.03	0.03	0.03	0.04	0.04	0.04
Other (Fuel Combustion)	0.01	0.01	0.01	0.01	0.01	0.01
Total Fuel Combustion	**0.22**	**0.20**	**0.20**	**0.20**	**0.20**	**0.21**
Waste Disposal						
Sewage Treatment	0.01	0.01	0.01	0.01	0.01	0.01
Landfills	0.11	0.13	0.13	0.14	0.16	0.17
Incinerators	0.00	0.00	0.00	0.00	0.00	0.00
Soil Remediation	0.00	0.00	0.00	0.00	0.00	0.00
Other (Waste Disposal)	0.74	0.78	0.79	0.80	0.82	0.84
Total Waste Disposal	**0.87**	**0.91**	**0.93**	**0.96**	**0.99**	**1.02**
Cleaning And Surface Coatings						
Laundering	0.04	0.05	0.05	0.05	0.05	0.05
Degreasing	1.87	2.05	2.11	2.18	2.25	2.31
Coatings And Related Process Solvents	0.85	1.01	1.06	1.11	1.15	1.19
Printing	0.27	0.35	0.38	0.40	0.42	0.43
Adhesives And Sealants	0.40	0.44	0.45	0.47	0.48	0.50
Other (Cleaning And Surface Coatings)	0.58	0.63	0.65	0.67	0.69	0.71
Total Cleaning And Surface Coatings	**4.01**	**4.52**	**4.70**	**4.88**	**5.04**	**5.20**
Petroleum Production And Marketing						
Oil And Gas Production	1.45	1.23	1.16	1.13	1.08	1.03
Petroleum Refining	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum Marketing	1.38	1.06	1.03	0.96	0.92	0.92
Other (Petroleum Production And Marketing)	0.00	0.00	0.00	0.00	0.00	0.00
Total Petroleum Production And Marketing	**2.83**	**2.29**	**2.19**	**2.08**	**2.00**	**1.95**
Industrial Processes						
Chemical	0.07	0.09	0.10	0.11	0.12	0.12
Food And Agriculture	0.01	0.02	0.02	0.02	0.02	0.02
Mineral Processes	0.02	0.02	0.02	0.02	0.02	0.02
Metal Processes	0.01	0.00	0.00	0.00	0.00	0.00
Wood And Paper	0.10	0.13	0.15	0.16	0.16	0.17
Electronics	0.02	0.04	0.04	0.05	0.06	0.07
Other (Industrial Processes)	0.39	0.32	0.32	0.33	0.34	0.35
Total Industrial Processes	**0.62**	**0.61**	**0.65**	**0.69**	**0.72**	**0.76**
TOTAL STATIONARY SOURCES	**8.55**	**8.54**	**8.67**	**8.82**	**8.95**	**9.12**

Table A-7 (Cont.)
ROG Planning Emissions Forecast by Summary Category and Air Basin

Ventura County EIC Summary Category Name	ROG (tons/summer day) 2012	2018	2020	2025	2030	2035
AREAWIDE SOURCES						
Solvent Evaporation						
Consumer Products	4.64	4.53	4.59	4.68	4.77	4.87
Architectural Coatings And Related Process Solvents	2.31	2.41	2.45	2.51	2.57	2.62
Pesticides/Fertilizers	3.35	2.39	2.34	2.30	2.25	2.22
Asphalt Paving / Roofing	0.58	0.76	0.82	0.86	0.89	0.93
Total Solvent Evaporation	**10.88**	**10.09**	**10.20**	**10.34**	**10.48**	**10.65**
Miscellaneous Processes						
Residential Fuel Combustion	0.39	0.40	0.41	0.41	0.42	0.43
Farming Operations	0.12	0.12	0.12	0.12	0.12	0.12
Construction And Demolition	0.00	0.00	0.00	0.00	0.00	0.00
Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00
Fires	0.01	0.01	0.01	0.01	0.01	0.01
Managed Burning And Disposal	0.14	0.13	0.13	0.13	0.12	0.12
Cooking	0.04	0.05	0.05	0.05	0.05	0.05
Other (Miscellaneous Processes)	0.00	0.00	0.00	0.00	0.00	0.00
Total Miscellaneous Processes	**0.69**	**0.70**	**0.71**	**0.72**	**0.72**	**0.73**
TOTAL AREAWIDE SOURCES	**11.57**	**10.80**	**10.91**	**11.05**	**11.20**	**11.38**
MOBILE SOURCES						
On-Road Motor Vehicles						
Light Duty Passenger (LDA)	3.54	1.74	1.47	1.09	0.90	0.71
Light Duty Trucks - 1 (LDT1)	0.99	0.50	0.42	0.29	0.20	0.11
Light Duty Trucks - 2 (LDT2)	1.36	0.77	0.64	0.48	0.38	0.28
Medium Duty Trucks (MDV)	1.23	0.89	0.76	0.51	0.39	0.29
Light Heavy Duty Gas Trucks - 1 (LHDV1)	0.29	0.23	0.21	0.16	0.13	0.06
Light Heavy Duty Gas Trucks - 2 (LHDV2)	0.03	0.03	0.02	0.01	0.01	0.01
Medium Heavy Duty Gas Trucks (MHDV)	0.07	0.03	0.03	0.02	0.02	0.02
Heavy Heavy Duty Gas Trucks (HHDV)	0.01	0.00	0.00	0.00	0.00	0.00
Light Heavy Duty Diesel Trucks - 1 (LHDV1)	0.03	0.03	0.03	0.02	0.01	0.01
Light Heavy Duty Diesel Trucks - 2 (LHDV2)	0.01	0.01	0.01	0.00	0.00	0.00
Medium Heavy Duty Diesel Trucks (MHDV)	0.08	0.04	0.03	0.01	0.01	0.01
Heavy Heavy Duty Diesel Trucks (HHDV)	0.16	0.04	0.04	0.03	0.03	0.03
Motorcycles (MCY)	0.67	0.56	0.53	0.48	0.44	0.42
Heavy Duty Diesel Urban Buses (UB)	0.01	0.01	0.01	0.00	0.00	0.00
Heavy Duty Gas Urban Buses (UB)	0.00	0.00	0.00	0.00	0.00	0.00
School Buses - Gas (SBG)	0.01	0.00	0.00	0.00	0.00	0.00
School Buses - Diesel (SBD)	0.00	0.00	0.00	0.00	0.00	0.00
Other Buses - Gas (OBG)	0.01	0.01	0.01	0.01	0.01	0.01
Other Buses - Motor Coach - Diesel (OBC)	0.00	0.00	0.00	0.00	0.00	0.00
All Other Buses - Diesel (OBD)	0.00	0.00	0.00	0.00	0.00	0.00
Motor Homes (MH)	0.02	0.01	0.01	0.00	0.00	0.00
Other (On-Road Motor Vehicles)	0.00	0.50	0.00	0.00	0.00	0.00
Total On-Road Motor Vehicles	**8.54**	**5.40**	**4.21**	**3.13**	**2.53**	**1.96**

Table A-7 (Cont.)
ROG Planning Emissions Forecast by Summary Category and Air Basin

Ventura County EIC Summary Category Name	ROG (tons/summer day) 2012	2018	2020	2025	2030	2035
Other Mobile Sources						
Aircraft	0.38	0.87	0.91	1.08	1.30	1.57
Trains	0.01	0.01	0.01	0.01	0.01	0.01
Ocean Going Vessels	0.04	0.04	0.04	0.05	0.05	0.06
Commercial Harbor Craft	0.09	0.09	0.09	0.10	0.10	0.11
Recreational Boats	3.06	2.26	2.04	1.55	1.19	0.99
Off-Road Recreational Vehicles	0.39	0.38	0.37	0.35	0.34	0.34
Off-Road Equipment	3.07	2.50	2.42	2.36	2.37	2.45
Farm Equipment	0.52	0.39	0.35	0.29	0.23	0.20
Fuel Storage And Handling	0.58	0.43	0.40	0.35	0.32	0.22
Total Other Mobile Sources	**8.14**	**6.97**	**6.63**	**6.12**	**5.91**	**5.94**
TOTAL MOBILE SOURCES	**16.68**	**12.37**	**10.84**	**9.25**	**8.44**	**7.91**
TOTAL SCC AIR BASIN	**36.81**	**31.70**	**30.42**	**29.12**	**28.59**	**28.41**
ERC Balance	-----	**1.72**	**1.72**	**1.72**	**1.72**	**1.72**
TOTAL SCC AIR BASIN	**36.81**	**33.42**	**32.14**	**30.84**	**30.31**	**30.13**
OCS AIR BASIN						
STATIONARY SOURCES						
Fuel Combustion						
Cogeneration	0.00	0.00	0.00	0.00	0.00	0.00
Oil And Gas Production (Combustion)	0.01	0.01	0.00	0.00	0.00	0.00
Service And Commercial	0.02	0.02	0.02	0.02	0.02	0.02
Total Fuel Combustion	**0.03**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**
Waste Disposal						
Incinerators	0.00	0.00	0.00	0.00	0.00	0.00
Total Waste Disposal	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Cleaning And Surface Coatings						
Coatings And Related Process Solvents	0.00	0.00	0.00	0.00	0.00	0.00
Total Cleaning And Surface Coatings	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Petroleum Production And Marketing						
Oil And Gas Production	0.04	0.04	0.04	0.03	0.04	0.04
Petroleum Marketing	0.00	0.00	0.00	0.00	0.00	0.00
Total Petroleum Production And Marketing	**0.04**	**0.04**	**0.04**	**0.03**	**0.04**	**0.04**
TOTAL STATIONARY SOURCES	**0.07**	**0.07**	**0.06**	**0.06**	**0.06**	**0.06**
MOBILE SOURCES						
Other Mobile Sources						
Aircraft	0.05	0.14	0.14	0.14	0.15	0.16
Ships And Commercial Boats	0.02	0.02	0.02	0.02	0.02	0.02
Ocean Going Vessels	0.57	0.79	0.86	1.10	1.37	1.60
Commercial Harbor Craft	0.25	0.28	0.28	0.29	0.29	0.29
Total Other Mobile Sources	**0.89**	**1.23**	**1.30**	**1.55**	**1.83**	**2.07**
TOTAL MOBILE SOURCES	**0.89**	**1.23**	**1.30**	**1.55**	**1.83**	**2.07**
TOTAL OCS AIR BASIN	**0.96**	**1.30**	**1.37**	**1.61**	**1.89**	**2.14**
TOTAL VENTURA COUNTY	**37.76**	**34.72**	**33.50**	**32.44**	**32.21**	**32.27**

Notes:
Source: CEPAM v1.04 (June 2016)
Includes +0.5 tpd adjustment to On-Road Vehicles 2018 ROG for transportation conformity safety margin.
Data rounding may affect totals

Table A-8
NOx Planning Emissions Forecast by Summary Category and Air Basin

Ventura County EIC Summary Category Name	NOx (tons/summer day) 2012	2018	2020	2025	2030	2035
SCC AIR BASIN						
STATIONARY SOURCES						
Fuel Combustion						
Electric Utilities	0.48	0.46	0.47	0.49	0.50	0.51
Cogeneration	0.00	0.00	0.00	0.00	0.00	0.00
Oil And Gas Production (Combustion)	0.13	0.11	0.10	0.10	0.09	0.09
Petroleum Refining (Combustion)	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing And Industrial	0.27	0.32	0.34	0.35	0.36	0.37
Food And Agricultural Processing	0.47	0.31	0.30	0.27	0.24	0.22
Service And Commercial	0.32	0.31	0.31	0.32	0.33	0.34
Other (Fuel Combustion)	0.21	0.17	0.14	0.14	0.14	0.14
Total Fuel Combustion	**1.89**	**1.68**	**1.67**	**1.66**	**1.66**	**1.68**
Waste Disposal						
Sewage Treatment	0.01	0.01	0.01	0.01	0.01	0.01
Landfills	0.09	0.10	0.11	0.11	0.12	0.13
Incinerators	0.00	0.00	0.00	0.00	0.00	0.00
Soil Remediation	0.00	0.00	0.00	0.00	0.00	0.00
Other (Waste Disposal)	0.00	0.00	0.00	0.00	0.00	0.00
Total Waste Disposal	**0.10**	**0.11**	**0.12**	**0.12**	**0.13**	**0.14**
Cleaning And Surface Coatings						
Laundering	0.00	0.00	0.00	0.00	0.00	0.00
Degreasing	0.00	0.00	0.00	0.00	0.00	0.00
Coatings And Related Process Solvents	0.00	0.00	0.00	0.00	0.00	0.00
Printing	0.00	0.00	0.00	0.00	0.00	0.00
Adhesives And Sealants	0.00	0.00	0.00	0.00	0.00	0.00
Other (Cleaning And Surface Coatings)	0.00	0.00	0.00	0.00	0.00	0.00
Total Cleaning And Surface Coatings	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Petroleum Production And Marketing						
Oil And Gas Production	0.04	0.03	0.03	0.03	0.03	0.03
Petroleum Refining	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum Marketing	0.00	0.00	0.00	0.00	0.00	0.00
Other (Petroleum Production And Marketing)	0.00	0.00	0.00	0.00	0.00	0.00
Total Petroleum Production And Marketing	**0.04**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**
Industrial Processes						
Chemical	0.00	0.00	0.00	0.00	0.00	0.00
Food And Agriculture	0.00	0.00	0.00	0.00	0.00	0.00
Mineral Processes	0.00	0.00	0.00	0.00	0.00	0.00
Metal Processes	0.00	0.00	0.00	0.00	0.00	0.00
Wood And Paper	0.00	0.00	0.00	0.00	0.00	0.00
Electronics	0.00	0.00	0.00	0.00	0.00	0.00
Other (Industrial Processes)	0.06	0.06	0.06	0.06	0.06	0.06
Total Industrial Processes	**0.06**	**0.06**	**0.06**	**0.06**	**0.07**	**0.07**
TOTAL STATIONARY SOURCES	**2.08**	**1.89**	**1.87**	**1.88**	**1.89**	**1.92**

Table A-8 (Cont.)
NOx Planning Emissions Forecast by Summary Category and Air Basin

Ventura County EIC Summary Category Name	NOx (tons/summer day) 2012	2018	2020	2025	2030	2035
AREAWIDE SOURCES						
Solvent Evaporation						
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coatings And Related Process Solvents	0.00	0.00	0.00	0.00	0.00	0.00
Pesticides/Fertilizers	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Paving / Roofing	0.00	0.00	0.00	0.00	0.00	0.00
Total Solvent Evaporation	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Miscellaneous Processes						
Residential Fuel Combustion	0.86	0.59	0.54	0.54	0.54	0.55
Farming Operations	0.00	0.00	0.00	0.00	0.00	0.00
Construction And Demolition	0.00	0.00	0.00	0.00	0.00	0.00
Paved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Road Dust	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Windblown Dust	0.00	0.00	0.00	0.00	0.00	0.00
Fires	0.01	0.01	0.01	0.01	0.01	0.01
Managed Burning And Disposal	0.08	0.08	0.08	0.08	0.07	0.07
Cooking	0.00	0.00	0.00	0.00	0.00	0.00
Other (Miscellaneous Processes)	0.00	0.00	0.00	0.00	0.00	0.00
Total Miscellaneous Processes	**0.95**	**0.68**	**0.62**	**0.62**	**0.62**	**0.62**
TOTAL AREAWIDE SOURCES	**0.95**	**0.68**	**0.62**	**0.62**	**0.62**	**0.62**
MOBILE SOURCES						
On-Road Motor Vehicles						
Light Duty Passenger (LDA)	2.22	1.11	0.90	0.57	0.41	0.30
Light Duty Trucks - 1 (LDT1)	0.54	0.23	0.18	0.10	0.06	0.03
Light Duty Trucks - 2 (LDT2)	1.38	0.60	0.45	0.26	0.18	0.13
Medium Duty Trucks (MDV)	1.54	0.79	0.60	0.29	0.17	0.12
Light Heavy Duty Gas Trucks - 1 (LHDV1)	0.39	0.27	0.24	0.17	0.11	0.08
Light Heavy Duty Gas Trucks - 2 (LHDV2)	0.05	0.04	0.04	0.03	0.02	0.02
Medium Heavy Duty Gas Trucks (MHDV)	0.10	0.06	0.05	0.03	0.03	0.02
Heavy Heavy Duty Gas Trucks (HHDV)	0.02	0.01	0.01	0.01	0.02	0.02
Light Heavy Duty Diesel Trucks - 1 (LHDV1)	1.24	0.92	0.79	0.50	0.30	0.17
Light Heavy Duty Diesel Trucks - 2 (LHDV2)	0.36	0.23	0.19	0.10	0.04	0.02
Medium Heavy Duty Diesel Trucks (MHDV)	1.52	0.98	0.71	0.42	0.49	0.52
Heavy Heavy Duty Diesel Trucks (HHDV)	2.69	1.62	1.48	0.76	0.74	0.73
Motorcycles (MCY)	0.13	0.11	0.11	0.10	0.10	0.10
Heavy Duty Diesel Urban Buses (UB)	0.16	0.11	0.09	0.06	0.03	0.02
Heavy Duty Gas Urban Buses (UB)	0.01	0.01	0.01	0.01	0.01	0.01
School Buses - Gas (SBG)	0.01	0.00	0.00	0.00	0.00	0.00
School Buses - Diesel (SBD)	0.06	0.05	0.05	0.03	0.02	0.01
Other Buses - Gas (OBG)	0.02	0.02	0.01	0.01	0.01	0.01
Other Buses - Motor Coach - Diesel (OBC)	0.02	0.01	0.01	0.00	0.01	0.00
All Other Buses - Diesel (OBD)	0.04	0.02	0.02	0.01	0.01	0.01
Motor Homes (MH)	0.12	0.08	0.06	0.04	0.02	0.01
Other (On-Road Motor Vehicles)	0.00	0.00	0.00	0.00	0.00	0.00
Total On-Road Motor Vehicles	**12.62**	**7.29**	**6.01**	**3.50**	**2.76**	**2.33**

Table A-8 (Cont.)
NOx Planning Emissions Forecast by Summary Category and Air Basin

Ventura County EIC Summary Category Name	NOx (tons/summer day) 2012	2018	2020	2025	2030	2035
Other Mobile Sources						
Aircraft	0.20	0.46	0.48	0.57	0.69	0.84
Trains	0.16	0.17	0.17	0.16	0.16	0.15
Ocean Going Vessels	0.84	0.86	0.84	0.90	0.99	1.07
Commercial Harbor Craft	0.98	0.73	0.72	0.72	0.75	0.78
Recreational Boats	0.56	0.48	0.46	0.42	0.39	0.37
Off-Road Recreational Vehicles	0.01	0.01	0.01	0.02	0.02	0.02
Off-Road Equipment	3.43	2.89	2.66	2.03	1.74	1.66
Farm Equipment	2.60	2.09	1.90	1.44	1.10	0.85
Fuel Storage And Handling	0.00	0.00	0.00	0.00	0.00	0.00
Total Other Mobile Sources	**8.78**	**7.69**	**7.25**	**6.27**	**5.83**	**5.74**
TOTAL MOBILE SOURCES	**21.41**	**14.98**	**13.26**	**9.77**	**8.59**	**8.07**
TOTAL SCC AIR BASIN	**24.44**	**17.54**	**15.75**	**12.27**	**11.11**	**10.61**
ERC Balance	**----**	**0.82**	**0.82**	**0.82**	**0.82**	**0.82**
TOTAL SCC AIR BASIN	**24.44**	**18.36**	**16.57**	**13.09**	**11.93**	**11.43**
OCS AIR BASIN						
STATIONARY SOURCES						
Fuel Combustion						
Cogeneration	0.00	0.00	0.00	0.00	0.00	0.00
Oil And Gas Production (Combustion)	0.03	0.03	0.03	0.02	0.03	0.03
Service And Commercial	0.32	0.27	0.27	0.27	0.27	0.27
Total Fuel Combustion	**0.35**	**0.30**	**0.30**	**0.29**	**0.30**	**0.29**
Waste Disposal						
Incinerators	0.00	0.00	0.00	0.00	0.00	0.00
Total Waste Disposal	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Cleaning And Surface Coatings						
Coatings And Related Process Solvents	0.00	0.00	0.00	0.00	0.00	0.00
Total Cleaning And Surface Coatings	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Petroleum Production And Marketing						
Oil And Gas Production	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum Marketing	0.00	0.00	0.00	0.00	0.00	0.00
Total Petroleum Production And Marketing	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
TOTAL STATIONARY SOURCES	**0.35**	**0.30**	**0.30**	**0.30**	**0.30**	**0.30**
MOBILE SOURCES						
Other Mobile Sources						
Aircraft	0.02	0.07	0.07	0.07	0.08	0.08
Ships And Commercial Boats	0.07	0.07	0.07	0.06	0.06	0.06
Ocean Going Vessels	13.21	13.89	12.54	10.60	9.82	9.63
Commercial Harbor Craft	2.46	2.53	2.51	2.45	2.44	2.42
Total Other Mobile Sources	**15.76**	**16.56**	**15.19**	**13.18**	**12.40**	**12.20**
TOTAL MOBILE SOURCES	**15.76**	**16.56**	**15.19**	**13.18**	**12.40**	**12.20**
TOTAL OCS AIR BASIN	**16.11**	**16.86**	**15.49**	**13.48**	**12.70**	**12.50**
TOTAL VENTURA COUNTY	**40.55**	**35.23**	**32.06**	**26.57**	**24.62**	**23.93**

Notes:
Source: CEPAM v1.04 (June 2016).
No external ARB Adjustments.
Data rounding may affect totals.

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

Attachment 15

VCAPCD Permit To Operate No. 01383

Renaissance Petroleum Project

Case No. PL14-0103
(Minor Modification of CUP 4384)

PERMIT TO OPERATE
Number 01383

Valid January 1, 2019 to December 31, 2019

This Permit Has Been Issued To The Following:

Company Name / Address:

Renaissance Petroleum, LLC
P.O. Box 20456
Bakersfield, CA 93390

Facility Name / Address:

Naumann Drill Site
3140 Etting Rd.
Oxnard, CA 93030

Permission Is Hereby Granted To Operate The Following:

1 - Oil Well (No. 1)
2 - 500 Barrel Crude Oil Storage Tanks (ID # 1 & 2)
1 - Oil Loading Facility. Loading facility may also be used to handle oil production from the Rosenmund Site, PO No. 07448
1 - 500 Barrel Produced Water Tank (#3)
1 - 15000 Gallon (357 bbl) Liquid Petroleum Gas (LPG) Pressure Vessel, collects gas liquids knocked out during sales processing (pressure vessel exempt from permitting requirements)
1 - Liquid Petroleum Gas (LPG) Truck Loading Facility, equipped with a balance type vapor recovery system with vapors from the truck returning to the pressure vessel
1 - Emergency Flare, rating estimated at 51.1 MMBTU/hr, height: 25', flare tip exhaust diameter: 3", electronic ignition, equipped with totalizing gas flow meter
1 - 0.25 MMBTU/hr Glycol Reboiler, part of Glycol Dehydrator system rated at 0.2 MMSCF per day with glycol vent piped to a natural draft condenser and then directly to vapor recovery system, or to Emergency Flare if necessary. Utilizing triethylene glycol (TEG).

This Permit Has Been Issued Subject To The Following Conditions:

1. Permitted Emissions

	Tons/Year	Pounds/Hour
Reactive Organics	4.73	7.08
Nitrogen Oxides	2.03	3.49
Particulate Matter	0.15	0.26
Sulfur Oxides	0.08	0.15
Carbon Monoxide	10.57	18.93

2. Annual crude oil throughput shall not exceed 365,000 BOPY combined for the 500 bbl C.O.S.T. (No. 1) and the 500 bbl C.O.S.T. (No. 2); and 365,000 BOPY at the oil loading facility. In order to comply with this condition, the permittee shall maintain monthly records of crude oil throughputs. The monthly records shall be summed for the previous 12 months. Crude oil throughput totals for any of these 12 month periods in excess of the specified limit shall be considered a violation of this condition. Prior to exceeding these

limits, the permittee shall apply for, and receive, a permit modification.

3. Gas consumption at the flare shall not exceed 50.2 million cubic feet (MMCF) per year for any planned flaring events. There is no limit for emergency use. Emergency use is defined as the disposal of process gases in the event of unavoidable process upsets. A planned flaring event includes, but is not limited to, routine flaring to comply with Rule 71.1; or flaring due to planned maintenance performed on wells, equipment, or pipelines by the operator or performed by another operator accepting the produced gas. If a process upset (emergency use) cannot be rectified in a reasonable amount of time, the use of the flare may be determined to be a planned flaring event.

   In order to demonstrate compliance with this condition, the permittee shall maintain monthly records of flare gas consumption. The permittee shall maintain records which differentiate between emergency usage and planned flaring events. The monthly records shall be summed for the previous 12 months. Flare gas combustion totals for planned flaring events for any of these 12 month rolling periods in excess of the specified limit shall be considered a violation of this permit.

4. Throughput at the LPG loading facility shall not exceed 15,000 barrels per year. Prior to exceeding this limit, the permittee shall apply for, and receive, a permit modification.

   In order to comply with this condition, the permittee shall maintain monthly records of LPG throughput. The monthly records shall be summed for the previous 12 months. LPG throughput totals for any of these 12 month periods in excess of the specified limit shall be considered a violation of this condition.

5. The following wells shall be free flowing or operated on electric motor driven artificial lift equipment: Naumann No. 1. This condition is applied as best available control technology (BACT).

6. Tanks shall comply with Rule 71.1, "Crude Oil Production and Separation". This includes, but is not limited to, the following requirements:

   a) Pursuant to Rule 71.1.B.1.a, tanks not listed above as being exempt from vapor recovery shall be equipped with a properly installed, maintained, and operated vapor recovery system. The vapor disposal portion of the vapor recovery system shall consist of a system that directs all vapors to a fuel gas system, a sales gas system, or to a permitted flare or a flare rated at less than 1.00 MMBTU per hour that combusts reactive organic compounds.

   b) Pursuant to Rule 71.1.D.2, for tanks not listed above as being exempt from vapor recovery, the vapor recovery requirements of

Rule 71.1.B.1.a shall not apply during maintenance operation on vapor recovery systems or tank batteries if the District Enforcement Section is notified verbally at least 24 hours prior to the maintenance operation, and if the maintenance operation will take no more than 24 hours to complete.

c) A tank's hatches and other inlet and outlet piping connections are components subject to the leak requirements of Rule 74.10, "Components at Crude Oil and Natural Gas Production and Processing Facilities".

7. The permittee shall comply with Rule 71.3, "Transfer of Reactive Organic Compound Liquids". This includes, but is not limited to, the following requirements:

a) Pursuant to Rule 71.3.B.2.a, no person shall transfer ROC liquids into any ROC delivery vessel without utilizing a bottom-loaded vapor recovery system that prevents the displaced vapors during loading from being released into the atmosphere. The vapor recovery system shall be capable of collecting all ROC vapors, and shall have a vapor return or condensation system that connects to a gas pipeline recovery and distribution system or to a vapor disposal system with a control efficiency of at least 90 percent by weight.

b) Pursuant to Rule 71.3.B.2.b.2, no person shall transfer ROC liquids into any ROC delivery vessel without utilizing a combination of overfill devices and/or procedures, submitted in writing to the APCD, that is at least as effective in preventing overfill spillage as the system in Rule 71.3.B.2.b.1. The permittee has submitted an alternative primary and secondary overfill protection system and shall comply with Rule 71.3.B.2.b.2 as discussed below.

c) Pursuant to Rule 71.3.B.2.c, no person shall transfer ROC liquids into any ROC liquid delivery vessel without utilizing either a block and bleed valve system or other connectors with equivalent spill prevention characteristics.

d) Pursuant to Rule 71.3.D.1, permittee shall annually monitor one complete loading operation for leaks and for proper operation of the loading equipment and delivery vessel vapor recovery and overfill protection systems. Permittee shall maintain records of the loading inspection as required by Rule 71.3.F.1. These records shall be maintained at the facility for the previous two years and made available to APCD personnel upon request.

8. In order to comply with the primary and secondary overfill protection system requirements of Rule 71.3, "Transfer of Reactive Organic Compound Liquids", permittee has submitted an alternative system and shall comply with Rule 71.3.B.2.b.2 by utilizing only delivery vessels equipped with a resettable turbine meter and the following procedure:

a) Determine the gravity of the oil.

b) Calculate the weight of the oil per barrel (use API Table 8).

c) Calculate the maximum net weight of the cargo, in barrels, that can legally be transported. This weight shall not exceed the capacity or weight limitation of any liquid delivery vessel.

d) Continuously observe the turbine meter in order to cease transfer at the calculated number of barrels.

e) Time each loading operation to determine an average time to fill a delivery vessel to legal weight. Utilize this time limit in conjunction with the turbine meter to prevent overfill.

9. All loading of LPG shall comply with Rule 71.3, "Transfer of Reactive Organic Compound Liquids". This includes, but is not limited to, the following requirements:

a) The LPG facility shall be bottom loaded. (Rule 71.3.B.1)

b) The LPG facility shall utilize a bottom-loaded vapor recovery system tha prevents the displaced vapors during loading from being released into the atmosphere. The vapor recovery system shall be capable of collecting all ROC vapors, and shall have a vapor return or condensation system that routes vapors back to the 15,000 gallon pressure vessel. (Rule 71.3.B.2.a)

c) The LPG loading shall be conducted into a transport vessel with a sight glass metering system that is graduated in gallons. The operator shall monitor the loading at all times until the loading is complete in order to prevent overfill. (Rule 71.3.B.2.b)

d) The LPG loading facility shall be equipped with a block and bleed system for spill prevention. (Rule 71.3.B.2.c)

e) Pursuant to Rule 71.3.D.1, the permittee shall annually monitor one complete loading operation of leaks and for proper operation of the loading equipment and delivery vessel vapor recovery and overfill protection systems. Permittee shall maintain records of the loading inspection as required by Rule 71.3.F.1. These records shall be maintained at the facility for the previous two years and made available to APCD personnel upon request.

10. All hatches on the LPG loading vessel shall be closed during transfer operations.

11. The LPG truck loading system's inlet and outlet piping connections are components subject to the leak requirements of Rule 74.10, "Components at Crude Oil and Natural Gas Production and Processing Facilities".

12. The flare(s) shall be equipped with a totalizing gas meter. The meter shall be accurate to plus or minus five (5) percent as certified by the manufacturer in writing.

13. The flare stack shall be equipped with a continuous pilot or a functional, operating pilotless electronic ignition system when operating as a portion of the vapor recovery system or when controlling produced gas as required by Rule 71.1.

14. Permittee shall test the flare's ignition system monthly and shall maintain a monthly record of the flare's ignition system tests and maintenance activities, including the test date and operator's initials.

15. Flare Oxides of Sulfur (SOx) Emission Requirements:

    a) The sulfur content of the gas entering the flare shall not exceed 20 ppmvd, calculated as hydrogen sulfide (H2S) at standard conditions.
    b) Any flare gas hydrogen sulfide (H2S) pre-treatment system shall be operated whenever the flare is operated as necessary to comply with the 20 ppmvd limit above.
    c) Annual testing for sulfur compounds in the flare gas shall be conducted using H2S detector tubes, SCAQMD Method 307-94, or EPA Method 16, as applicable.

    These conditions are applied pursuant to Rule 54, "Sulfur Compounds". The recordkeeping and other requirements of Rule 54.C are not required if compliance with these conditions is maintained.

16. The glycol reboiler shall be fired on natural gas only. This condition is applied as Best Available Control Technology (BACT).

17. No natural gas consumption limit applies to the Glycol Reboiler.. The permitted emissions represent the theoretical maximum usage, therefore natural gas consumption records for the Glycol Reboiler are not required.

18. Permittee shall comply with all provisions of Rule 71.5, "Glycol Dehydrators". This includes, but is not limited to, the following requirements:

    a) The gas dehydration system's regenerator vents shall be controlled to reduce the emissions of ROC (Reactive Organic Compounds). Permittee has chosen to direct all glycol vent emissions into the vapor recovery system, or to the Emergency Flare if necessary.. Upon entry into the tank vapor recovery system, the glycol vent emissions are subject to Rule 71.1, "Crude Oil Production and Separation".

    b) The condensed hydrocarbon liquid stream from the glycol dehydration vent shall be stored and handled in a manner that

will not cause or allow evaporation ROC into the atmosphere as required by Rule 71.5.B.2.

c) The glycol unit's emission control system shall be maintained in a leak-free condition as required by Rule 71.5.B.3.

d) Maintain a current file of glycol dehydrator information as required by Rule 71.5.D.1.

19. Pursuant to Rule 71.5.B.1.b, the flare that controls the ROC emissions from the glycol dehydrator shall have all of the following features, as a minimum:

a) Operate continually in a smokeless mode.

b) Electronic controlled ignition system with a malfunction alarm system if the pilot flame fails.

c) Liquid knock out system to condense any condensable vapors.

d) Sight glass ports, if the flame is not visible.

20. Permittee shall maintain records of monthly oil throughput at the crude oil storage tank(s). These records shall be maintained at the facility for the previous two years and made available to APCD personnel upon request.

21. Permittee shall maintain records of monthly oil throughput at the crude oil loading facility(s). These records shall be maintained at the facility for the previous two years and made available to APCD personnel upon request.

22. Permittee shall maintain monthly records of LPG throughput at the truck loading rack. The permittee shall also maintain records of loading facility inspections and reactive organic compound liquid transfers as detailed in Rule 71.3.F. These records shall be maintained at the facility for the previous two years and made available to APCD personnel upon request.

23. Permittee shall maintain monthly and rolling twelve month records of the volume (MMCF or MCF) of gas combusted in the flare. Monthly and twelve month rolling records shall be maintained for total flare usage and for planned flaring events (non-emergency use). Emergency use and planned flaring are defined above. The permittee shall maintain records which differentiate between emergency usage and planned flaring events. These records shall be maintained at the facility for the previous two years and made available to APCD personnel upon request.

24. Permittee shall comply with all provisions of Rule 74.10, "Components at Crude Oil Production and Natural Gas Production and Processing Facilities". Permittee shall submit an Operator Management Plan to the District Compliance Division for approval

and shall submit revisions to the plan as necessary. Permittee shall continue to implement the leak inspection and repair requirements of the Operator Management Plan.

25. Permittee shall comply with all applicable requirements of the California ARB "Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities" (CARB Oil and Gas Regulation).

    The vapor recovery and produced gas requirements of Rule 71.1 are more stringent than this CARB Oil and Gas Regulation and remain in effect. Many components, including components found on tanks, separators, wells, and pressure vessels that are subject to the leak detection and repair requirements of Rule 74.10 are exempt from the leak detection and repair requirements of this CARB Oil and Gas Regulation.

    Pursuant to Section 95674(b)(2) of the CARB Oil and Gas Regulation, permittee shall register the subject equipment at each facility with CARB as specified in Appendix A Table A6. Updates to the facility registration must be filed with CARB no later than January 1 of the calendar year after the year in which any information required by the CARB Oil and Gas Regulation has changed.

Within 30 days after receipt of this permit, the permittee may petition the Hearing Board to review any new or modified condition (Rule 22).

This permit, or a copy, shall be posted reasonably close to the subject equipment and shall be accessible to inspection personnel (Rule 19). This permit is not transferable from one location to another unless the equipment is specifically listed as being portable (Rule 20).

This Permit to Operate shall not be construed to allow any emission unit to operate in violation of any state or federal emission standard or any rule of the District.

KEZ

Kerby E. Zozula, Manager
Engineering Division

For:

Michael Villegas
Air Pollution Control Officer

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

Attachment 16

Noise Impact Assessment
6-20-13 Sespe Consulting, Inc. Report

Renaissance Petroleum Project
Case No. PL14-0103
(Minor Modification of CUP 4384)

**Note: This assessment was included in the materials submitted in support of an application for modification of CUP 3543, and is part of the public record.

SESPE
CONSULTING, INC
468 Poli Street, Suite 2E • Ventura, CA 93001
Office (805) 275-1515 • Fax (805) 667-8104

Confidential – Attorney Client
Privileged Work Product

June 20, 2013

Kate Neiswender
Law Office of K. M. Neiswender
PO Box 24617
Ventura, CA 93002

Re: Noise Impact Assessment
Mirada Petroleum Corporation - Agnew Lease

Dear Ms. Neiswender:

This letter summarizes the Noise Impact Assessment (NIA) prepared for Mirada Petroleum Corporation's (Mirada) Agnew Lease (Facility) located off of Koenigstein Rd in unincorporated Ventura County. This NIA has been prepared in support of an application for Minor Modification of Conditional Use Permit (CUP) 3543, which proposes to extend the CUP and allow the drilling of six (6) new oil wells over the next ten (10) years. This NIA addresses the potential noise impacts associated with the future oil well drilling activities at this Facility – it does not address ongoing oil production operations.

Project

The Facility is an active oil and gas production operation located approximately 1.5 miles north of the intersection of Koenigstein Road and Highway 150 in unincorporated Ventura County. The attached Figure 1 shows the location of the Facility.

The proposed Minor Modification requests two primary changes to CUP 3543:

- Extend the CUP, which is currently set to expire in November 2013, for an additional 25 years; and
- Allow for the drilling of six (6) new oil wells over the next ten (10) years.

The proposed wells will be drilled on the existing well pad, near the existing wells. When drilling a new well, it will be necessary for the Applicant to conduct drilling operations 24 hours per day. This NIA addresses the potential noise impacts from these future drilling activities during the day, evening, and nighttime. This NIA analyzes a hypothetical drilling operation that is meant to conservatively represent all six (6) future well drilling operations. In addition, a general mitigation is proposed that will be required for all six (6) of the future drilling activities.

Background Noise Monitoring

Starting on Tuesday May 7, 2013, a 24-hour ambient noise measurement was obtained in order to characterize background noise levels in the vicinity of the Facility. The location of the measurement is shown on Figure 2. The location of the measurement was chosen to best represent the noise environment at the nearby residences.

The measurement was obtained with a Type 2 Quest Soundpro SE/DL sound level meter set to record noise levels with a slow response and A-weighting. The noise measurements were logged in 1-minute increments and the noise meter was calibrated immediately prior to use. The noise measurement log is attached.

Table 1 summarizes the background noise levels in the vicinity of the Facility.

Table 1 – Background Noise Levels (dBA)

Parameter	Day	Evening	Night	Overall
Average Noise Level (L_{eq})	47.5	38.1	38.1	45.2
Peak Hour Noise Level ($L_{eq}1H$)	51.5	46.6	45.0	51.5
CNEL	---	---	---	48.8

The abbreviations and terms employed in Table 1 and elsewhere in this NIA are defined below:

- Timeframes – For the purposes of this NIA:
  - Day is 6 a.m. to 7 p.m.
  - Evening is 7 p.m. to 10 p.m.
  - Night is 10 p.m. to 6 a.m.
- A-Weighted Sound Level (dBA) - Sound pressure level measured using the A-weighting network, a filter which discriminates against low and very high frequencies in a manner similar to the human hearing mechanism at moderate sound levels. The A-weighted sound level is generally used when discussing environmental noise impacts.
- Equivalent Continuous Noise Level (L_{eq}) - The average noise level over a specified time period.
- One Hour Equivalent Continuous Noise Level ($L_{eq}1H$) - The average noise level over a one hour time period.
- Community Noise Equivalent Level (CNEL) - The long-term time average sound level, weighted as follows:
  - Daytime noise is not weighted;
  - Evening noise is weighted by +5 dB; and
  - Nighttime noise is weighted by +10 dB.

Significance Thresholds

The *Ventura County General Plan* (June 28, 2011) includes the following standards for noise generators proposed to be located near any noise sensitive use:

> *Noise generators, proposed to be located near any noise sensitive use, shall incorporate noise control measures so that ongoing outdoor noise levels received by the noise sensitive receptor, measured at the exterior wall of the building, does not exceed any of the following standards:*
>
> *a. L_{eq}1H of 55dB(A) or ambient noise level plus 3dB(A), whichever is greater during any hour from 6:00 a.m. to 7:00 p.m.*
>
> *b. L_{eq}1H of 50dB(A) or ambient noise level plus 3dB(A), whichever is greater during any hour from 7:00 p.m. to 10:00 p.m.*
>
> *a. L_{eq}1H of 45dB(A) or ambient noise level plus 3dB(A), whichever is greater during any hour from 10:00 p.m. to 6:00 a.m.*

Since drilling is a temporary activity, it may be appropriate to utilize the construction noise thresholds in the *County of Ventura Construction Noise Threshold Criteria and Control Plan* (July, 2010). The daytime construction thresholds, which allow for higher noise levels for shorter duration construction activities, are presented in Table 2. Note that the evening and night construction thresholds are the same as the General Plan evening and night thresholds.

Table 2: Daytime Construction Noise Thresholds

Construction Duration	Noise Thresholds (L_{eq}1H, dBA)
0 to 3 days	75 or Ambient + 3 dBA
4 to 7 days	70 or Ambient + 3 dBA
1 to 2 weeks	65 or Ambient + 3 dBA
2 to 8 weeks	60 or Ambient + 3 dBA
Longer than 8 weeks	55 or Ambient + 3 dBA

While the exact duration of a well drilling event depends on many factors, it generally takes about 2 weeks to drill a well. The Applicant proposes to drill 6 additional wells, resulting in a total drilling duration of 12 weeks spread over the next 10 years. As shown in Table 2, for durations over 8 weeks, the daytime construction noise threshold is equivalent to the General Plan daytime threshold.

Table 3 presents the noise thresholds applicable to this Facility. Since the ambient noise levels are below the fixed noise thresholds in all cases, the significance thresholds are not adjusted for ambient noise levels.

Table 3: Project Noise Thresholds (dBA)

Parameter	Day	Evening	Night
Peak hour (L_{eq}1H)	55	50	45

Noise Source Characterization

A drilling rig includes many noise producing components and each drilling rig can have different types and quantities of these components. As such, this NIA utilizes conservative assumptions to determine an overall drilling rig noise level that is representative of the different rigs that may be used at the Facility. For example, it is assumed that diesel generators are used to power the drilling rig rather than grid electricity. This results in a larger estimate of drilling rig noise because large diesel generators produce high noise levels.

This NIA relies on the extensive drilling rig noise characterization done for the *Whittier Main Oil Field Project Environmental Impact Report* (Whittier EIR, June 2011) to calculate noise impacts. The Whittier EIR, prepared by Marine Research Specialists, utilized a hypothetical drilling rig component list to determine the overall noise associated with the rig. Each component of the drilling rig was assigned a sound level and a usage fraction. The sound levels were based on a variety of sources, including other noise studies, manufacturer specifications, and government agency guidance. The usage fractions were assumed to be 90% for the majority of essential components, 20% for components associated with the crane, 500 one-second impulses per day for metal on metal noise, and 1,250 two-second impulses per day for other incidental noises (voices, backup alarms, annunciators, and drawline brakes). Table 4 shows the drilling rig components, sound levels, and usage fractions for the hypothetical drill rig in the Whittier EIR. For more information, including the source of each sound level assumption, refer to the Whittier EIR Noise Section.

Table 4: Drilling Rig Component Breakdown

Component	Usage Fraction	Sound Level at 50' (dBA)	Vertical Location
Mud Mixer	0.9	76	Ground Level
Mud Pumps and Diesel Engines (2)	0.9	69	Ground Level
Shackers (2)	0.5	69	Ground Level
60-ton Crane	0.2	81	Ground Level
Backup Alarms, Voices, Annunciators	0.030	94	Ground Level
Metal-on-Metal Noise	0.006	100	Ground Level
Metal-on-Metal Noise	0.006	100	Rig Floor (~20')
Metal-on-Metal Noise	0.006	100	Boards (~50')
Cutting Conveyor	0.9	69	Rig Floor (~20')
Drill Rig Engine	0.9	84	Ground Level
Drawworks Engine	0.9	74	Rig Floor (~20')
Drawline Brakes	0.030	80	Rig Floor (~20')
Note: Based on the *Whittier Main Oil Field Project Environmental Impact Report* (Whittier EIR, June 2011). Currently available at: http://www.cityofwhittier.org/depts/cd/mineralinfo/eirdraft.asp			

When these sources were combined in a computer model, the overall noise level is 85 dBA at 50 feet away from the rig (Whittier EIR). This noise level is used as the basis for calculations in this NIA. This noise level is conservative when compared to other estimates of drilling rig noise levels found in a variety of sources:

- 83 dBA at 50 feet in the Bureau of Land Management's *Draft RMPA/EIS for Federal Fluid Minerals Leasing and Development in Sierra and Otero Counties* (2001).
- 82 dBA at 50 feet in Arup Acoustics' *Plains Exploration and Production Company, Inglewood Oil Field. Noise Impact Study* (2004).
- 77 to 82 dBA at 50 feet in Los Angeles County's *Baldwin Hills EIR* (2009).
- 75 dBA at 50 feet in the Bureau of Land Management's *Noise Analysis for the Pinedale Anticline Oil and Gas Exploration and Development Project* (1999).

Noise Impact Calculation

Noise impacts associated with well drilling have been calculated utilizing the source data described above and a propagation calculation that determines how much the noise level is attenuated between the source and the receptor. The propagation calculation assumes that noise levels are reduced by 6 dBA per doubling of distance, which is the noise attenuation associated with hemispherical propagation. This is the industry standard propagation calculation and is included in the *County of Ventura Construction Noise Threshold Criteria and Control Plan*. See the attached Noise Impact Calculations for more information.

In addition to the noise attenuation from propagation, a separate terrain attenuation factor is included in the calculations. This primarily represents the shielding provided by the terrain, as shown by the cross sections in Figure 3. However, it is also meant to encompass attenuation due to atmospheric absorption, weather, ground impedance, and vegetation. A terrain attenuation of 15 dBA is assumed for Receptor 1 because the source is shielded up to a height of at least 20 feet by the intervening terrain. A terrain attenuation of 5 dBA is assumed for Receptors 2 and 3 because the source is only partially shielded from the perspective of these receptors. These estimates of attenuation are conservatively low for the high degree of shielding and other forms of attenuation present. For comparison, the Federal Highway Administration's *Noise Barrier Design Handbook* indicates that an attenuation of 10 - 15 dBA is expected from a well-designed noise barrier. The vegetated hill shielding the drilling rig for this Facility is expected to provide more attenuation than a noise barrier.

Based on the calculations described above and attached to this NIA, Table 5 presents the unmitigated noise impacts from drilling at the nearby receptors. The results are compared to the nighttime significance thresholds because they are the most conservative and because nighttime drilling will be necessary.

Table 5: Unmitigated Drilling Noise Impacts

Parameter	Receptor 1	Receptor 2	Receptor 3
Noise Impact	44.4	54.9	55.0
Nighttime Significance Threshold	45.0	45.0	45.0
Significant?	**No**	**Yes**	**Yes**
Required Mitigation	None	9.9	10

Mitigation

As shown in Table 5, 10 dBA of mitigation is required to reduce the nighttime impact at Receptors 2 and 3 to less than significant. Therefore, the following mitigation measure is provided:

NO-1: Prior to initiating well drilling operations, a sound barrier will be erected around the drilling rig. The sound barrier will be in place for the entire duration of drilling rig activities. The sound barrier must be sufficiently tall and appropriately located to break line of site between the primary drilling rig noise sources and the nearby residences. For the purposes of this mitigation, the primary drilling rig noise sources are assumed to be located between ground level (0 feet) and the drilling rig floor (about 20 feet). It is not practical or necessary to provide shielding for the upper reaches of the drilling rig mast.

Mitigation measure NO-1 is expected to provide **at least** 10 dBA of noise attenuation for Receptors 2 and 3 (see above estimate of noise barrier attenuation from the *Noise Barrier Design Handbook)*. Table 6 presents the mitigated impacts and compares them to the nighttime threshold.

Table 6: Mitigated Drilling Noise Impacts

Parameter	Receptor 1	Receptor 2	Receptor 2
Mitigated Noise Impact	44.4	<44.9	<45.0
Nighttime Significance Threshold	45.0	45.0	45.0
Significant?	**No**	**No**	**No**

Conclusion

This NIA finds that the drilling activities proposed by this Project will have significant, but mitigable impacts on nearby receptors.

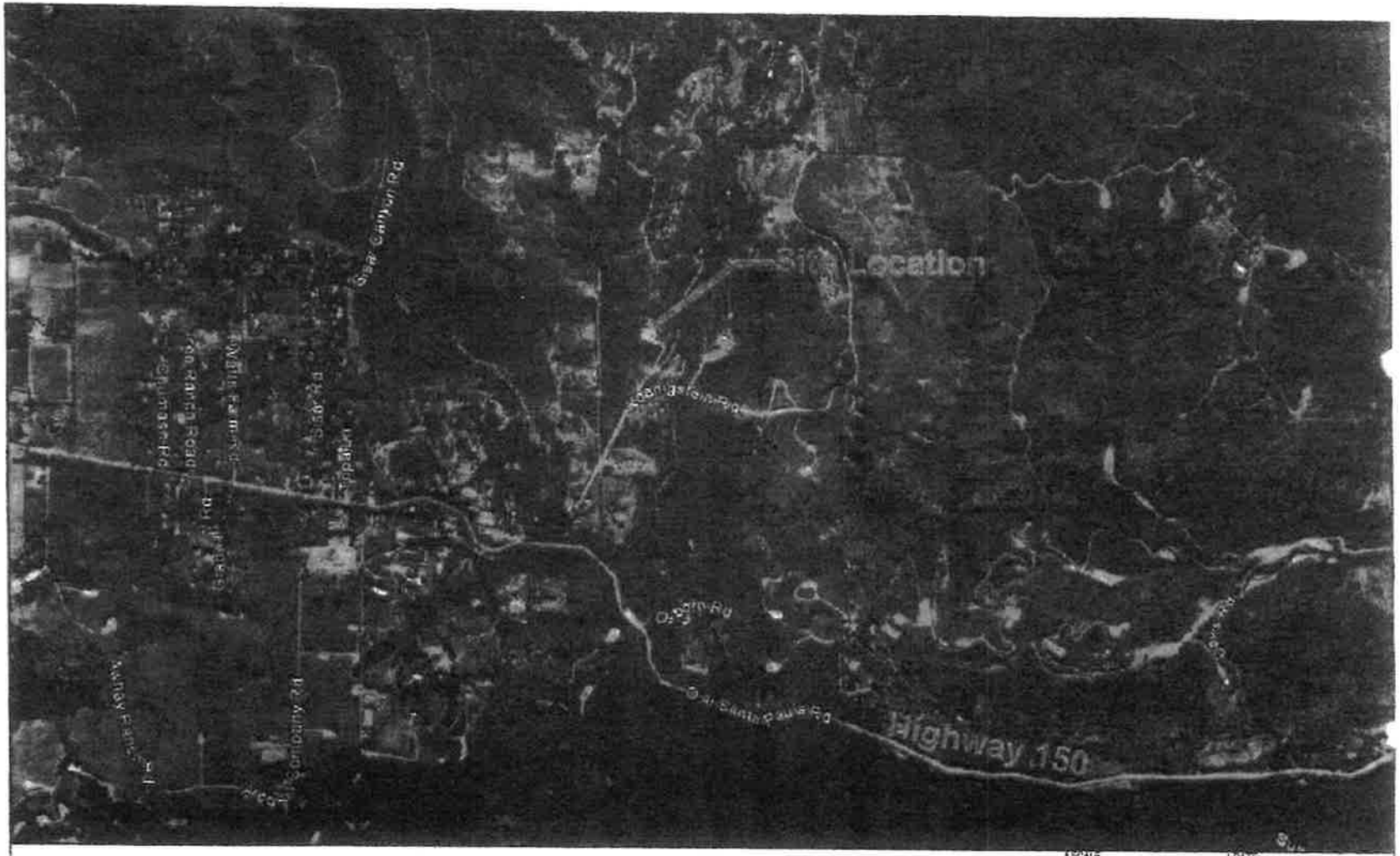
With mitigation, the noise impacts from drilling operations are less than significant when compared to the day, evening, and nighttime thresholds. Also, it should be reiterated that the drilling noise impacts will be infrequent (6 wells over 10 years) and short duration (about 2 weeks each well).

Please call John Hecht or me at (805) 275-1515 if you have any questions or if you need additional information.

Respectfully submitted.

Garrett Zuleger, P.E.
Project Manager I – Engineering
Sespe Consulting, Inc.

Attachments
1. Figures
   - Figure 1: Vicinity Map
   - Figure 2: Topographic Map
   - Figure 3: Source-Receptor Cross Sections
2. Noise Measurement Log
3. Noise Impact Calculations



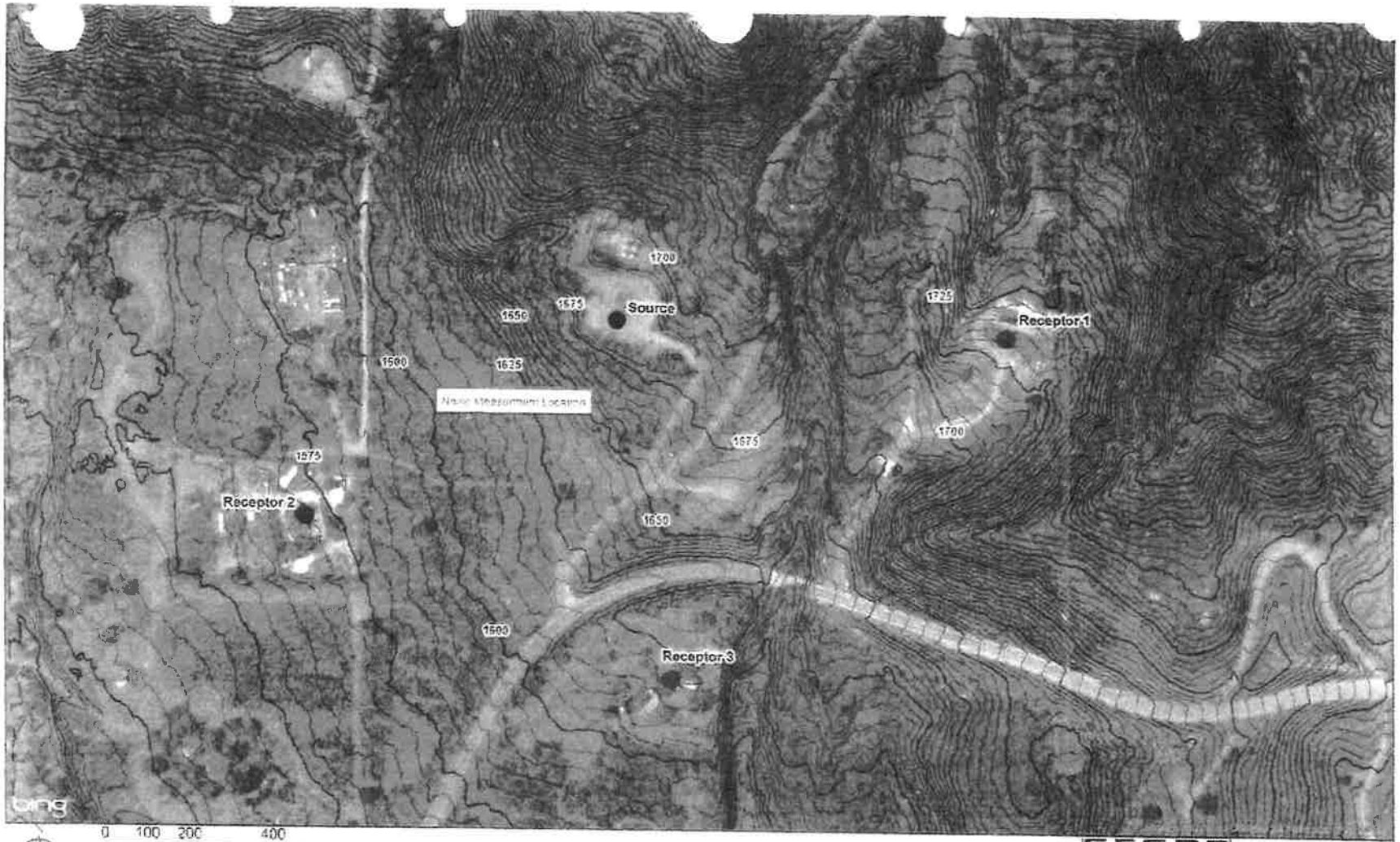
SCALE	DATE
AS SHOWN	06/2013

Site Location Map

Mirada Petroleum
Agnew Lease
Ventura County, California

SESPE CONSULTING, INC
468 Poli Street, Suite 2E - Ventura, CA 93001
(805) 275-1515 www.sespeconsulting.com

FIGURE 1



0 100 200 400 Feet

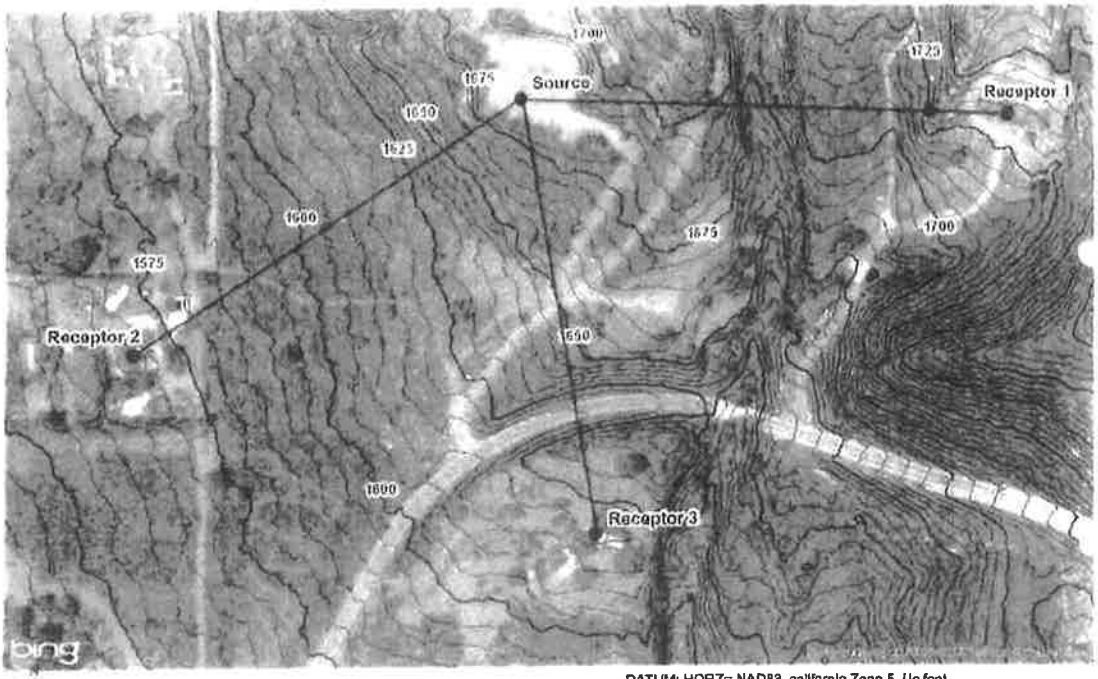
1 inch = 200 feet

DATUM: HORZ= NAD83 california Zone 5, Us foot
VERT=NAVD88
TOPOGRAPHY VENTURA COUNTY, LIDAR AIRBORNE March 2005

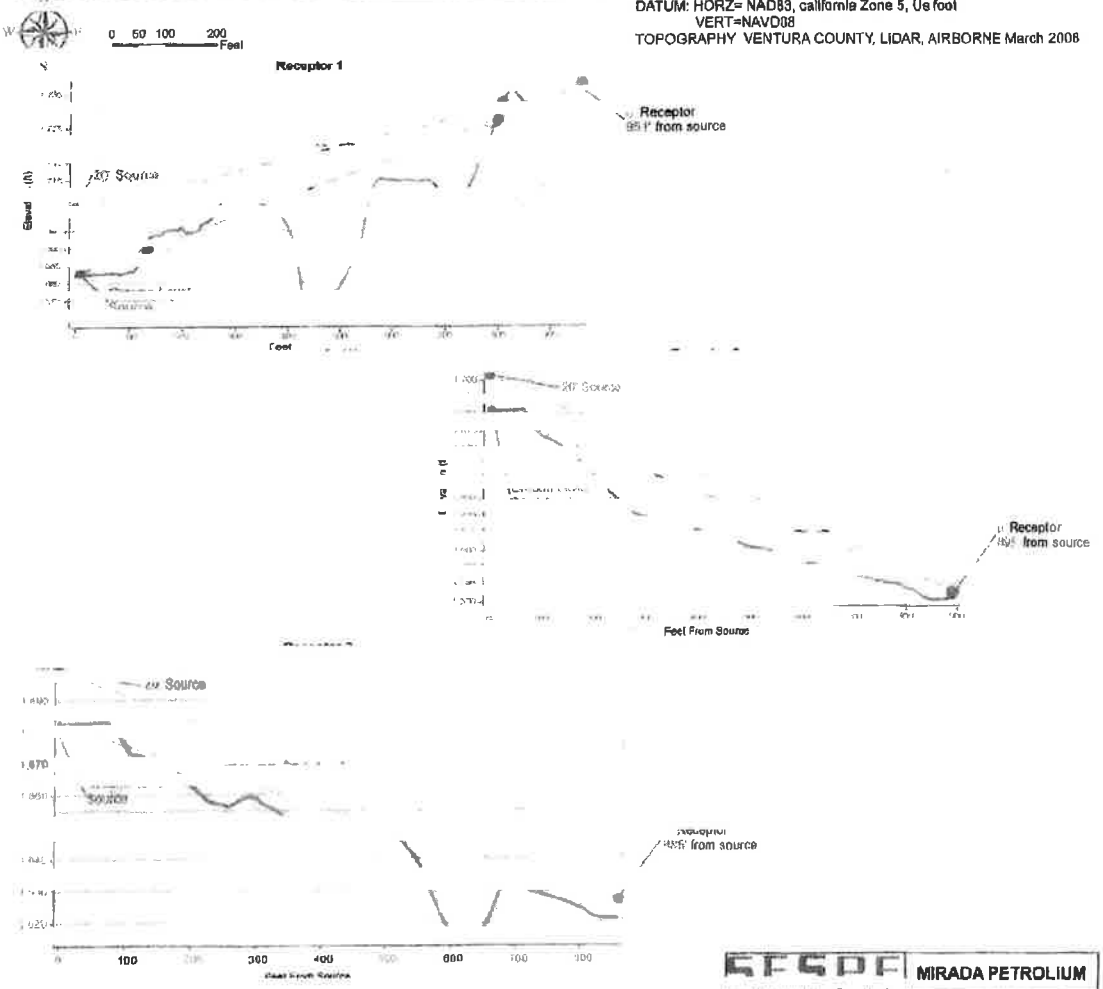
SESPE CONSULTING, INC.

MIRADA PETROLEUM

EXHIBIT 2
LOCATION



DATUM: HORZ= NAD83, california Zone 5, Us foot
VERT=NAVD88
TOPOGRAPHY VENTURA COUNTY, LIDAR, AIRBORNE March 2008



SFSDF CONSULTING INC

MIRADA PETROLIUM

EXHIBIT 3
LINE OF SIGHT

Noise Measurement Summary

Serial Number	BIJ090010	UNIT REV	R13B
Start Time	10:14:36 07-May-2013		
Run Length	24:00:00 5529600		

Microphone Information		
Description	Units	Value
Sensitivity	dB	29
Polarization	Volts	0
Meter Range	dB	120
Max Level	dB	140
Meas. Floor	dB	-20

Calibration Information			
Description		Units	Value
Pre-Cal	Level	dB	114
	Date		10:13:04 07-May-2013
Post-Cal	Level	dB	
	Date		
ReCert	Date		Unavailable

Configuration Information			
Description	Units	Meter 1	Meter 2
Integration Threshold	dB	OFF	OFF
Exchange Rate	dB	3	3
Criterion Level	dB	90	90
Upper Limit Level	dB	130	130
Projected Time	Hrs	8	8
Weighting		A	C
Time Response		SLOW	SLOW

Sespe's Calculations based on Logged Data

Parameter	Day	Evening	Night	Overall
Average Arithmetic SPL over period	55,746	6,407	6,505	33,165
Average Leq over Period	47.5	38.1	38.1	45.2
Median hour Leq during period	47.2	38.2	32.3	40.5
Peak hour Leq during period	51.5	46.6	45.0	51.5

Measurement	Units	Meter 1 Broadband	Meter 2 Broadband
Lavg	dB	45.2	56.8
Lmax	dB	76.4	85.9
Lmin	dB	27.2	32.6
Lpk	dB	110.4	108.5
TWA	dB	50	61.5
PTWA	dB	45.2	56.8
DOSE	%	0.01	0.14
PDOSE	%	0	0.05
SEL	dB	94.6	106.1
EXP	p2s	1	16

Measurement	Units	Value
LDN	dB	48.9
CNEL	dB	48.8
TAKTMAX (5sec)	dB	N/A
LC-A	dB	11.6

Exceedence	Units	Value
L02	dB	55.5
L10	dB	46.2
L25	dB	40.1
L50	dB	35.8

		Meter 1			Meter 2		
		Count	Percent	Time	Count	Percent	Time
Overload	(OL)	0	0	00:00:00	0	0	00:00:00
Under-Range	(UR)	2353867	42.56	10:12:59	248109	4.48	01:04:36
Upper Limit	(UL)	0	0	00:00:00	0	0	00:00:00

Exceedence Table

	0	1	2	3	4	5	6	7	8	9
0	76.4	57.5	55.5	54	52.7	51.5	50.3	49.1	48	47.1
10	46.2	45.4	44.8	44.3	43.7	43.3	42.8	42.4	42.1	41.8
20	41.5	41.2	40.9	40.6	40.4	40.1	39.9	39.6	39.4	39.2
30	39	38.8	38.6	38.4	38.3	38.1	37.9	37.7	37.6	37.4
40	37.2	37.1	36.9	36.8	36.6	36.5	36.4	36.2	36.1	35.9
50	35.8	35.7	35.6	35.5	35.3	35.2	35.1	34.9	34.8	34.6
60	34.4	34.3	34.1	33.9	33.7	33.4	33.2	32.9	32.7	32.5
70	32.3	32.1	31.8	31.6	31.4	31.2	30.9	30.7	30.4	30.2
80	30	29.8	29.6	29.4	29.2	29	28.8	28.7	28.5	28.4
90	28.3	28.2	28.2	28.1	28	27.9	27.8	27.8	27.7	27.5

Noise Measurement Log

[illegible]

Oil Well Drilling - Noise Impact Calculations

Receptor	Distance from Source (ft)	Source Noise Level at 50' (dBA)	Direct Propogation Noise Level (dBA)	Terrain Attenuation* (dBA)	Unmitigated Noise Level (dBA)
Receptor 1	951	85	59.4	15	**44.4**
Receptor 2	895	85	59.9	5	**54.9**
Receptor 3	885	85	60.0	5	**55.0**

Note: The propogation calculation is based on 6 dBA per doubling of distance, per the Ventura County *Construction Noise Threshold Critera and Control Plan* (July 2010). This guidance differs from the *Ventura County Initial Study Assessment Guidelines*, which recommends a propogation attenuation of 5 dBA per doubling of distance. The 6 dBA per doubling of distance is used because it is the actual propogation loss for hemispherical propogation and it is used throughout the industry.

* The terrain attenuation estimate primarily represents the shielding provided by the terrain (see Figure 3). However, atmospheric absorption, attenuation due to weather, ground impedance, and attenation due to vegetation also provide additional attenuation that is included in this estimate.

Board of Supervisors Hearing
July 23, 2019

Mitigated Negative Declaration Addendum

Attachment 17

5-21-19 Evaluation of GHG Emissions of Well Drilling

Renaissance Petroleum Project

Case No. PL14-0103
(Minor Modification of CUP 4384)

Baca, Brian

From: Tyler Harris <tyler@vcapcd.org>
Sent: Tuesday, May 21, 2019 12:07 PM
To: Baca, Brian
Cc: Nicole Collazo; aghasemi; Tyler Harris; Villegas, Michael
Subject: [External] Oil Well Drilling GHG Emissions
Attachments: GHG emissions from drilling one generic oil well.pdf

Brian,

Per your request, please see below a summary of greenhouse gas (GHG) emissions from the drilling of a single generic oil well. The calculations are based on the assumption outlined in a memo to you from Chuck Thomas dated September 6, 2017, i.e. drilling will require combustion of 1,000 gallons of diesel fuel per day. Per our conversation, it will take 60 days to drill a single well. Emission factors and global warming potential (GWP) values obtained from EPA Emission Factors for Greenhouse Gas Inventories modified 9 March 2018.

For a single well, I estimate 615 metric tonnes (MT) of GHG expressed as carbon dioxide equivalents (CO2e). For a project with four wells, the total GHG emissions are estimated at 2,460 MT CO2e from the drilling operations. I have attached a PDF showing the calculations used to reach these estimates.

Commuter trip emissions are expected to be insignificant compared to the emissions from drilling equipment.

Please let me know if you have any questions.

Best regards,
Tyler

Tyler S. Harris
Air Quality Engineer
Ventura County Air Pollution Control District
669 County Square Drive 2nd Floor
Ventura, CA 93003
Phone: (805) 645-1407
Fax: (805) 645-1444
tyler@vcapcd.org

Please note my work schedule is Monday through Thursday 7:00 AM – 5:30 PM (4/10 schedule, off on Fridays). I telecommute on Wednesdays and monitor my email and voice mail regularly.

Emissions to drill one generic oil well

Fuel burned	1,000	gal diesel per day	(per Sept. 6, 2017 Memo from Chuck Thomas)
Average time to drill one well	60	days	
Total fuel burned	60,000	gallons diesel fuel	
CO_2 emission factor	10.21	kg CO_2/gallon burned	
CH_4 emission factor	0.00041	kg CH_4/gallon burned	
N_2O emission factor	0.00008	kg N_2O/gallon burned	
CO_2 emissions	612.6	MT CO_2/well	1MT = 1000 kg
CH_4 emissions	0.0246	MT CH_4/well	
N_2O emissions	0.0048	MT N_2O/well	
CH_4 GWP	25	MTCO_2e/MT CH_4	
N_2O GWP	298	MT CO_2e/MT N_2O	
Single well GHG emissions	**615**	MT CO_2e per well drilled	

Emission factors and GWP from EPA Emission Factors for Greenhouse Gas Inventories modified 9 March 2018
https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf