APPENDIX A
Additional Rare Plant Surveys

RARE PLANT SURVEY

RIVER TERRACE SITE
LOMPOC
SANTA BARBARA COUNTY, CALIFORNIA

Submitted to:

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Submitted by:

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April 2005

1. INTRODUCTION

This report documents the results of a rare plant species survey conducted in April 2005 at the River Terrace site in Lompoc, Santa Barbara County, California. The property is located just north of the junction of State Highway 1 and State Highway 246. It is bounded by College Avenue to the north and Laurel Avenue to the south. Access to the site is from Laurel Avenue and Twelfth Street. Industrial development occurs to the west and south of the parcel, and residential development to the north. The Santa Ynez River lies adjacent to the eastern boundary of the site, and flows in a southeast-northwest direction. The proposed project involves the development of the parcel for residential housing.

2. METHODS

A team of two consultants from FL*x* (Dr. Anuja Parikh and Dr. Nathan Gale) conducted the rare plant survey on April 18, 2005. The field survey was conducted on foot, and the entire site was covered systematically by walking transects approximately 10 m apart. During the field visit, vegetation types and plant species associations were noted and their dominant species were recorded. A list of plant species, including rare and commonly occurring plants observed at the site, was compiled (Appendix A). Plant community descriptions in this report follow Holland (1986) where applicable; species nomenclature follows Hickman (1993).

3. VEGETATION AT THE SITE

The River Terrace site lies on flat terrain on two different terrace levels above the Santa Ynez River. The site previously has been disturbed by agricultural and industrial uses. Much of the area has been graded as part of diatomaceous earth processing and storage activities. Industrial activities no longer occur at the site; a portion of the lower terrace has been fenced, and currently is used for grazing by goats.

Natural undisturbed habitats and soils do not occur on the parcel. Since the cessation of industrial use, the site has revegetated, but no recognizable plant communities have developed. The vegetation currently consists of a mixture of introduced ruderal plants and several coastal sage scrub species. Native dominants at the site include coyote brush (*Baccharis pilularis*), coast goldenbush (*Isocoma menziesii* var. *menziesii*), common aster (*Aster chilensis*), and cliff malacothrix (*Malacothrix saxatilis* var. *tenuifolia*). Sourclover (*Melilotus indica*) is a dominant non-native species on the parcel; other common introduced species are Italian thistle (*Carduus pycnocephalus*), tocalote (*Centaurea melitensis*), black mustard (*Brassica nigra*), and several annual grasses, including bromegrasses (*Bromus* spp.) and oats (*Avena* spp.).

Landscape plantings are present along the boundaries of the property and along the roadways, and include Monterey pines (*Pinus radiata*), myoporum (*Myoporum laetum*), and Peruvian pepper trees (*Schinus molle*).

4. RARE PLANT SPECIES

The rare plant survey at the River Terrace site was carried out in spring to accommodate the blooming periods of various species found in the region, or previously reported by the California Natural Diversity Database (CNDDB). Later-flowering species, if present, would be recognizable in vegetative form at the time of the field visit. A list of target species potentially occurring at the site is presented in Table 1; these species were searched for during the focused rare plant survey.

TABLE 1: SENSITIVE PLANT SPECIES POTENTIALLY OCCURRING AT THE RIVER TERRACE SITE

Scientific Name	Common Name	Family	Status* Federal/State/CNPS
Agrostis hooveri	Hoover's bentgrass	Poaceae	-/-/1B
Cirsium loncholepis	La Graciosa thistle	Asteraceae	FE/ST/1B
Cordylanthus rigidus ssp. *littoralis*	Seaside bird's-beak	Scrophulariaceae	-/SE/1B
Horkelia cuneata ssp. *puberula*	Mesa horkelia	Rosaceae	-/-/1B
Rorippa gambelii	Gambel's water cress	Brassicaceae	FE/ST/1B
Scrophularia atrata	Black-flowered figwort	Scrophulariaceae	-/-/1B

* - = No listing
FE = Federal endangered
SE = State/California endangered
ST = State/California threatened
1B = CNPS List 1B, plants rare, threatened, or endangered in California and elsewhere

One sensitive species was found in the proposed project area during the current survey: black-flowered figwort (*Scrophularia atrata*; CNPS List 1B). This perennial herb typically grows up to 1.5 m tall, and has ovate, acute, dentate leaves. The corolla is about 10 mm in length, and is urn-shaped and dark maroon, with a blackish upper half. The lower lip of the corolla is spreading to reflexed. Corolla characteristics distinguish this species from the common taxon, California figwort (*Scrophularia californica*), which has a dark maroon upper half, but a paler or yellowish-green lower half, and a recurved lower lobe. Typically, black-flowered figwort (*Scrophularia atrata*) is found in more mesic/riparian habitats or on calcareous, sometimes diatomaceous, soils, whereas California figwort (*Scrophularia californica*) is found in more upland habitats, in coastal sage scrub or chaparral.

At the River Terrace site, seven plants of black-flowered figwort (*Scrophularia atrata*) were found located on a sandy berm on the lower terrace level, near the southeastern corner of the parcel. Most plants were flowering and fruiting. They occur at the edge of a clump of arroyo willows (*Salix lasiolepis*), and associated species include Mexican elderberry (*Sambucus mexicana*), common aster (*Aster chilensis*), hoary nettle (*Urtica dioica* ssp. *holosericea*), coast goldenbush (*Isocoma menziesii* var. *menziesii*), coyote brush (*Baccharis pilularis*), and annual grasses. More detailed documentation and photographs are provided in Appendices B and C of this report.

5. REFERENCES

Hickman, J.C. (Editor). 1993. The Jepson Manual, Higher Plants of California. University of California Press, Berkeley, California.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Unpublished Report. State of California, The Resources Agency, Department of Fish and Game, Natural Heritage Division, Sacramento, California.

Smith, C.F. 1998. A Flora of the Santa Barbara Region, California. Second Edition. Santa Barbara Botanic Garden and Capra Press, Santa Barbara, California.

APPENDIX A

PLANT SPECIES LIST
RIVER TERRACE SITE, LOMPOC
SANTA BARBARA COUNTY, CALIFORNIA

PLANT SPECIES LIST
RIVER TERRACE SITE, LOMPOC, SANTA BARBARA COUNTY, CALIFORNIA

SCIENTIFIC NAME	COMMON NAME	GROWTH FORM
GYMNOSPERMS		
Pinaceae	**Pine Family**	
*Pinus radiata***	Monterey pine	T
ANGIOSPERMS - MONOCOTS		
Poaceae	**Grass Family**	
*Agrostis viridis**	Water bent	PG
*Avena barbata**	Slender wild oat	AG
*Avena fatua**	Wild oat	AG
*Bromus catharticus**	Rescue grass	AG, PG
*Bromus diandrus**	Ripgut grass	AG
*Bromus hordeaceus**	Soft chess	AG
Bromus madritensis ssp. *rubens**	Foxtail chess	AG
*Cortaderia selloana**	Pampas grass	PG
Hordeum murinum ssp. *leporinum**	Hare barley	AG
Leymus triticoides	Beardless wild-rye	PG
*Lolium multiflorum**	Italian ryegrass	AG, BG
*Phalaris aquatica**	Harding grass	PG
*Phalaris minor**	Littleseed canary grass	AG
*Piptatherum miliaceum**	Smilo grass	PG
*Poa annua**	Annual bluegrass	AG, BG
*Polypogon monspeliensis**	Annual beard grass	AG
*Schismus barbatus**	Mediterranean schismus	AG
Vulpia myuros var. *hirsuta**	Rat-tail fescue	AG
ANGIOSPERMS - DICOTS		
Aizoaceae	**Fig-Marigold Family**	
*Carpobrotus edulis**	Hottentot-fig	PH
Anacardiaceae	**Sumac or Cashew Family**	
*Schinus molle**	Peruvian pepper tree	T
Toxicodendron diversilobum	Western poison oak	S
Apiaceae	**Carrot Family**	
*Conium maculatum**	Poison hemlock	BH
*Foeniculum vulgare**	Fennel	PH
Asteraceae	**Sunflower Family**	
Artemisia californica	California sagebrush	S
Artemisia douglasiana	Mugwort	PH
Aster chilensis	Common aster	PH
Baccharis douglasii	Marsh baccharis	PH
Baccharis pilularis	Coyote brush, Chaparral broom	S
*Carduus pycnocephalus**	Italian thistle	AH, BH
*Centaurea melitensis**	Tocalote	AH
*Chamomilla suaveolens**	Pineapple weed, Rayless chamomile	AH
Cirsium brevistylum	Indian thistle	AH, BH, PH

PLANT SPECIES LIST
RIVER TERRACE SITE, LOMPOC, SANTA BARBARA COUNTY, CALIFORNIA

SCIENTIFIC NAME	COMMON NAME	GROWTH FORM
*Cirsium vulgare**	Bull thistle	BH
*Erechtites glomerata**	Australasian fireweed	AH
Euthamia occidentalis	Western goldenrod	PH
Gnaphalium californicum	California everlasting	AH, BH
*Gnaphalium luteo-album**	Weedy cudweed	AH
Gnaphalium stramineum	Cotton-batting plant	AH, BH
*Hypochaeris glabra**	Smooth cat's-ear	AH
Isocoma menziesii var. *menziesii*	Coast goldenbush	Ss
Malacothrix saxatilis var. *tenuifolia*	Cliff malacothrix	PH
*Picris echioides**	Bristly ox-tongue	AH, BH
Senecio flaccidus var. *douglasii*	Sandwash groundsel, Bush senecio	Ss
*Senecio vulgaris**	Common groundsel	AH
*Silybum marianum**	Milk thistle	AH, BH
Sonchus asper ssp. *asper**	Prickly sow thistle	AH
*Sonchus oleraceus**	Common sow thistle	AH
Stephanomeria virgata	Wand chicory	AH
Brassicaceae	**Mustard Family**	
*Brassica nigra**	Black mustard	AH
Caprifoliaceae	**Honeysuckle Family**	
Sambucus mexicana	Mexican elderberry, Blue elderberry	S
Caryophyllaceae	**Pink Family**	
*Polycarpon tetraphyllum**	Four-leaved allseed	AH
Spergularia marina	Saltmarsh sand-spurrey	AH
Chenopodiaceae	**Goosefoot Family**	
*Atriplex semibaccata**	Australian saltbush	PH, S
*Chenopodium album**	Lamb's quarters, Pigweed	AH
Chenopodium berlandieri	Pitseed goosefoot	AH
Fabaceae	**Legume Family**	
Lupinus bicolor	Miniature lupine	AH
Lupinus microcarpus var. *densiflorus*	Chick lupine	AH
*Medicago polymorpha**	California burclover	AH
*Melilotus alba**	White sweetclover	AH, BH
*Melilotus indica**	Sourclover	AH
*Trifolium fragiferum**	Strawberry clover	PH
*Trifolium hirtum**	Rose clover	AH
*Vicia benghalensis**	Purple vetch	AH
Grossulariaceae	**Gooseberry Family**	
Ribes divaricatum var. *pubiflorum*	Straggly gooseberry	S
Malvaceae	**Mallow Family**	
*Malva nicaeensis**	Bull mallow	AH, BH
Myoporaceae	**Myoporum Family**	
*Myoporum laetum**	Myoporum	S, T

PLANT SPECIES LIST
RIVER TERRACE SITE, LOMPOC, SANTA BARBARA COUNTY, CALIFORNIA

SCIENTIFIC NAME	COMMON NAME	GROWTH FORM
Onagraceae	**Evening Primrose Family**	
Epilobium brachycarpum	Field willow-herb	AH
Polygonaceae	**Buckwheat Family**	
*Rumex crispus**	Curly dock	PH
Primulaceae	**Primrose Family**	
*Anagallis arvensis**	Scarlet pimpernel, Poor-man's weatherglass	AH
Rubiaceae	**Madder Family**	
Galium aparine?*	Goose grass	AH
Salicaceae	**Willow Family**	
Salix exigua	Narrow-leaved willow	S
Salix lasiolepis	Arroyo willow	S, T
Scrophulariaceae	**Figwort Family**	
Scrophularia atrata ■	Black-flowered figwort	PH
Solanaceae	**Nightshade Family**	
Solanum douglasii	White nightshade	PH, Ss
Tamaricaceae	**Tamarisk Family**	
*Tamarix ramosissima**	Mediterranean tamarisk	S, T
Urticaceae	**Nettle Family**	
Urtica dioica ssp. *holosericea*	Hoary nettle	PH
*Urtica urens**	Dwarf nettle	AH

NOTES:

1. Species observed during field survey conducted by FL*x*, April 18, 2005.

2. Scientific and common names are from Hickman (1993) and Smith (1998).

3. Growth Form indicates species growth habit:
AG = Annual Grass; AH = Annual Herb; AV = Annual Vine; BG = Biennial Grass; BH = Biennial Herb; PG = Perennial Grass; PH = Perennial Herb; PV = Perennial Vine; Ss = Subshrub; S = Shrub; T = Tree.

* Non-native plant species
*? Possible non-native plant species
** Plant species apparently persisting from planting or cultivation
■ Sensitive plant species

APPENDIX B

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORM

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: WHDAB@dfg.ca.gov

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work *mm/dd/yyyy:* 04/18/2005

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Scrophularia atrata*

Common Name: Black-flowered figwort

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 7 Subsequent Visit? ☐ yes ☑ no
Is this an existing NDDB occurrence? _____ ☐ no ☑ unk.
Yes, Occ. #

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Anuja Parikh, Nathan Gale, FLx
Address: 1215 Bajada
Santa Barbara, CA 93109
E-mail Address: flx.sb@cox.net
Phone: (805) 564-1352

Plant Information

Phenology: 15 % vegetative 85 % flowering 50 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Santa Barbara Landowner / Mgr.: Coastal Vision
Quad Name: Lompoc Elevation: 120 ft
T____ R __ Sec ____ , ____ ¼ of _____ ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): GPS
T____ R __ Sec ____ , ____ ¼ of _____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin Etrex Legend
Datum: NAD27☐ NAD83☑ WGS84☐ Horizontal Accuracy 5 m meters/feet
Coordinate System: UTM Zone 10☑ UTM Zone 11☐ *OR* Geographic (Latitude & Longitude)☐
Coordinates: Easting/Longitude 0735128 Northing/Latitude 3836531

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

At edge of willow woodland canopy, with Salix lasiolepis, Sambucus mexicana, Aster chilensis, Urtica dioica holosericea, Isocoma menziesii, Baccharis pilularis, and annual grasses.
Plants located on a berm, sandy soil, northern aspect, slope 5 to 20 degrees.

Other rare taxa seen at THIS site on THIS date:

Site Information Overall site quality: ☐ Excellent ☐ Good ☑ Fair ☐ Poor

Current / surrounding land use: Industrial/quarrying activities nearby

Visible disturbances:

Threats: Possible development

Comments:

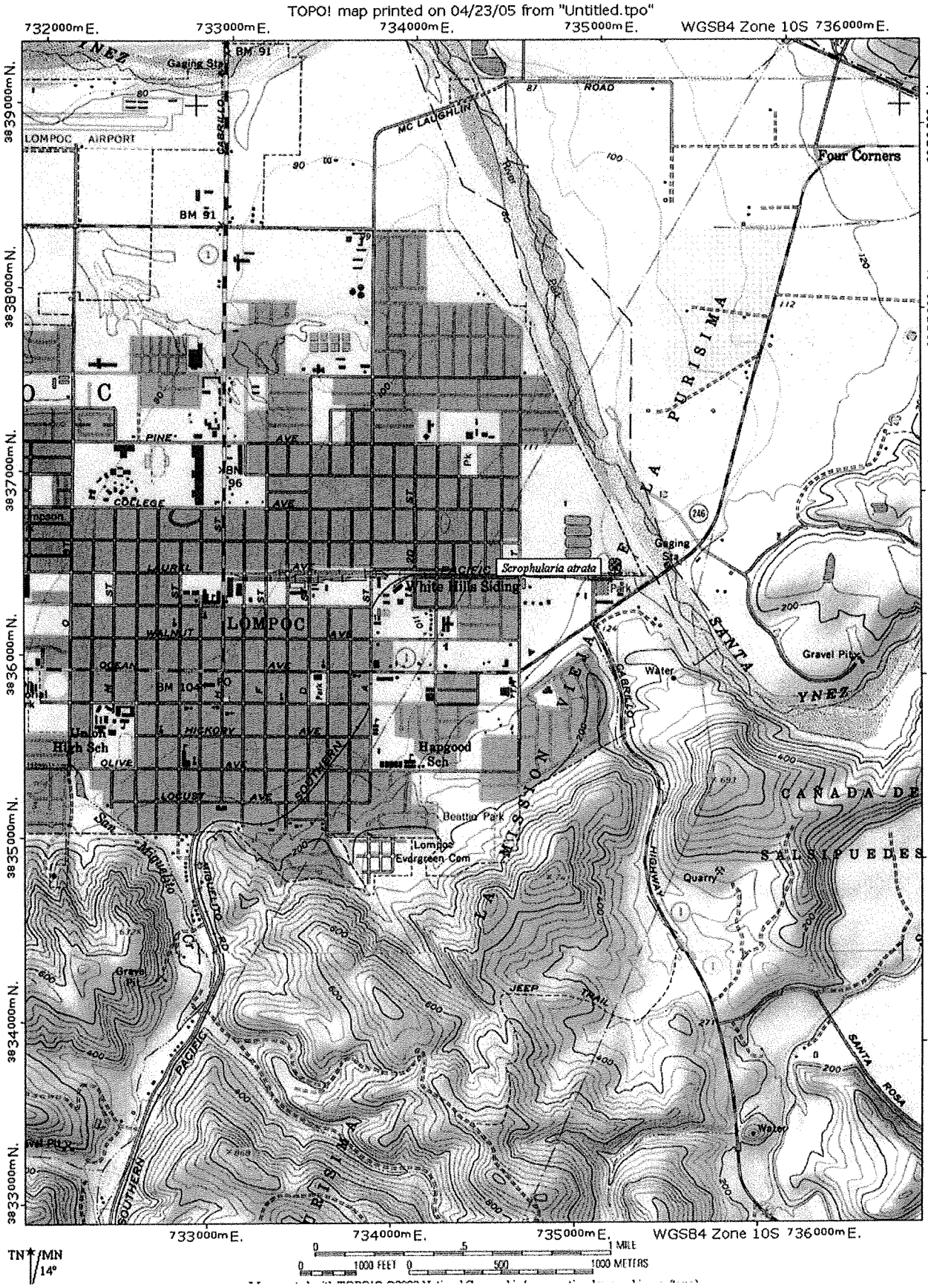
Determination: *(check one or more, and fill in blanks)*
- ☑ Keyed (cite reference): Jepson Manual
- ☐ Compared with specimen housed at: _____
- ☐ Compared with photo / drawing in: _____
- ☐ By another person (name): _____
- ☑ Other: Personal experience

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☑
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? ☐ yes ☐ no

FG/WHDAB/1747 Rev.10/20/03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LOMPOC AIRPORT
BM 91
Gaging Sta
MC LAUGHLIN ROAD
Four Corners
LA PURISIMA
COLLEGE AVE
PINE AVE
LOMPOC
Scrophularia atrata
White Mills Siding
Gaging Sta
SANTA YNEZ
Gravel Pits
Water
WALNUT AVE
HICKORY AVE
OLIVE AVE
LOCUST AVE
High Sch
Hapgood Sch
Beattie Park
Lompoc Evrgreen Cem
SOUTHERN PACIFIC
CAÑADA DE SALSIPUEDES
Quarry
HIGHWAY 1
JEEP TRAIL
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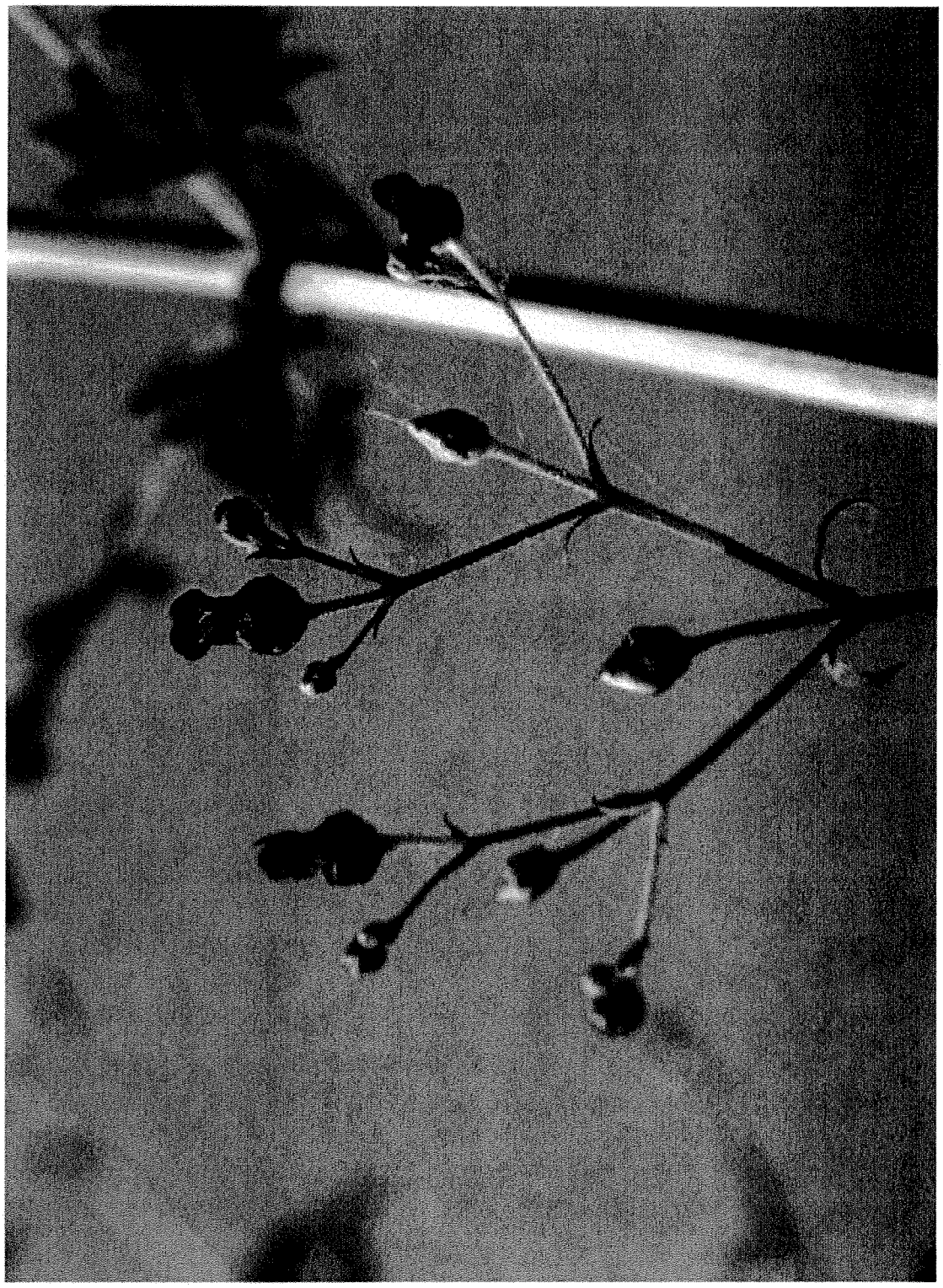
APPENDIX C

PHOTODOCUMENTATION



APPENDIX B

Bodger Fig-Wort Mitigation Monitoring Report

BODGER PROPERTY
BLACK-FLOWERED FIGWORT (*Scrophularia atrata*) HABITAT MITIGATION AND MONITORING PLAN

Prepared for:

City of Lompoc

Prepared by:

Rincon Consultants, Inc.

April 17, 2002

Environmental Scientists Planners Engineers

BODGER PROPERTY
BLACK-FLOWERED FIGWORT (*Scrophularia atrata*)
HABITAT MITIGATION AND MONITORING PLAN

Prepared for:

City of Lompoc

Prepared by:

Rincon Consultants, Inc.

April 17, 2002

BLACK-FLOWERED FIGWORT (*Scrophularia atrata*) HABITAT MITIGATION AND MONITORING PLAN FOR THE BODGER PROPERTY

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1.0 INTRODUCTION

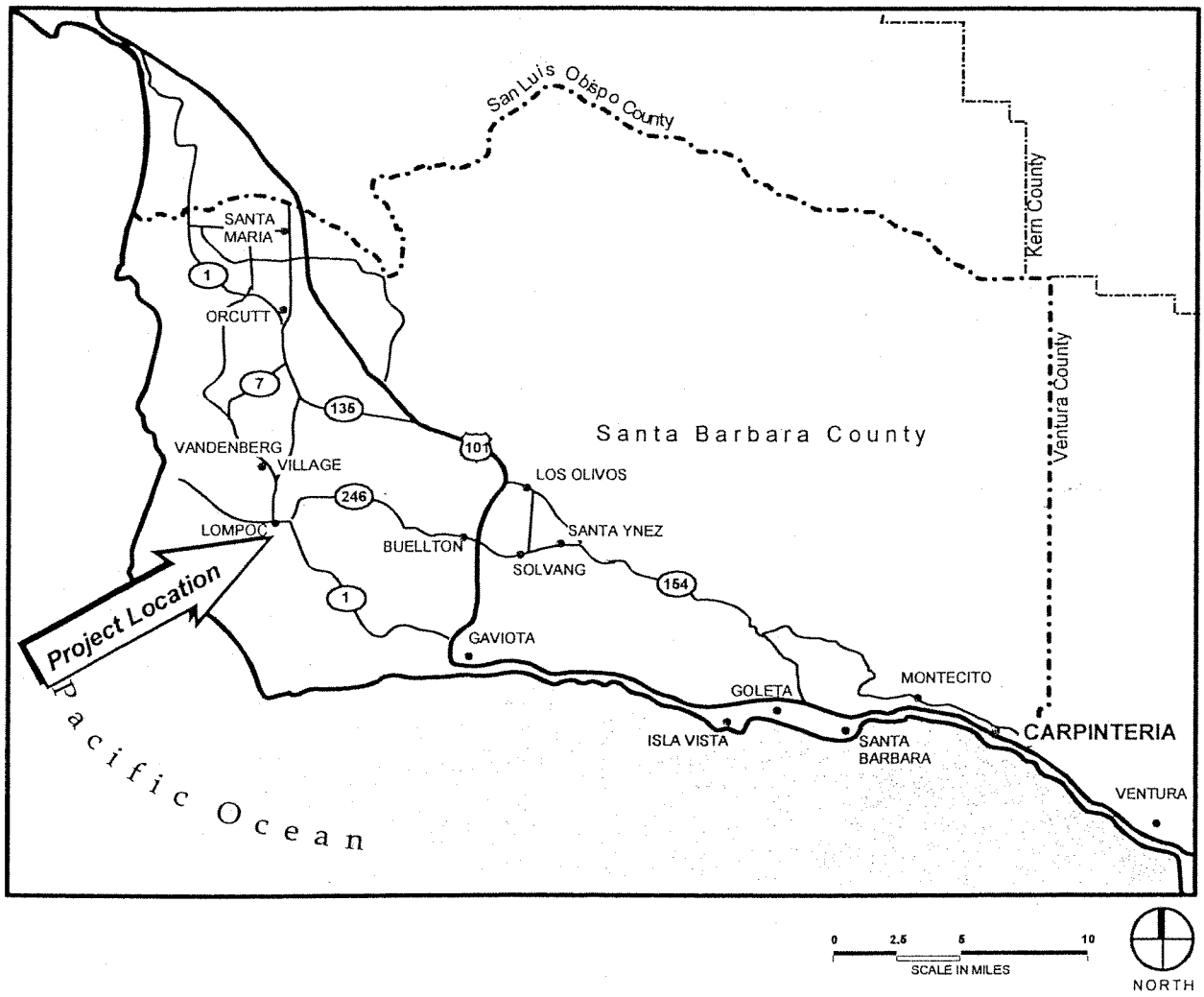
1.1 Purpose and Study Area

This plan describes the mitigation for the removal of approximately 50 black flowered figwort plants (*Scrophularia atrata*), and approximately 0.07 acre of the lower reach of an unnamed, ephemeral drainage channel identified by the California Department of Fish and Game as waters of the State from the Bodger property project site located in Lompoc, Santa Barbara County, California (Figures 1 and 2). Approximately 50 black-flowered figwort plants, and the lower reach of an ephemeral drainage channel would be removed from the project site as a result of the development of a residential neighborhood. The approximately 30-acre Bodger property is located at the southwestern edge of the City of Lompoc on the southeast corner of the intersection of West Olive Avenue and Bodger Road. The portion of Bodger Road within the city limits occurs on the Bodger property. The site is composed of flat to gently sloping hills and includes areas of native vegetation, agriculture, disturbed and developed land. Bordering the site are West Olive Street to the north, open space to the south, residential development and the Miguelito Elementary School to the east, and residential development and open space to the west.

1.2 Project Description

Removal of approximately 50 black-flowered figwort plants, as well as 0.07 acre of waters of the State of California on the Bodger property would occur for the construction of an 85-lot subdivision on the site. As currently proposed, all vegetation will be removed from the site during construction of the proposed development, including the approximately 50 black-flowered figwort individuals. Furthermore, a debris/retarding basin will be constructed in the southwest portion of the site in the vicinity of the lower reach of this ephemeral drainage channel. The project applicant has proposed onsite mitigation, which would be protected in perpetuity. Onsite mitigation will occur in the southwestern portion of the site, and be located around the proposed debris/retarding basin in the vicinity of the existing drainage channel (see Figure 3).

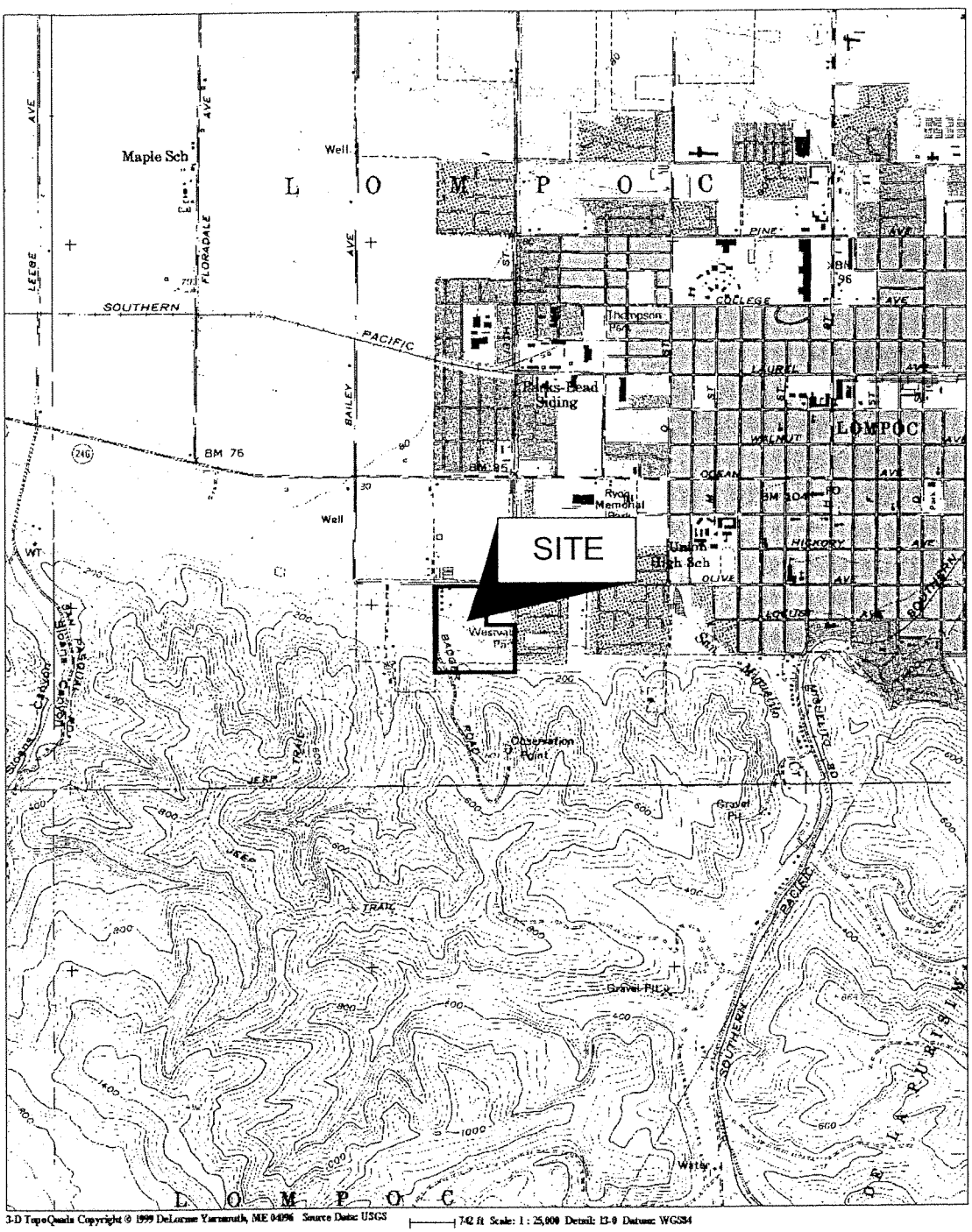
Of regional importance, a larger, more extensive occurrence of black-flowered figwort occurs immediately to the south of the Bodger property on a parcel owned by the developer. This parcel is located outside of the Lompoc city limits within the County of Santa Barbara. The more extensive black-flowered figwort occurrence is associated with the coastal scrub habitat and the Lopez Shaly Clay Loam soil mapping unit that extend onto the southern portion of the Bodger property. The black-flowered figwort occurrence in the area appears to be restricted to the Lopez Shaly Clay Loam soil mapping unit. Because the applicant will restore native coastal scrub in the onsite mitigation area, and will provide a net increase of of black-flowered figwort individuals on the subject property by implementing this black-flowered figwort habitat mitigation and monitoring plan, the removal of the 50 black-flowered figwort plants during development of the Bodger property should not adversely affect this species existence in the Lompoc vicinity.



Regional Location Map

Figure 1

City of Lompoc

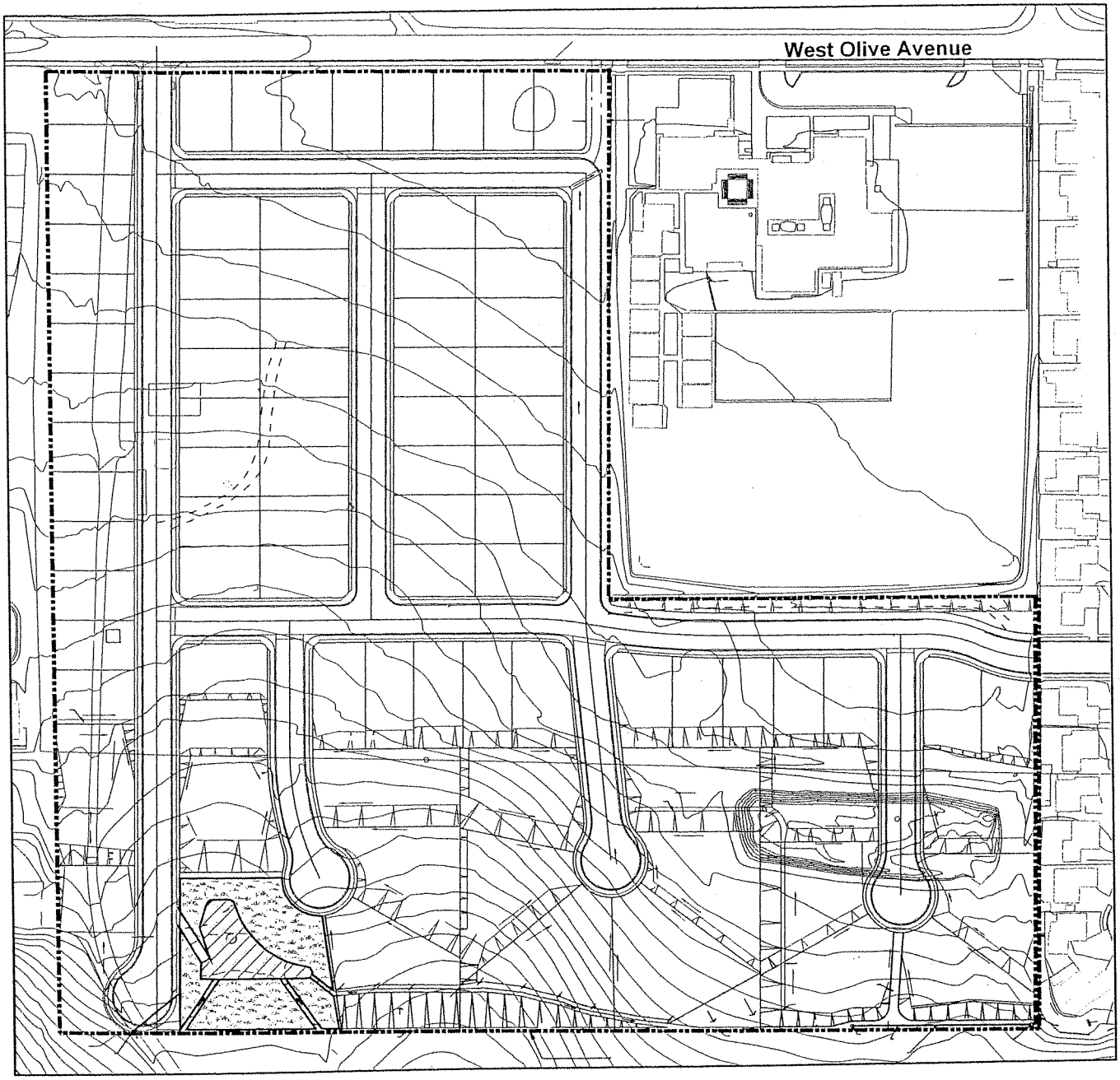


NORTH

Site Location on USGS Quadrangle

Figure 2

City of Lompoc



Base map provided by Barry J. Gustafson. March 2002.

Mitigation Inset Area (See Figure 4)

Black-Flowered Figwort Mitigation Area

Debris Basin Floor Revergetation Area

Project Boundary

0 50 100 200
Feet

Bodger Property Site Plan

Figure 3

1.3 Responsible Party

All funding for planning, implementation, maintenance and monitoring of this black-flowered figwort habitat mitigation plan, and any identified contingency measure required to achieve the required 2:1 replacement ratio for black-flowered figwort plants (plants replaced to plants removed) and the 4:1 replacement ratio for coastal scrub habitat (habitat created to habitat impacted) will be the responsibility of Signature Pacific Development Company. Signature Pacific Development Company will also be responsible for implementing and monitoring contingency measures indicated as necessary to achieve the required goals of the plan.

1.4 Black-Flowered Figwort Biology and Regulatory Information

Black-flowered figwort, a California Native Plant Society (CNPS) List 1B species, is a perennial species in the figwort family (Scrophulariaceae) that can inhabit a number of plant communities within the coastal terraces and mountains below 1,500 feet mean sea level (msl) from Santa Barbara County to southern San Luis Obispo County. Black-flowered figwort has not been listed as rare, threatened or endangered by either the federal or state government. The CNPS has placed black-flowered figwort on their List 1B because it is rare throughout its range, and its occurrences have declined significantly over the last century. CNPS has also provided additional information regarding this species rarity and distribution (CNPS's R-E-D Code), which is summarized as follows: the species is distributed in a limited number of occurrences, occasionally more if each occurrence is small; it is endangered in a portion of its range; and is endemic to California.

Black-flowered figwort typically occurs on sandy and calcareous soils (diatomaceous shales) in closed-cone coniferous forests, maritime chaparral, coastal dunes, coastal scrub, and riparian scrub habitat types between 30 and 750 feet (msl). It typically blooms from April through June, but can be found in bloom as late as August near the coast. The CNDDB (2002) identifies a number of occurrences of this species in the Lompoc vicinity. Appropriate habitat for this species on the Bodger property occurs in the coastal scrub areas dominated by coyote brush (*Baccharis pilularis* var. *consanguinea*). Furthermore, this species appears to be confined to growing on the Lopez Shaly Clay Loam, 15-75% slopes soils mapping unit, which extends onto the south-central portion of the site. Black-flowered figwort plants were observed growing in thin soil areas where the diatomaceous shales are exposed at or near the surface.

1.5 Biological Resource Studies Conducted on the Bodger Property

Rincon Consultants conducted several studies on the Bodger Property throughout 2001. Surveys conducted for the preparation of a biological assessment for the project (Rincon Consultants with Thomas Olson Biological Consulting, 2001) identified several black-flowered figwort plants in the southwestern portion of the site. A thorough, focused rare plant survey was then conducted for the entire site with special attention focused on the intact native coastal scrub habitat type in the southern portion of the site that

occurred on the Lopez Shaly Clay Loam soils mapping unit. Additional black-flower figwort occurrences were observed in several locations throughout the native habitat areas in this portion of the property (Rincon Consultants, 2001). Additionally, a delineation of waters of the United States on the Bodger property was also prepared for the property and was submitted to the United States Army Corps of Engineers for a final jurisdictional determination (Rincon Consultants, 2001).

1.6 Schedule

Site grading, topsoil salvage, mitigation area site preparation, restoration, non-native weed abatement, and habitat management will occur throughout 2002 and 2003, and continue for a five year period following plant installation. The project will encompass the following restoration and management activities in 2002-2003:

- Site grading and native topsoil salvage — Summer 2002
- Mitigation site preparation — Summer 2002
- Black-flowered figwort seed collection and propagation — Summer/Fall 2002
- Installation of Biotechnical Erosion Controls — September 2002
- Begin habitat restoration program — December 2002
- Begin Non-native weed abatement program — December 2002
- Installation of black-flowered figwort plants — February/March 2003
- Begin compliance monitoring and reporting — Spring 2003

2.0 GOAL OF MITIGATION

The goal of this mitigation and monitoring plan is two-fold: 1) provide a 2:1 replacement ratio for the number of black-flowered figwort individuals removed for development of the Bodger property; and 2) provide at least a 4:1 replacement ratio of native coastal scrub habitat as a result of removing the lower reach of an unnamed drainage on the project site. The applicant proposes to restore approximately 0.6 acre of coastal scrub habitat and install 200 black-flowered figwort plants on the project site following construction activities in the area proposed for mitigation. Restoring 0.6 acre of native coastal scrub habitat will provide a habitat replacement ratio of approximately 8.5:1 (habitat created to habitat impacted). By creating suitable native coastal scrub habitat for the black-flowered figwort, the mitigation program should achieve a net increase of black-flowered figwort individuals on the project site.

To meet the proposed goals of a 2:1 replacement ratio for black flowered figwort plants, the mitigation area will be over-planted with 200 black-flowered figwort plants. These plants will be propagated from seed collected in the vicinity of the site, and will be planted in the mitigation area. Because the area proposed for mitigation will be graded, recontoured, and top-dressed with the salvaged Lopez Shaly Clay Loam topsoil during construction activities, the mitigation site will not likely require implementation of a weed abatement program prior to planting activities. Biotechnical erosion controls will

be installed on the mitigation area prior to planting activities, and a non-native weed abatement program will be initiated with the onset of habitat restoration. All activities associated with this black-flowered figwort habitat mitigation and monitoring plan, including topsoil salvage, site preparation, black-flowered figwort seed and plant collection, and planting shall be overseen by a qualified botanist/restoration biologist and shall comply with measures identified in this mitigation and monitoring plan. Additionally, the project botanist/restoration biologist will have documented experience with species-specific mitigation projects that deal with monitoring rare plant populations.

Successful development of suitable black-flowered figwort habitat in the mitigation area will be based on the establishment of coastal scrub vegetation containing similar species composition as the surrounding native coastal scrub habitat type. Ultimately, the appropriate planting plan in concert with active maintenance and monitoring will allow the successful establishment of native coastal scrub habitat that will support the re-established black-flowered figwort occurrence on the project site. It is reasonable to expect that the salvaged topsoil to be used on the mitigation area, as well as the post-construction topographic contours and slope aspect of the site will support the installed plant material and that natural recruitment will continue.

The following mitigation plan provides the details for how these goals will be achieved.

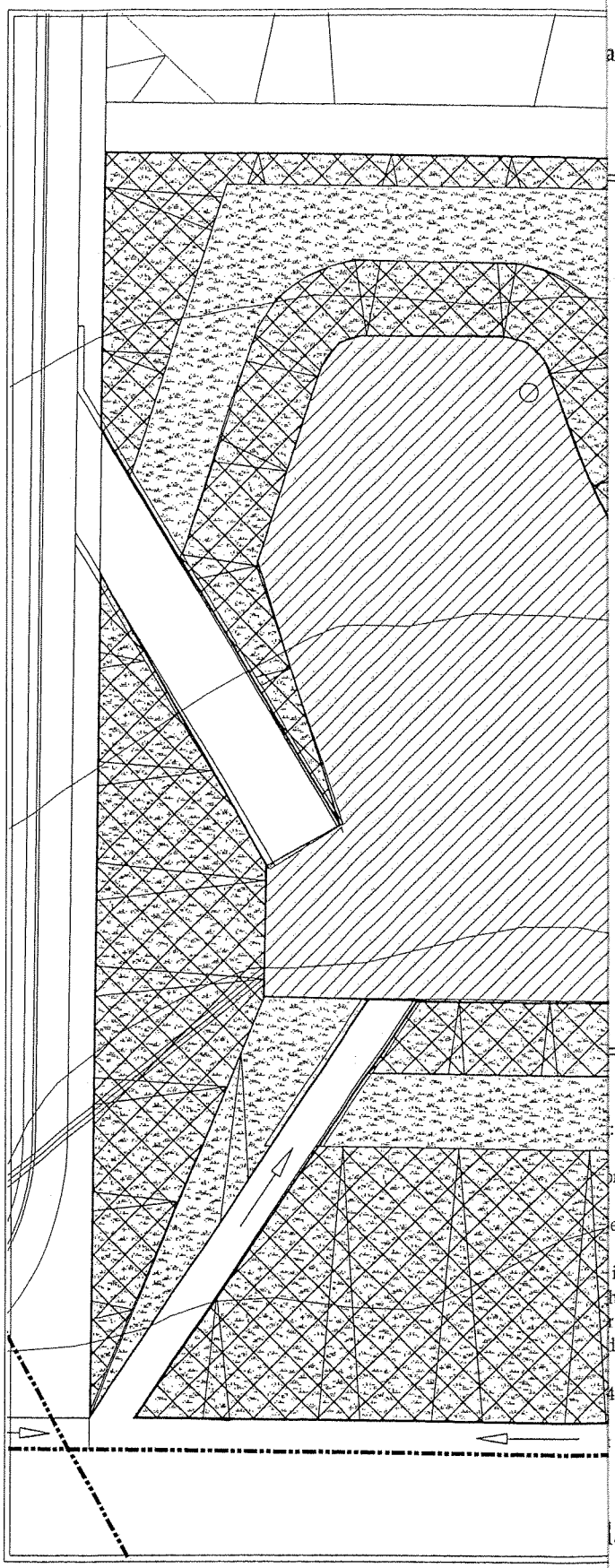
3.0 PROPOSED MITIGATION AND REVEGETATION AREAS

3.1 Black-Flowered Figwort Habitat Mitigation Area

As previously discussed, the proposed onsite mitigation area will be located in the southwestern corner of the Bodger property surrounding a proposed debris/retarding basin that will be created to handle seasonal runoff from a small watershed immediately to the south of the project (Figures 3 and 4). The proposed mitigation area is approximately 0.6 acre in size and should provide sufficient area to achieve a 2:1 replacement ratio of black-flowered figwort plants to ensure a no-net-loss of the species in the region, and at least a 4:1 replacement ratio of native coastal scrub habitat. Ultimately, once the topsoil is salvaged from intact coastal scrub habitat on the site that occurs on the Lopez Shaly Clay Loam soils mapping unit and is distributed throughout the mitigation area there will be appropriate substrate to create suitable black-flowered figwort habitat and reintroduce this species.

3.2 Debris Basin Revegetation Area

The debris basin revegetation area will be confined to the approximately 0.2 acre floor or gently sloping to flat areas within the debris basin (please see Figure 4). The primary goal for the debris basin floor is to provide a consistent cover of native vegetation that can adapt to periodic inundation as well as drought. The debris basin has been designed to handle seasonal storm runoff from the small drainage channel that originates further to the south. During winters with below average rainfall, it is



Biotechnical Erosion Control Areas

Native Coastal Scrub Erosion Control Mix:

Species	Quantity
Achillea millefolium	1 pound
Bromus carinatus	2 pounds
Castilleja exserta ssp. *exserta*	1 pound
Clarkia purpurea	1 pound
Elymus glaucus	2 pounds
Eschscholzia californica	1 pound
Leymus condensatus	1 pound
Lotus scoparius	2 pounds
Lupinus nanus	1 pound
Nemophila menziesii	1 pound
Trifolium willdenovii	1 pound
Vulpia octoflora	2 pounds
Total	16 pounds

Native Seed Mix For The Debris Basin Floor Revegetation Area

Species	Quantity
Danthonia californica	1 pound
Deschampsia danthonioides	1 pound
Elymus glaucus	1 pound
Hordeum brachyantherum	2 pound
Juncus bufonius	1 pound
Leymus triticoides	2 pound
Muhlenbergia rigens	1 pound
Trifolium fucatum	1 pound
Trifolium willdenovii	1 pound
Vulpia octoflora	1 pound
Total	12 pounds

: deep one-gallon; regular one-gallon; super stubby;

n, once the winter rains have moistened the top six

e feet on center based on the professional judgment of

irrigation system for two years following installation.
hall be seeded with a mixture of the above specified
15th.
l with the above-specified native seed mix before

4000 lbs/acre (two to three inches thick) of rice straw,
Another type of weed-free mulch or biodegradable
available, but must be approved by the project

lack-Flowered Figwort
at Mitigation Planting Plan Figure 4

Base map provided by Barry J. Gustafson. May 2001.

expected that the debris basin will not receive any storm flow or runoff. Contrastingly, during abnormally wet winters, the debris basin is expected to contain a significant amount of standing water. Therefore, the debris basin floor will be planted and/or seeded with a mixture of plant species capable of withstanding seasonal fluctuations in soil moisture (please see Table 3 in Appendix A). The debris basin revegetation area plant palette has been designed to 1) provide adequate soil stabilization and cover of the debris basin floor, 2) withstand prolonged periods of drought, and 3) respond positively to regular maintenance activities such as the removal of accumulated sediment and debris in the vicinity of the outfall structure. The debris basin floor has not been included in the mitigation acreage calculations because it will require regular maintenance activities including the removal of vegetation.

4.0 IMPLEMENTATION PLAN

4.1 Site Preparation

4.1.1 Native Soil Salvaging, Stockpiling, and Replacing

As previously discussed, the mitigation area will be graded and recontoured during construction activities. Site preparation for the mitigation area will consist of salvaging native topsoil from the south-central portion of the site that contains intact native coastal scrub habitat that will be removed from development of the site. Specifically, the southern portion of the site that contains coastal scrub habitat growing on the Lopez Shaly Clay Loam 15-75% slopes soils mapping unit shall have the top twelve inches of soil salvaged, stockpiled, and then redistributed in the proposed mitigation area once construction activities in the area are nearing completion. Soil from this portion of the site shall be used because the area proposed for mitigation is composed of a clay loam soil that contains non-native ruderal habitat dominated by poison hemlock (*Conium maculatum*). The topsoil in this vicinity is not appropriate for use in the mitigation area due to the lower shale content, as well as the high concentration of poison hemlock seeds in the seed bank. This soil should not be used in the mitigation area, and should be removed from the area and the salvaged topsoil put in its place.

Topsoil consisting of the Lopez Shaly Clay Loam, 15-75% slopes soil mapping unit that contains native coastal scrub habitat in the vicinity of Lots 59, 60, 68, 69, and 70 shall be salvaged, stockpiled and used as a top-dressing for the proposed mitigation area. Once the above ground vegetation has been cleared, the topsoil in the vicinity of these lots shall be graded in two-six inch lifts and stockpiled in a protected area of the site to prevent contamination with soils from other locations of the site during grading activities. Removing the topsoil in six inch lifts is recommended to ensure the topsoil and subsoil are not mixed together during the relocation activities. All topsoil salvage activities shall be overseen by the project botanist/restoration biologist.

4.1.2 Biotechnical Erosion Control

Following construction activities in the mitigation area and the application of the salvaged topsoil to the mitigation site, the freshly applied, salvaged topsoil will be track-

walked by a bulldozer to provide adequate soil compaction and to create small soil imprints for seeding and planting activities. Biotechnical erosion controls will then be installed prior to October 15th, which on the Central Coast of California typically marks the onset of the winter rain season. Biotechnical erosion controls shall be installed by qualified individuals with documented experience in biotechnical erosion control techniques and habitat restoration. Slopes of the debris basin and those surrounding the mitigation area that are steeper than 3:1 will have rice straw wattles installed perpendicular to the slope every ten feet beginning at the top of slope. This will be done to break the slope into sections to reduce the speed of surface runoff. Installation of the straw wattles must follow the manufacturer's installation guidelines to ensure proper function. A large koir roll (or log) may be used along the toe of the slopes within the debris basin to provide additional slope stability when water is present.

Once wattles have been installed, all bare soils on these slopes will be seeded with the native coastal scrub erosion control mix specified in Appendix A at approximately 30 to 35 pounds of seed per acre. The debris basin floor will be seeded with the specified quantities of the native seed mix identified on Figure 4 and included in Appendix A. The entire mitigation area including the debris basin revegetation area will then be covered with approximately 4,000 pounds per acre of a weed-free rice straw or native grass hay mulch. No seed will be required on the flat areas surrounding the debris basin. However, any seed that falls onto these areas will assist in the revegetation effort. Application of seed within the mitigation area shall take place prior to planting activities, and shall be done by hand, seed spreader and/or hydroseed equipment. The important factor in applying seed is to get the seeds evenly distributed and in contact with the soil. The seeds shall be evenly spread throughout the mitigation area, then covered with the specified quantities of a weed-free mulch. A biodegradable straw/coconut erosion control blanket may be used if rice straw or native grass hay is not available. If rice straw or native grass hay is used as mulch, it shall be crimped into the soil by either walking on it or by mechanical methods, including the use of a small disc or "sheep's foot" roller. The flat areas surrounding the debris basin will require an application of a weed-free mulch to cover the bare soil areas and reduce the erosion potential. The flat areas within the mitigation site will be planted with the coastal scrub plant palette once winter rains have begun. Black-flowered figwort plants will be installed after the coastal scrub container stock has been planted, and the temporary irrigation system installed.

The coastal scrub erosion control seed mix included in Appendix A has been formulated to be consistent with the recreation of coastal scrub habitat for the establishment of a black-flowered figwort occurrence. Erosion controls in the mitigation area will be monitored along with the planted material throughout the five-year monitoring period to ensure proper function. Once the erosion controls are in place and the fall/winter rains have commenced, the area will be planted with the species and quantities specified in the coastal scrub plant palette on Figure 4 and in Appendix A.

4.1.3 Non-Native Weed Abatement

An active non-native weed abatement program will be initiated with the onset of planting activities and will continue until the coastal scrub habitat in the mitigation area is self sufficient (e.g., does not require temporary irrigation or weed removal) and free from competition of non-native species such as poison hemlock, mustards or aggressive perennial grasses. Although the non-native weed abatement program will focus on all non-native plant species, approximately 10% relative aerial cover of non-native annual grasses will be allowed. Weed control in the mitigation area will be accomplished primarily by hand techniques. However, some mechanical removal (i.e.: weed-eating) will occur. Annual weed control activities will be conducted during the spring and early summer prior to the development of mature seeds in the target weed species. The target weed species will be poison hemlock, Bermuda grass (*Cynodon dactylon*), Kikuyu grass (*Pennisetum clandestinum*), iceplant (*Carpobrotus* spp.), various mustard species (*Brassica* spp. and *Hirschfeldia incana*). Annual grasses that become a problem within the mitigation area will be controlled by hand-removal. Weed-eating may also be used to control non-native plants along the perimeter of the site, and around shrubs once they become established. Weed abatement shall be conducted by individuals familiar with native plants and habitat restoration techniques.

Limited applications of a glyphosate-based herbicide (i.e.: Round-up™) will be allowed to control invasive perennial grasses and other noxious weeds such as Bermuda grass, Kikuyu grass, and poison hemlock in the mitigation area. A wetland-approved herbicide such as Rodeo™ may be required to combat these species on the slopes that drain into the debris basin where hand removal is not feasible. Spot spraying and wicking will be utilized. Spot spraying is conducted with a backpack sprayer and targets sporadic occurrences of weeds. Wicking uses an absorbent applicator that may be brushed over the target weed surface. Herbicide will be applied by a qualified herbicide applicator, and herbicide applications will follow Santa Barbara County Agricultural Extension recommendations and guidelines.

5.0 PLANTING PLAN

This planting plan will consist of a two-phased planting regime. Following the installation of biotechnical erosion controls and once the winter rains have begun and moistened the top six inches of soil, the native coastal scrub palette will be installed throughout the mitigation area. Black-flowered figwort plants will not be installed during the first planting phase, but planting areas for this species will be selected and established at that time. Once the coastal scrub planting effort is complete, the installation of the black-flowered figwort plants will begin in the identified planting areas. The key concept for this mitigation program is to create native coastal scrub habitat for the establishment of black-flowered figwort individuals on the project site. The created coastal scrub habitat will be as diverse as the coastal scrub habitat in the vicinity of the site. The following discusses the tasks necessary to ensure success of this mitigation plan.

5.1 Propagule Source

5.1.1 Coastal Scrub Plant Palette

Local and regional ecotypes of species typical to coastal scrub habitat in the Lompoc vicinity will be used for all restoration and erosion control applications. Native plant species associated with coastal scrub habitat and those plants to be seeded will be procured from a specialized native plant nursery and/or seed company, utilizing the selected species in Appendix A. Nursery-grown plant material will be purchased from the following container sizes: deep one-gallon; regular one-gallon; super stubby; super cell; or tree band. The quality of the plant material will be inspected and approved by the project botanist/restoration biologist prior to installation in the mitigation area.

5.1.2 Black-Flowered Figwort Seed Collection and Propagation

Black-flowered figwort seed shall be collected from the known occurrences in the vicinity of the Bodger property. A sufficient quantity of seed shall be collected and given to a qualified horticulturist for propagation. Plants shall be grown in Super Stubby or one-gallon containers or an equivalent sized container approved by the project botanist/restoration biologist to ensure sufficient root development in the nursery-grown material. Additional seeds not used in nursery propagation shall be broadcast by hand throughout areas identified by the project botanist/restoration biologist for black-flowered figwort seeding in the mitigation area. Black-flowered figwort seeding activities shall occur from November through December to allow the seeds to germinate with the onset of winter rains. Nursery-grown black-flowered figwort plants grown from seed sown in September or October should be ready for outplanting from February to April of the following year. Additionally, salvage of black-flowered figwort plants that will be impacted from development of the site may also occur.

5.2 Plant and Seed Installation

Following site preparation activities and the installation of biotechnical erosion controls, the mitigation area will be planted with species selected from Appendix A via direct planting methods. The proposed planting represents the initial effort to create the coastal scrub habitat necessary for the successful establishment of black-flowered figwort within the mitigation area. Planting activities involve the placement of appropriate native plant species in locations identified by the project botanist/restoration biologist in the field for optimal development based on edaphic factors, exposure, and slope aspect. The general planting area is identified on Figure 4. A fully developed vegetative cover consisting of the desired coastal scrub habitat containing the black-flowered figwort occurrence will develop from the planted and seeded material over time with the proper management.

Installation of plants and seed will commence in the late fall to early winter, depending on seasonal environmental conditions, in order to maximize the potential for successful establishment of the new plantings with the onset of the rainy season. All plant

installation will occur once the top six inches of soil is moist following the first series of winter storms. Shrubs to be installed in the mitigation area will be planted irregularly and in clusters to emulate the existing theme of surrounding coastal scrub habitat. Black-flowered figwort individuals will be planted in ten separate clusters evenly distributed throughout the mitigation area. Each cluster will consist of approximately twenty plants. Black-flowered figwort plantings in the mitigation area will coincide with areas of higher density coyote brush plantings.

5.3 Planting Specifications

5.3.1 Coastal Scrub Plant Palette Specifications and Installation Methods

Coastal Scrub shrubs and herbaceous plants shall be propagated from genetic stock collected from the Lompoc vicinity, if feasible. Otherwise, the coastal scrub plant material will be purchased from a native plant nursery approved by the project botanist/restoration biologist, and selected from the following container sizes: deep one-gallon; regular one-gallon; super stubby; super cell; or tree band. Larger container sizes may be substituted if the above specified container sizes are not available. Additionally, larger container sizes may be used for species such as California blackberry (*Rubus ursinus*) because this species can be easily divided in the field during planting activities to provide the specified quantities.

Because the mitigation area will consist of freshly applied and compacted topsoil salvaged from native coastal scrub habitat on the site, biotechnical erosion controls and the native erosion control and debris basin revegetation area seed mixes will be installed before the onset of the rainy season. As a result, the site should be relatively free of non-native plants, and clearing non-native vegetation in specified planting locations will likely not be required. All container stock will be installed in a 12-inch diameter hole excavated to a depth of 24-inches. All holes will be excavated by hand or power auger. Prior to installation, the lower ten inches of each hole will be backfilled with the excavated soil and the seedling plant installed. The remainder of the hole will then be backfilled with native soil firmly tamped down. A water well will be formed around each planting to focus supplemental irrigation toward the root system. The water well should extend out approximately six inches from the root ball. A low nitrogen, time-released, pelletized Osmocote™ fertilizer will be evenly distributed in the water well, around the root ball within the top two to four inches of soil. Spacing of coastal scrub shrubs will be approximately five feet-on-center. Spacing of herbaceous plants identified in the coastal scrub plant palette will vary between three and five feet-on-center. Based on the professional judgment of the project botanist/restoration biologist, spacing of shrubs and herbaceous plants may be closer or farther apart than three to five feet-on-center depending on the slope, exposure, and surrounding vegetation.

5.3.2 Black-Flowered Figwort Specifications and Installation Methods

As previously discussed, black-flowered figwort seed will be collected from the vicinity of the site and propagated in a nursery setting by a qualified horticulturist. Plants will be grown in super stubby containers or a container size approved by the project

botanist/restoration biologist. Black-flowered figwort plants propagated from seed sown in September or October should be ready for installation during the late winter or early spring the following year. Following the installation of the coastal scrub component, black-flowered figwort plants will be installed in clusters amongst the previously planted coastal scrub plant palette. The black-flowered figwort clusters will be installed in areas of higher density coyote brush plantings. Ten clusters will be evenly distributed throughout the mitigation area, and will consist of approximately twenty plants per cluster. Individual plants will be installed irregularly in these clusters to attempt to mimic naturally occurring specimens, and provide sufficient area between plants to promote healthy vigorous individuals. Spacing of black-flowered figwort plants will be approximately 18 inches to two feet-on-center. Based on the professional judgment of the project botanist/restoration biologist, spacing of black-flowered figwort plants may be closer or farther apart than 18 inches to two feet-on-center depending on the slope, exposure, and surrounding vegetation. All holes will be excavated by hand to a depth of approximately twelve inches. The plant will then be installed into the hole, and backfilled with native soil firmly tamped down. A water well will be formed around each planting to focus supplemental irrigation toward the root system. The water well should extend out approximately four to six inches from the root ball. A low nitrogen, time-released, pelletized Osmocote™ fertilizer will be evenly distributed in the water well, around the root ball within the top two to four inches of soil.

5.4 Herbivore Protection

No protective fencing for individual plants will be required on the mitigation area at this time. The debris basin is required by the Santa Barbara County Flood Control District to have a six-foot high chain link fence around the perimeter to keep people from entering the area. Although deer have been known to jump over fences that are eight feet tall, this sized fence should be efficient to keep them out while the young plant material becomes established. Moreover, most of the plant material specified in Appendix A is not palatable to herbivores, and therefore, they should not pose a threat to the development of the proposed coastal scrub habitat. If browse damage or other signs of herbivory are observed in the mitigation area during the regular monitoring visits in the first monitoring year, then those plants that are experiencing the most damage will be individually caged, or have some sort of herbivore protection installed.

5.5 Fertilization

A single application of fertilizer will take place concurrently with the installation of the coastal scrub plant palette and individual black-flowered figwort plants and shrubs on the mitigation area. No subsequent fertilizer applications will be needed. Pelletized Osmocote™ (14-14-14) or another approved slow-release pelletized fertilizer will be used, as indicated in the planting specifications described above.

5.6 Remedial Planting and Seeding

If more than 20 percent of the planted material fails to germinate or dies as a result of a natural event (i.e.: flood waters breech the debris basin or a wildland fire removes

planted vegetation in the mitigation area) or human error, remedial planting and/or seeding will occur to achieve the required coverage of native coastal scrub habitat as described in the success criteria (please see Section 7.1). Because there will be a temporary irrigation system in place within the mitigation area, remedial planting and/or seeding can take place near the end of the first growing season or at the start of the second growing season, depending on the extent of the activity.

5.7 Soil Erosion

As described in the biotechnical erosion control section, once biotechnical erosion controls are in place and the mitigation area has been seeded and planted with the native coastal scrub plant palette, little soil disturbance is expected to occur. If soil disturbance occurs in or adjacent to the mitigation area, plant installation, native seed, and a weed-free mulch will be installed in the area to minimize the potential for further erosion. If rill erosion is observed on the mitigation area slopes after the seeding and planting activities, the landscape contractor will install appropriate erosion controls, and plant and seed the specific area with additional native vegetation selected from Appendix A.

6.0 MAINTENANCE PROGRAM

6.1 Initial Care of Newly Vegetated Areas

Although the vegetation proposed for the mitigation area is to be self-sustaining, its establishment and growth will be encouraged by an aggressive maintenance and non-native weed abatement program, supplemental watering, and monthly monitoring visits during the first year.

6.2 Non-Native Weed Abatement Program

While visiting the mitigation area during the first year's monitoring activities, personnel will examine the mitigation area for the presence of undesirable plant species. Control of invasive plant species will be conducted, as necessary, to encourage the development and establishment of the proposed vegetation. Seasonally-timed weeding will be done by hand or mechanically during the five year monitoring period or until it is determined that the installed plantings are not at risk from competition and exclusion by exotic pest plants. The non-native weed abatement program shall be implemented by a qualified individual(s) familiar with native plants and general habitat restoration techniques, and must be approved by the project botanist/restoration biologist.

6.3 Irrigation

Maintenance of soil moisture in the root zone is critical to the establishment of the coastal scrub habitat and black-flowered figwort plants on the mitigation area, especially during the first two years. Coastal scrub plantings, as well as the clustered plantings of black-flowered figwort will receive irrigation during the two-year establishment period. Water will be supplied from water lines to be installed by the developer in the vicinity of

the debris basin. A temporary drip irrigation system will provide water to both the coastal scrub plant material and black-flowered figwort plantings throughout the mitigation area. As currently proposed, the irrigation lines will not be buried during the initial planting phase. However, the project botanist/restoration biologist may determine that the main irrigation lines need to be placed underground to prevent rodents and other critters from damaging the irrigation tubing. The watering cycle will be tapered off following the second year depending upon environmental conditions as well as the potential need for replanting areas of high mortality. Once the installed plant material is determined to have successfully established, the temporary irrigation will be discontinued and removed from the mitigation area.

7.0 SUCCESS CRITERIA AND MONITORING PROGRAM

7.1 Final Success Criteria

The requirements of this mitigation program is to have a 2:1 replacement ratio of black-flowered figwort plants, and a 4:1 replacement ratio of coastal scrub habitat on the mitigation area at the end of the five-year monitoring period. The main component necessary in achieving the net increase of black-flowered figwort plants on the mitigation area is the establishment of native coastal scrub habitat that will provide the ecological basis in achieving a self-sustaining occurrence of black-flowered figwort. Therefore, in order to create a self-sustaining occurrence of black-flowered figwort on the mitigation area, a goal of this mitigation program is to create suitable habitat for black-flowered figwort individuals. As such, additional requirements of this mitigation plan are to have 80% survival of all installed coastal scrub vegetation, and achieve 90% relative aerial cover of native plant material typical of native coastal scrub habitat on the mitigation area by the end of the five-year monitoring program. The concept is that if appropriate habitat is created on the mitigation area, then a self-sustaining occurrence of black-flowered figwort should be able to exist in this area in perpetuity.

By the end of the five-year monitoring period, there shall be at least 100 black-flowered figwort plants within the mitigation area. Additionally, there should be observable evidence or signs of successful flowering, seed production, and successful reproduction in the planted specimens. Evidence may include old flowering stalks, young coastal scrub and black-flowered figwort plants that are growing in the vicinity of the planted specimens, and direct observation of flowering, fruit production, seed set and/or seed germination.

As part of the final success criteria, there will be zero tolerance for non-native plants in the mitigation area during the five-year monitoring period, with the exception of annual grasses. An additional requirement of the mitigation program is to have a minimum of three years without artificial irrigation.

7.2 Monitoring Program

The mitigation area will be monitored for five years following plant installation or until the Department of Fish and Game and the City of Lompoc agree that mitigation is

complete. The objective of the monitoring program is to evaluate the success of the remediation planting in achieving a self-sustaining occurrence of at least 100 black-flowered figwort plants and an approximately 90% relative aerial cover of native coastal scrub habitat consisting of at least 80% of the planted specimens. In order to achieve this evaluation, the mitigation area will be assessed for plant survivorship, plant vigor, plant height, and percent relative aerial cover of the native coastal scrub vegetation for five years. All monitoring shall be conducted by a qualified botanist/restoration biologist with documented experience preparing species-specific and habitat restoration monitoring reports.

Following plant installation, the project botanist/restoration biologist will assist in the preparation of detailed, as built planting plans and will oversee the implementation of the monitoring program. As built planting plans will be used to track the success of the plantings throughout the monitoring period. The mitigation area will be monitored annually, except during the first year, for a period of five years following plant installation. During the first year, monitoring visits will occur on a monthly basis. Annual monitoring visits will be conducted in May or June and September of each year. Plant survivorship, vigor, and height of the installed plant material, as well as relative aerial cover of the coastal scrub habitat will be measured annually for the planted specimens. Plant vigor for the installed plant material will be measured as follows:

- 1 = excellent -vigorous healthy plant with no necrotic or chlorotic leaves
- 2 = good - plant healthy with limited signs of vigorous growth
- 3 = adequate - plant healthy with no signs of vigorous growth and some necrosis or other damage present
- 4 = poor - low vitality, or plant appears dead, but basal sprouts emerging
- 5 = dead - no evidence of recovery

The number of installed plant material, including black-flowered figwort plants, observed flowering or in fruit during the monitoring visits will also be included in the monitoring report. As discussed above, the coastal scrub habitat to be created on the mitigation area will be evaluated based on percent aerial cover. In order to estimate aerial cover of vegetation on the mitigation area, vegetation sampling techniques described by Bonham (1989) and Daubenmire (1968) will be employed. Permanent line transects will be established on the mitigation area during the preparation of the detailed as-built planting plan to ensure consistency in data collection.

Locations where black-flowered figwort plants are installed will be marked and the number of plants at each location will be counted, given a vigor rating, and qualitatively characterized during each monitoring visit. Plots will also be established where black-flowered figwort seed is spread to evaluate the germination success in these areas. Native plants including the black-flowered figwort that colonize the mitigation area through natural recruitment will be counted towards the final success criteria.

7.3 First Year Monitoring Activities

The most important activity after the installation of plant material is the monitoring of the planted and seeded vegetation. Monthly monitoring visits will compare plant growth and other characteristics in the mitigation area to existing native coastal scrub habitat areas in the immediate vicinity to determine "normal conditions" through the growing season. All installed plant material and the temporary irrigation system will be inspected regularly to ensure a successful mitigation program. Mortality of greater than 20% of the coastal scrub species will require remedial action to meet the overall success criteria described in Section 7.1. Mortality greater than 25% of the planted black-flowered figwort plants will require replanting to ensure the final black-flowered figwort success criterion is met. Because the mitigation area will be planted with more than the required 100 black-flowered figwort plants, replanting may not be required if less than 25% mortality of planted specimens is observed on the mitigation area. The necessity to replant additional nursery-grown black-flowered figwort plants will be evaluated and determined by the project botanist/restoration biologist.

Another important monitoring activity is to detect the presence and advance of invasive non-native plant species such as Bermuda grass and Kikuyu grass. These two species as well as a suite of other non-native species common to the Lompoc vicinity can take over the planted areas if left unchecked. Monitoring activities will determine the presence of such species and if remedial action is required to control their advance.

The frequency of monitoring activities can be reduced to less than monthly during the first year if it is determined by the project botanist/restoration biologist that habitat development is progressing without serious problems. However, the health and vigor of the planted specimens will need to be monitored monthly during the first dry season to ensure that the establishing plants receive sufficient irrigation.

7.4 Natural Recruitment of Native Plant Species

Natural recruitment of native plant species will be monitored at a reconnaissance-level, and those dominant species observed colonizing the mitigation area will be qualitatively described and included in the percent cover calculations. Black-flowered figwort plants and native plant species that colonize the mitigation area during the monitoring program will be counted towards the overall performance criteria for the mitigation program. The desirable target species other than the black-flowered figwort include the following native plants characteristic of coastal scrub habitat in the Lompoc area: coyote brush, coffeeberry (*Rhamnus californica*), blue elderberry (*Sambucus mexicana*), Lompoc sticky monkey flower (*Mimulus aurantiacus* var. *lompocensis*), golden yarrow (*Eriophyllum confertiflorum*), deerweed (*Lotus scoparius*), and of course, poison oak (*Toxicodendron diversilobum*). Additionally, native herbaceous species that will likely colonize the mitigation area include several species of cudweed (or everlastings) (*Gnaphalium californicum*, *G. stramineum*, and *Anaphalis margaretacea*), Hoffman's nightshade (*Solanum xantii* var. *hoffmanii*), and native grasses such as purple needle grass (*Nassella pulchra*), giant wild rye (*Leymus condensatus*), and California brome (*Bromus carinatus*).

7.5 Photo Documentation

Permanent photo points will be established throughout the mitigation area to assist in tracking the success of the mitigation program. Permanent photo points will be established during the preparation of the as-built planting plan and the line transects to be used during the monitoring program. Ground view photos will be taken during each monitoring year from the same vantage point to evaluate the success of the created habitat.

7.6 Annual Reports

Annual monitoring reports will be prepared for Signature Pacific Development by a qualified botanist/restoration biologist with documented experience monitoring special-status species-specific and native habitat mitigation plans. The annual reports will be submitted to the Department of Fish and Game, the City of Lompoc, and any regulatory agency requesting the information by January 1st of each year. Annual reports shall include an evaluation of the progress of the mitigation effort in relation to the final success criteria. If at the end of the third year's monitoring activities, it appears that vegetation in the mitigation area will not meet the overall success criteria at the end of the five-year monitoring period, then appropriate remedial activities will be recommended to meet the final success criteria. Annual reports will include monitoring methodology, results, a discussion of results and any pertinent recommendations that will assist in meeting overall performance criteria.

7.7 Inspections of the Mitigation Area

After the initial implementation is completed, as well as during the first growing season, the mitigation areas will be inspected by the Department of Fish and Game, the City of Lompoc personnel, as well as any resource agency that desires to evaluate the success of the mitigation program. The inspection will determine if the planted and seeded vegetation is acceptable, or, if remedial planting and an extended monitoring period is required before the mitigation program can be deemed successful.

8.0 COMPLETION OF MITIGATION

8.1 Notification of Completion

The final annual report shall evaluate the success of the mitigation effort in achieving the final performance criteria. If the final performance criteria are met, a statement regarding completion of the mitigation effort shall be included. The Department of Fish and Game and the City of Lompoc will have the ultimate authority to approve completion of mitigation effort.

8.2 Department of Fish and Game and City of Lompoc Confirmation

After notification of completion, a site visit(s) will be conducted by the Department of Fish and Game, the City of Lompoc, and other interested resource agency personnel to confirm the completion of mitigation.

9.0 CONTINGENCY MEASURES

Annual performance criteria and annual maintenance activities will be integrated to resolve any problems where development performance of the created black-flowered figwort occurrence and native coastal scrub habitat does not achieve expected goals. Maintenance and remediation will include such activities as the following:

- replanting problem areas with seed and plant mixtures specifically designed to overcome the identified problem.
- Identifying and controlling undesirable plant species.
- Regulating human and wildlife access within the mitigation area.
- Modifying the irrigation program

Any contingency or replacement plantings will be monitored for at least a five-year period following plant installation to ensure successful establishment in the mitigation area.

10.0 FUNDING MECHANISM/RESPONSIBLE PARTY

All funding for planning, implementation, maintenance and monitoring of this mitigation plan, and any identified contingency measure required to achieve the primary goal of the creation of a self-sustaining black-flowered figwort occurrence consisting of at least 100 plants, 80% survival of all installed coastal scrub specimens, and 90% relative aerial cover of native coastal scrub habitat at the end of the five-year monitoring period will be the responsibility of Signature Pacific Development and Construction. Signature Pacific Development and Construction will be responsible for implementing and monitoring contingency measures indicated as necessary to achieve the black-flowered figwort replacement ratio of 2:1 (replaced plants to impacted plants) and the 4:1 replacement ratio of native coastal scrub habitat.

11.0 LONG-TERM PROTECTION OF THE MITIGATION AREA

The mitigation area shall be protected in-perpetuity through a deed restriction or conservation easement that will follow the property and protect the restored native habitat and rare plant occurrence in-perpetuity. The deed restriction or conservation easement, which will need final approval by the City of Lompoc, will be recorded with the County of Santa Barbara within 90 days from the start of construction.

Appendix A

Mitigation Plant Palette

APPENDIX A

Table 1. Native Coastal Scrub Plant Species Palette for The Black-Flowered Figwort Habitat Mitigation Area on the Bodger Property, Lompoc, California

Scientific Name	Common Name
Artemisia californica	California sagewort
Artemisia douglasiana	mugwort
Asclepias fascicularis	California milkweed
Baccharis pilularis var. *consanguinea*	Coyote brush
Encelia californica	California brittlebush
Epilobium canum	California fuchsia
Eriogonum parvifolium	coast buckwheat
Eriophyllum confertiflorum	golden yarrow
Hazardia squarrosa	saw-toothed golden bush
Helianthemum scoparium	rock rose
Heteromeles arbutifolia	toyon
Horkelia cuneata ssp. *cuneata*	wedge-leaved horkelia
Lessingia filaginifolia var. *filaginifolia*	common sand aster
Leymus condensatus	giant wildrye
Lotus scoparius	deerweed
Mimulus aurantiacus var. *lompocensis*	Lompoc sticky monkey flower
Rhamnus californicus	California coffeeberry
Salvia mellifera	black sage
Sambucus mexicana	blue elderberry
Scrophularia atrata	black-flowered figwort

Table 2. Native Coastal Scrub Erosion Control Mix For Seed Applications On Slopes Within The Black-Flowered Figwort Habitat Mitigation Area

Scientific Name	Common Name
Achillea millefolium	yarrow
Bromus carinatus var. *carinatus*	California brome
Castilleja exserta ssp. *exserta*	purple owl's clover
Clarkia purpurea	winecup clarkia
Elymus glaucus	blue wild rye
Eschscholzia californica	California poppy
Leymus condensatus	giant wild rye
Lotus scoparius	deer weed
Lupinus nanus	sky lupine
Nemophila menziesii	baby blue eyes
Trifolium willdenovii	tomcat clover
Vulpia octoflora	six-weeks fescue

Table 3. Native Seed Mix For The Debris Basin Floor Revegetation Area

Scientific Name	Common Name
Danthonia californica	California oatgrass
Deschampsia danthonioides	annual hairgrass
Elymus glaucus	blue wild rye
Hordeum brachyantherum	meadow barley
Juncus bufonius	toad rush
Leymus triticoides	beardless wild rye
Muhlenbergia rigens	deer grass
Trifolium fucatum	bull clover
Trifolium willdenovii	tomcat clover
Vulpia octoflora	six weeks fescue

Appendix B

Sample Monitoring Forms

Sample Habitat Mitigation Monitoring Form

Date_____

Monitor_____

Plant Number	Species Name	Vigor Rating	Height (inches)	Notes/Observations
1	*Scrophularia atrata*			
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

Plant vigor will be measured as follows:

1 = excellent - vigorous healthy plant (no necrotic or chlorotic leaves)
2 = good - plant healthy with limited signs of vigorous growth
3 = adequate - plant healthy with no signs of vigorous growth and some necrosis or other damage present
4 = poor - low vitality, or main stem dead but basal sprouts emerging
5 = dead – no evidence of recover

Sample Habitat Mitigation Monitoring Form

Date_____

Monitor_____

Relative Percent Aerial Cover Estimations for Native Plant Species:

Transect 1:

Transect 2:

Transect 3:

Transect 4:

Total Relative Percent Aerial Cover for Native Plant Species within Black-Flowered Figwort Habitat Mitigation Area:

Notes/Observations:_____

APPENDIX C
Supplemental Traffic Analysis

Endo Engineering *Traffic Engineering* *Air Quality Studies* *Noise Assessments*

May 31, 2005

Ms. Lucille T. Breese, AICP
Community Services Department
City of Lompoc
100 Civic Center Plaza
Lompoc, CA 93438-8001

SUBJECT: River Terrace Development
Supplemental Traffic Impact Analysis

Dear Ms. Breese;

Endo Engineering prepared the *River Terrace Development Traffic Impact Study* dated July 5, 2004 for the City of Lompoc. That study addressed a study area with nine key intersections. The intersections evaluated therein were identified and subsequently approved by the City of Lompoc (based on the scope of the previously approved Westar Development that generated substantially more traffic than the River Terrace Development).

During the review period on *Draft EIR (04-01) for the River Terrace Residential Project,* the City of Lompoc received comments from Caltrans District 5 (dated March 23, 2005) requesting an evaluation of potential project-related impacts at additional intersections located along "H" Street (State Highway 1) west and north of the study area addressed in the traffic study. Following negotiations with Mr. Roger Barnes of Caltrans District 5, Endo Engineering was directed by the City of Lompoc to evaluate the following three signalized intersections on "H" Street (SR 1):

(1) "H" Street @ Central Avenue;
(2) "H" Street @ College Avenue; and
(3) "H" Street @ Ocean Avenue.

The pages which follow document project only traffic volumes and cumulative only traffic volumes. In addition, the intersection delay and LOS are provided for the following scenarios: (1) existing traffic conditions; (2) existing+project conditions; and (3) cumulative+project conditions. Specific mitigation measures are identified, as required by Caltrans, to reduce any potentially significant impacts identified to acceptable levels.

Applicable LOS Standards and Significance Thresholds

The City of Lompoc has adopted a circulation policy that states that roadway and intersection traffic levels of service at LOS C or better shall be maintained throughout the City. Any project which cannot meet the performance standard is considered to have a significant impact. Since peak hour traffic creates the heaviest demand upon the circulation system and the lane configuration at intersections is the limiting factor in roadway capacity, peak hour intersection capacity analyses are used as indicators of "worst-case" conditions.

28811 Woodcock Drive, Laguna Niguel, CA 92677-1330
Phone: (949) 362-0020 FAX: (949) 362-0015

The analysis herein addresses whether or not the required level of service C will be achieved after the proposed project and cumulative developments are constructed. Intersections not meeting the minimum required LOS C standard must be re-evaluated, assuming mitigation measures as needed, to verify that the required levels of service will be achieved and maintained. The findings of the intersection analysis are summarized below.

Signalized Intersection HCM 2000 Analysis

The *Highway Capacity Manual* (HCM 2000) presents the best available techniques for determining capacity, delay and LOS for transportation facilities.[1] As specified by the City of Lompoc and Caltrans, the signalized intersection operational methodology in the latest update of the HCM 2000 was utilized to estimate the peak hour delay and LOS at the three intersections. To determine the intersection delay, the peak hour factors (PHF) determined from the actual traffic count data were assumed as was a 5 percent truck mix, as specified by Caltrans.[2]

The Highway Capacity Software (HCS 2000) package is a direct computerized implementation of the HCM 2000 procedures, prepared under FHWA sponsorship and maintained by the McTrans Center at the University of Florida Transportation Research Center. HCS 2000 Version 4.1e was employed to evaluate the operation of the three intersections of concern.

The HCM 2000 methodology addresses the capacity, V/C ratio, and level of service of intersection approaches as well as the level of service of each intersection as a whole. The analysis is undertaken in terms of the ratio of demand flow rate to capacity (V/C ratio) for individual movements or approach lane groups during the peak hour and the composite V/C ratio for the sum of the critical movements or lane groups within the intersection. The critical V/C ratio is an indicator of whether or not the physical geometry and signal design provide sufficient capacity for the movements.

The measures of effectiveness for signalized intersections are: average control delay per vehicle, critical V/C ratios, and levels of service. The level of service is based on the average control delay for various intersection movements. The following parameters affect levels of service: (1) V/C ratio; (2) quality of progression; (3) length of green phases; (4) cycle lengths; and (5) average control delay.

Average control delay is the total time vehicles are stopped at an intersection approach during a specified time interval divided by the volume departing from the approach during the same time period. It does not include queue follow-up time (i.e. the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position).

A critical V/C ratio less than 1.00 indicates that all movements at the intersection can be accommodated within the defined cycle length and phase sequence by proportionally allocating green time. In other words, the total available green time in the phase sequence is adequate to handle all movements, if properly allocated.

---

1. *Highway Capacity Manual;* Fourth Edition; TRB Report 209; Transportation Research Board, National Research Council; Washington, D.C.; 2000.
2. James Kilmer, Caltrans District 5 - Development Review, Correspondence dated January 17, 2002. The use of the HCM 2000 methodology with a peak hour factor based upon collected field data and a 5 percent truck mix was specified. The analysis assumed that each signal phase includes 3 seconds of yellow time and 1 second of all-red.

Existing Conditions

Typical morning and evening peak hours are evident on Lompoc commuter routes on weekdays, with the evening peak generally being more intense than the morning peak. Traffic analyses focus on the traffic volumes in the evening peak hour because it has the highest capacity requirements and represents the most critical period for operations. Morning peak hour traffic volumes are also evaluated to identify the intersection approach lanes needed to ensure that acceptable levels of service will be provided for the movements that mirror the heaviest evening peak hour movements.

The traffic controls and approach lane geometrics at the three intersections were identified by field observation. As shown in Figure 1, all three of the intersections are currently controlled by traffic signals.

Two-hour weekday morning and evening peak hour turning movement traffic counts were made at the three intersections. The traffic count data (by 15-minute count interval) is included as Attachment A. Figure 2 illustrates the current morning and evening peak hour turning movement volumes at the three intersections.

The peak hour intersection delay, critical volume-to-capacity ratios, and intersection level of service values at the three intersections along "H" Street are provided in Table 1. As shown therein, all three of these intersections are currently operating at level of service C during both the morning and evening peak hours. The intersection average control delay per vehicle values range from 22.3 seconds per vehicle to 30.0 seconds per vehicle during the peak hours at these key intersections.

Table 1
Current Peak Hour Delay and LOS
at the Signalized Key Intersections[a]

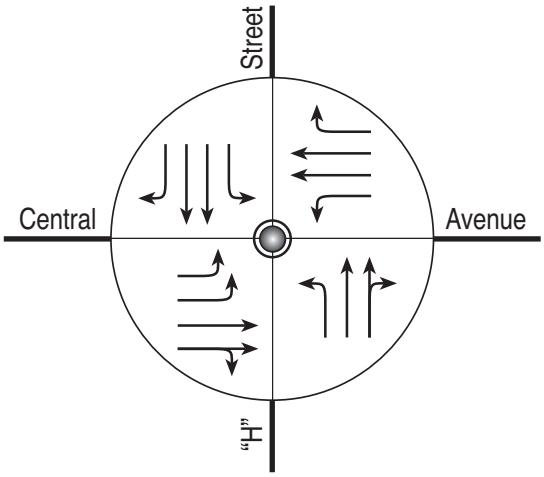
Signalized Intersection (Peak Hour Interval)	Peak Hour Factor	Delay[b] (Sec./Veh.)	Critical V/C Ratio	Intersection LOS
"H" Street @ Central Avenue				
- Morning Peak Hour (7:30-8:30 AM)	0.929	23.2	0.57	LOS C
- Evening Peak Hour (4:45-5:45 PM)	0.964	30.0	0.77	LOS C
"H" Street @ College Avenue				
- Morning Peak Hour (7:30-8:30 AM)	0.744	24.3	0.70	LOS C
- Evening Peak Hour (4:15-5:15 PM)	0.978	24.3	0.64	LOS C
"H" Street @ Ocean Avenue				
- Morning Peak Hour (7:00-8:00 AM)	0.858	22.3	0.54	LOS C
- Evening Peak Hour (4:45-5:45 PM)	0.934	22.9	0.44	LOS C

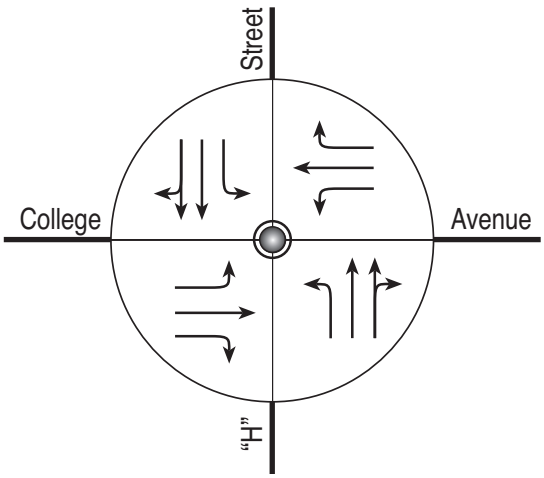
a. Based upon year 2005 traffic volumes, existing intersection approach lane geometrics, as shown in Figure 1, and a five percent heavy vehicle mix. Refer to the signalized intersection HCS worksheets in Attachment B for additional input parameters.

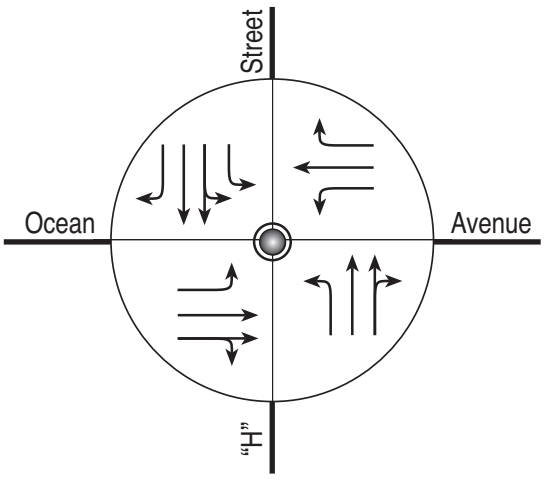
b. Delay=average control delay per vehicle for the intersection as a whole. Assumes a 90-second cycle length. Does not include right-turn on red volume adjustments.

Figure 1

Traffic Controls and Approach Lane Geometrics







Legend

- Exclusive Right-Turn Lane
- Through Lane
- Exclusive Left-Turn Lane
- Optional Through/Right Lane
- Optional Through/Left Lane
- Signalized Intersection

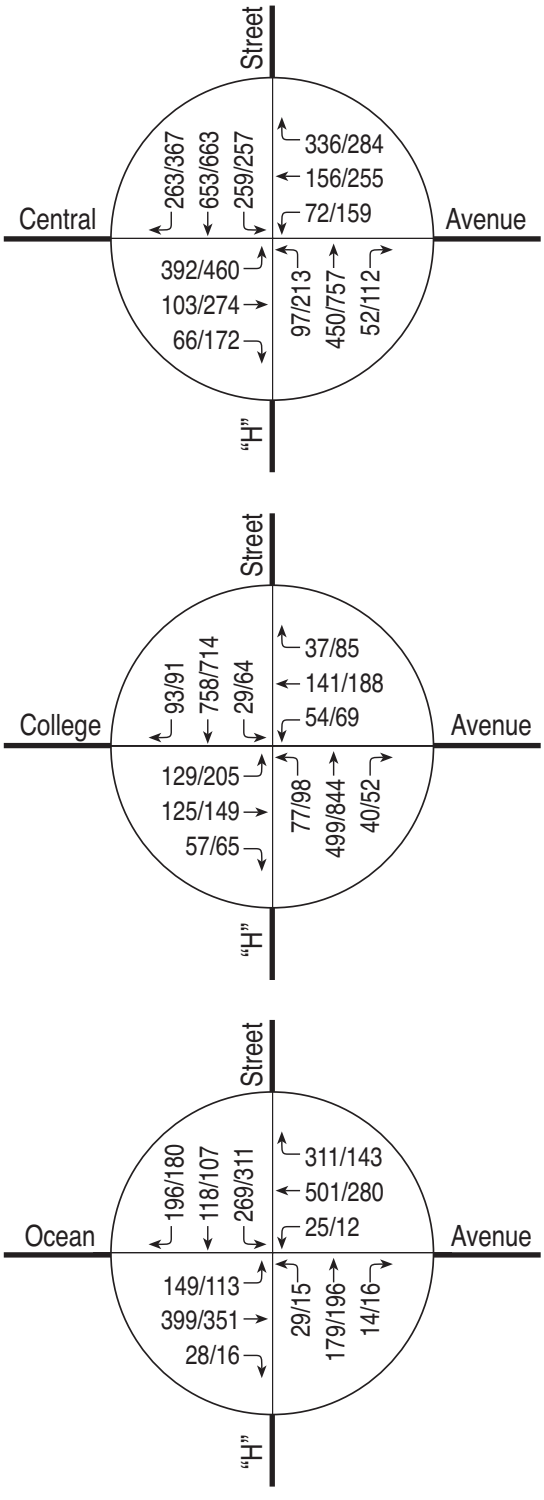
Endo Engineering

Schematic

Figure 2

Existing Traffic Volumes

(2005 Peak Season)



Legend

5/8 AM/PM Peak Hour Turning Volume

Endo Engineering

Schematic

Existing+Project Conditions

The project is expected to generate 2,790 daily trip-ends, with 174 trip-ends during the morning peak hour (42 inbound and 132 outbound) and 256 trip-ends during the evening peak hour (157 inbound and 99 outbound). The traffic distribution associated with the proposed project was extended through the three intersections as shown in Figure 3. Figure 3 also illustrates the project-related weekday peak hour traffic volumes at each of the three intersections. Figure 4 illustrates existing+project traffic volumes at the three key intersections.

Table 2 provides the peak hour delay, volume-to-capacity ratios and levels of service at the three key intersections with the existing+project traffic volumes shown in Figure 4. As shown in Table 2, all three key intersections are projected to operate at acceptable levels of service (LOS C or better) without mitigation. The addition of project-related traffic will increase the intersection delay by up to 0.6 seconds and the critical volume-to-capacity ratio by up to one percent.

Table 2
Existing+Project Peak Hour Delay and LOS
at the Signalized Key Intersections[a]

Signalized Intersection (Peak Hour Interval)	Peak Hour Factor	Delay[b] (Sec./Veh.)	Critical V/C Ratio	Intersection LOS
"H" Street @ Central Avenue				
- Morning Peak Hour (7:30-8:30 AM)	0.929	23.3	0.58	LOS C
- Evening Peak Hour (4:45-5:45 PM)	0.964	30.4	0.77	LOS C
"H" Street @ College Avenue				
- Morning Peak Hour (7:30-8:30 AM)	0.744	24.9	0.71	LOS C
- Evening Peak Hour (4:15-5:15 PM)	0.978	24.7	0.65	LOS C
"H" Street @ Ocean Avenue				
- Morning Peak Hour (7:00-8:00 AM)	0.858	22.3	0.54	LOS C
- Evening Peak Hour (4:45-5:45 PM)	0.934	23.1	0.45	LOS C

a. Based on year 2005 traffic projections, the existing intersection approach lane geometrics, as shown in Figure 1, and a five percent truck mix. Refer to the signalized intersection HCS worksheets in Attachment B for additional input parameters.

b. Delay=average control delay per vehicle for the intersection as a whole. Assumes a 90-second cycle length. Does not include right-turn on red volume adjustments.

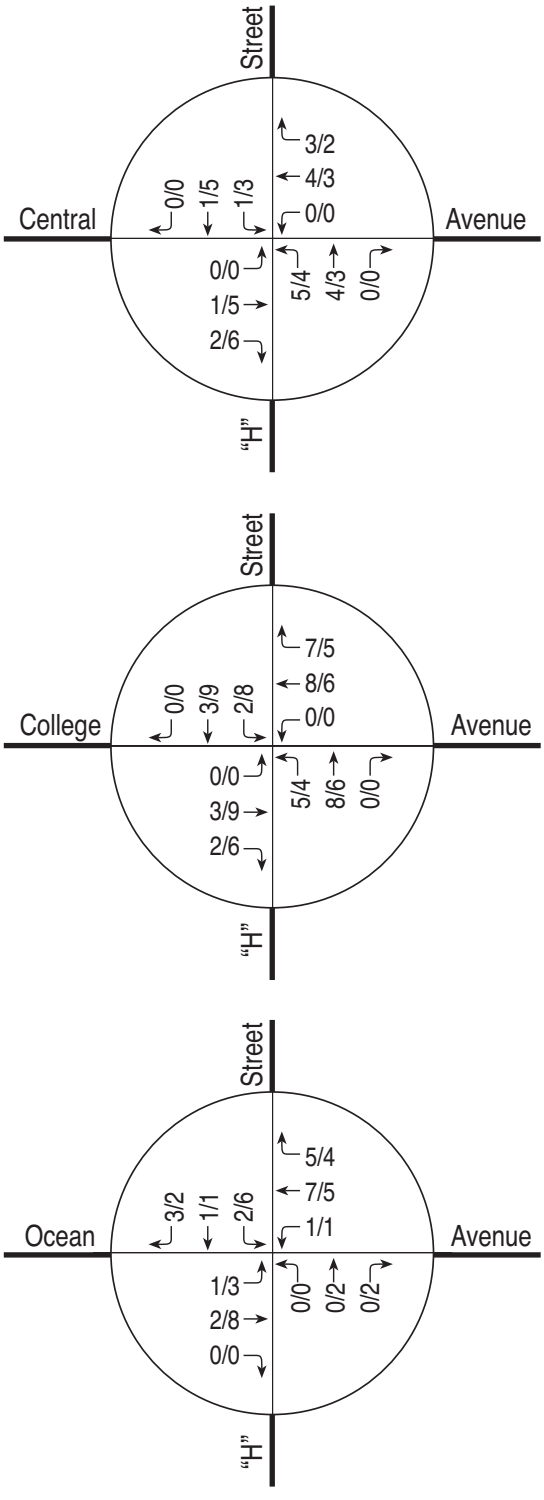
Cumulative Traffic Analysis

Future background traffic volumes were estimated by: (1) applying a background traffic growth rate to current traffic volumes at the three intersections (to reflect regional development), and (2) adding the traffic associated with specific cumulative projects. The cumulative projects addressed specifically included:

- The Bluffs at Mesa Oaks;
- Heritage Senior Housing;
- Lompoc Aquatic Center;
- LHCD Mixed-Use Development.
- Providence Landing;
- Oak Hills;
- Wye Specific Plan; and

Figure 3

Project-Related Traffic Volumes



Legend

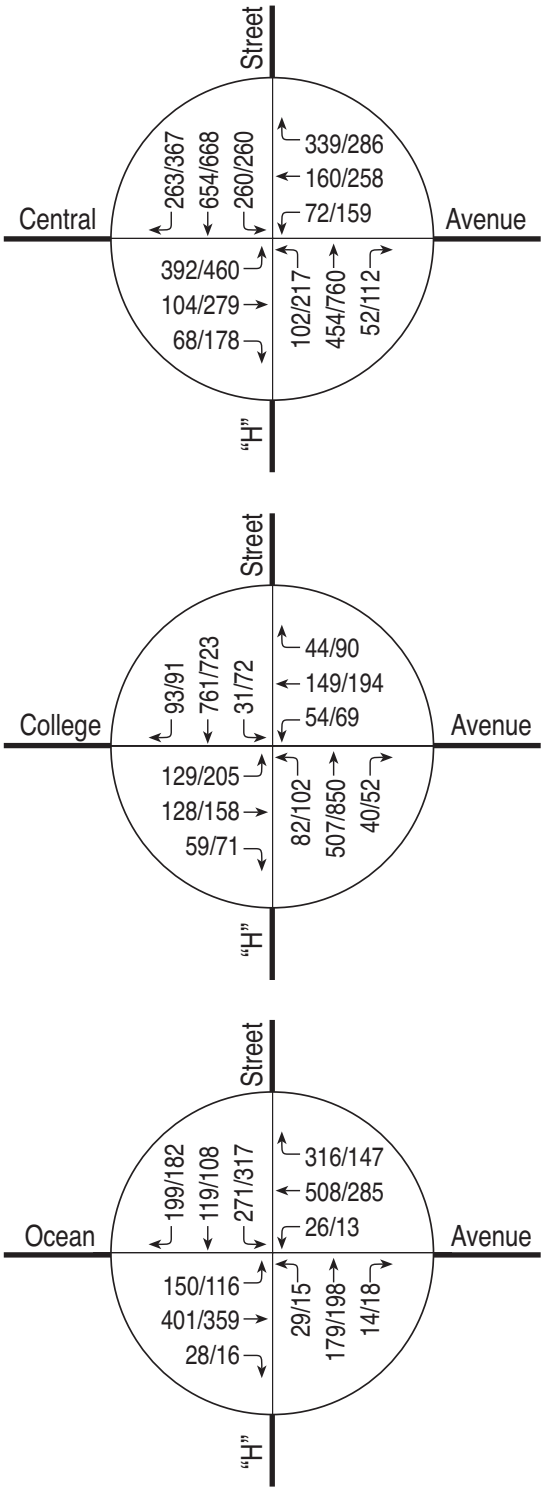
5/8 AM/PM Peak Hour Turning Volume

Endo Engineering

Schematic

Figure 4

Existing+Project Traffic Volumes



Legend

5/8 AM/PM Peak Hour Turning Volume

Endo Engineering

Schematic

The trip generation and distribution of the first five projects was obtained from the *Wye Specific Plan Annexation #70 Traffic Impact Study* (Endo Engineering, June 5, 2003). The trip generation and distribution of the Lompoc Aquatic Center was obtained from the *Lompoc Aquatic Center Traffic Impact Study* (Endo Engineering, December 2, 2002). The trip generation and distribution for the LHCD Mixed-Use Development (located on the northeast corner of "H" Street at Ocean Avenue), were developed from the project description in the *LHCD Mixed-Use Development Traffic Impact Study* (Penfield & Smith, March 28, 2005.[3]

The trip generation associated with the cumulative projects is shown in Table 3. The traffic distribution and assignment associated with each cumulative development was extended through the three intersections, based upon the location of existing land uses and traffic patterns throughout the City of Lompoc. The Home Depot project that was included as a cumulative project in the *River Terrace Development Traffic Impact Study* was constructed and open for business prior to the initiation of the traffic counts. Consequently, the traffic generated by the Home Depot was included in the traffic count data and was not added herein.

The *Wye Specific Plan Annexation #70 Traffic Impact Study* addressed seven cumulative projects. However, two of the developments (Harris Grade Residential and Purisima Highlands) have been completed and therefore were not included as cumulative projects herein. The peak hour traffic volumes associated with the seven specific cumulative projects are illustrated in Figure 5.

The seven cumulative projects will generate a combined total of approximately 15,430 weekday trips. During weekday morning peak hours, approximately 1,434 cumulative trip-ends are projected to be generated, with 517 inbound and 917 outbound trips. During weekday evening peak hours, approximately 1,595 trip-ends are projected to be generated, with 951 inbound and 644 outbound trips.

In addition to the specific cumulative projects, the analysis includes an annual background traffic growth rate of 1.5 percent to address smaller on-going cumulative development. The Wye Specific Plan traffic analysis added a 1.5 percent annual background traffic growth rate in addition to the specific cumulative projects to be consistent with the General Plan Buildout traffic modeling projections.

Figure 6 illustrates the existing+growth+cumulative+project traffic volumes at the three intersections. The growth reflects year 2007 conditions (two years at a 1.5 percent annual traffic growth rate).

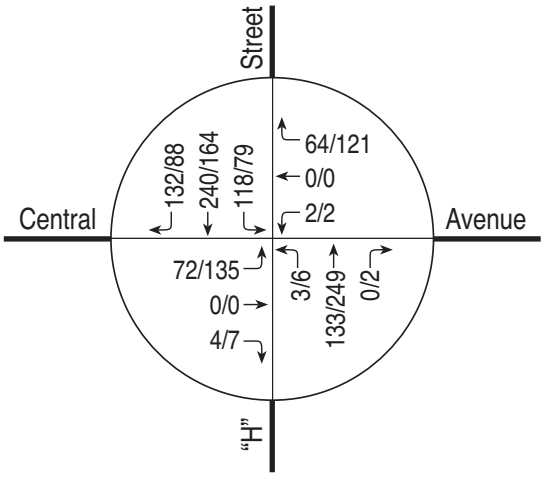
Table 4 provides the peak hour delay, volume-to-capacity ratios and levels of service at the three key intersections for the existing+growth+cumulative+project traffic volumes shown in Figure 6. As shown in Table 4, two of the three key intersections ("H" Street at College Avenue and "H" Street @ Ocean Avenue) will operate at acceptable levels of service without mitigation. The intersection of "H" Street and Central Avenue is projected to operate at LOS D during the evening peak hour without mitigation.

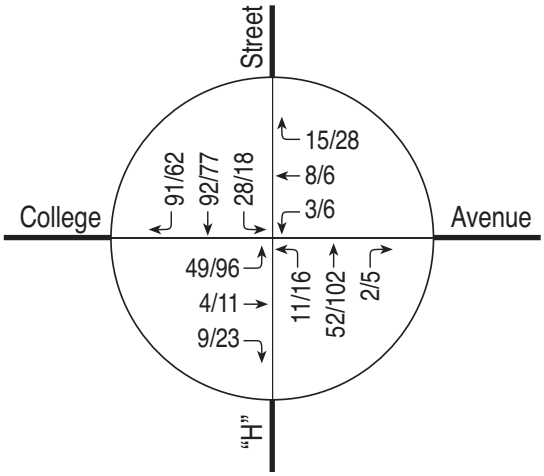
---

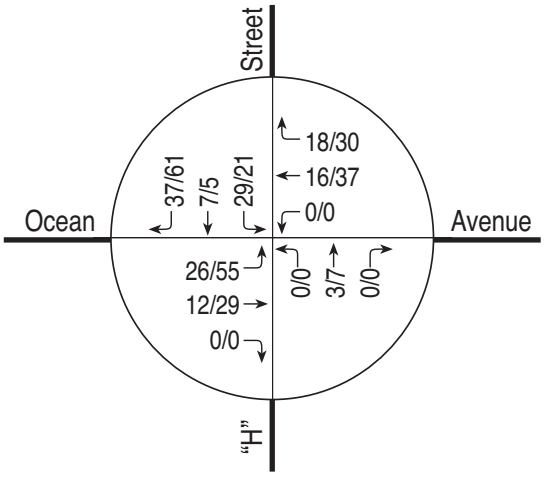
3. Based upon the proposed land uses identified in the *LHCD Mixed-Use Development Traffic Impact Study*, and the ITE, *Trip Generation,* (7th Edition) regression equations and average rates, as well as the SANDAG *Traffic Generators* traffic generation rates, the LHCD Mixed-Use Development was projected to generate 4,190 daily trip-ends, with 138 trip-ends during the morning peak hour (84 inbound and 54 outbound) and 435 trip-ends during the evening peak hour (201 inbound and 234 outbound).

Figure 5

Cumulative Project Traffic Volumes







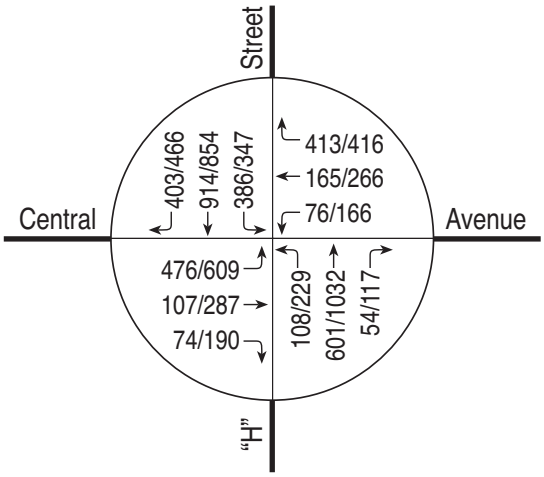
Legend	
5/8	AM/PM Peak Hour Turning Volume

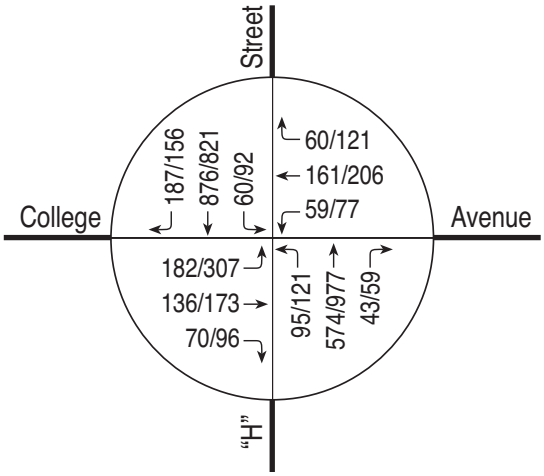
Endo Engineering

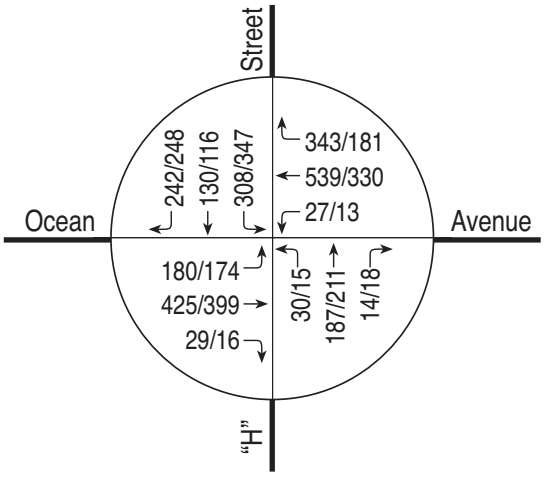
Schematic

Figure 6

Existing+Growth+Cumulative+Project Traffic Volumes







Legend	
5/8	AM/PM Peak Hour Turning Volume

Endo Engineering

Schematic

Table 3
Estimated Cumulative Traffic Generation[a]

Land Use Category[b] (ITE Code)	Land Use Quantity[c]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily 2-Way
Wye Specific Plan	Total	243	377	620	374	258	632	5,220
Lompoc Aquatic Center[d]	41.697 TSF	36	19	55	25	48	73	950
Heritage Senior Housing	173 DU	11	45	56	46	24	70	920
Providence Landing	356 DU	104	210	314	221	139	360	3,710
Bluffs at Mesa Oaks								
- SFD (210)	73 DU	14	41	55	47	27	74	700
- MFA (230)	4 DU	0	1	1	1	1	2	20
Sub-total		15	44	59	50	28	78	720
Oak Hills								
- SFD (210)	21 DU	4	12	16	14	8	22	200
LHCD Mixed-Use		104	210	314	221	139	360	3,710
Cumulative Total		517	917	1,434	951	644	1,595	15,430

a. Based upon average trip generation rates published by the ITE in *Trip Generation* (December, 2003).
b. Taken from Table 4-1 of the *Westar/Home Depot Development Traffic Impact Study* (Endo Engineering; February 24, 2003).

Required Mitigation Measures

Caltrans endeavors to maintain a target level of service at the transition between LOS C and LOS D on State facilities. The City of Lompoc performance standard is also to maintain intersection operation at LOS C or better. Both agencies utilize the HCM methodology to evaluate intersection operations.

The need for mitigation at the intersection of "H" Street and Central Avenue with total year 2007 traffic volumes is consistent with the findings in the *Wye Specific Plan Annexation #70 Traffic Impact Study*, (Endo Engineering, June 5, 2003). The Wye S.P. Traffic Study concluded that a second northbound and a second southbound left-turn lane would be required to maintain LOS C with year 2008+Wye S.P. traffic. Since the City of Lompoc is currently planning to construct dual northbound and southbound left-turn lanes as well as a northbound right-turn lane in conjunction with the development of the Wye Specific Plan, these improvements were assumed as part of the mitigated intersection analysis. The intersection of "H" Street and Central Avenue would operate at LOS C with total year 2007 traffic volumes and anticipated lane improvements.

The intersections of "H" Street at College Avenue and "H" Street at Ocean Avenue currently operates at LOS C, and is projected to operate at LOS C with projected total traffic volumes (existing+growth+cumulative+project traffic) without mitigation.

Table 4
Existing+Growth+Cumulative+Project Peak Hour Delay and LOS
at the Signalized Key Intersections[a]

Signalized Intersection (Peak Hour Interval)	Peak Hour Factor	Delay[b] (Sec./Veh.)	Critical V/C Ratio	Intersection LOS
"H" Street @ Central Avenue				
- Morning Peak Hour (7:30-8:30 AM)	0.929	25.0	0.75	LOS C
- Evening Peak Hour (4:45-5:45 PM)	0.964	49.3	0.96	**LOS D**
"H" Street @ College Avenue				
- Morning Peak Hour (7:30-8:30 AM)	0.744	33.7	0.86	LOS C
- Evening Peak Hour (4:15-5:15 PM)	0.978	30.4	0.78	LOS C
"H" Street @ Ocean Avenue				
- Morning Peak Hour (7:00-8:00 AM)	0.858	23.4	0.60	LOS C
- Evening Peak Hour (4:45-5:45 PM)	0.934	24.1	0.52	LOS C
Mitigated with Dual N/S Left-Turn Lanes and Northbound Right-Turn Lane				
"H" Street @ Central Avenue				
- Morning Peak Hour (7:30-8:30 AM)	0.929	21.7	0.61	LOS C
- Evening Peak Hour (4:45-5:45 PM)	0.964	28.3	0.80	LOS C

a. Based upon year 2007 traffic volumes Existing intersection approach lane geometrics, as shown in Figure 1, were assumed. A five percent heavy vehicle mix was assumed. Refer to the signalized intersection HCS worksheets in Attachment B for additional input parameters.

b. Delay=average control delay per vehicle for the intersection as a whole. Assumes a 90-second cycle length. Does not include right-turn on red volume adjustments.

Back-of-Queue Analysis After Mitigation

At closely spaced intersections, upstream discharges can affect downstream queues and downstream queues can affect upstream discharges. Therefore, where closely spaced signalized intersections exist, operations at a traffic signal may impact the operations at an adjacent intersection. Although the three intersections addressed herein are located in excess of one-half mile apart, intervening signalized intersections exist.

"H" Street @ Central Avenue

The closest signalized intersections to the intersection of "H" Street and Central Avenue are located approximately one-eighth mile north and south of Central Avenue. Both of these intersections have low traffic volumes on the minor approaches, which provide access to adjacent commercial developments. In addition, a traffic signal is located one-quarter mile west of "H" Street on Central Avenue.

The *Highway Capacity Manual* provides a methodology for projecting the back of queue (BOQ) as part of the intersection analysis. As shown in the attached worksheets, the southbound BOQ on "H" Street is projected for the morning peak hour, and the northbound BOQ is projected for the evening peak hour, as they represent the longest queues.

With total traffic volumes and the anticipated lane geometrics, the intersection of "H" Street and Central Avenue is projected to have an average northbound BOQ of 380 feet, and a 95th percentile BOQ of 670 feet (assuming 25 feet per vehicle). The average BOQ is the maximum distance the queue extends from the stop line on an average signal cycle. The northbound 95th percentile BOQ may extend to or just past the adjacent traffic signal (located approximately one-eighth mile south of Central Avenue, at a commercial development access). Although the northbound queue may impact the operation of the adjacent intersection, the adjacent intersection has excess capacity (because of the low volumes on the minor street approaches).

The morning peak hour southbound average BOQ associated with the intersection of "H" Street and Central Avenue is projected to extend 243 feet. The 95th percentile BOQ will extend 448 feet. This BOQ would not significantly impact the operation of the adjacent intersection.

"H" Street @ College Avenue

The closest signalized intersections to the intersection of "H" Street and College Avenue are located approximately one-quarter mile north of College Avenue and one-third mile south of College Avenue. With evening peak hour total traffic volumes, the intersection of "H" Street and College Avenue is projected to have an average northbound queue of 350 feet, with a 95th percentile BOQ of 620 feet.

The longest southbound BOQ is projected to occur during the morning peak hour at the intersection of "H" Street and College Avenue. The morning peak hour southbound average queue at the intersection of "H" Street and College Avenue is projected to extend 553 feet. The 95th percentile BOQ is expected to extend 925 feet. Neither the northbound nor the southbound BOQ would extend to the nearest signalized intersection.

"H" Street @ Ocean Avenue

The intersection of "H" Street and Ocean Avenue is closely bounded by traffic signals on three sides. Traffic signals are located on Ocean Avenue (approximately 375 feet east and west of "H" Street) and on "H" Street (one-eighth mile north of Ocean Avenue). As shown in the attached worksheets, the longest southbound queue on "H" Street and the longest westbound queue on Ocean Avenue are projected to occur in the morning peak hour. With morning peak hour total traffic volumes, the intersection of "H" Street and Ocean Avenue is projected to have an average southbound queue extending 160 feet. The 95th percentile BOQ would extend 305 feet.

The morning peak hour westbound average queue associated with the intersection of "H" Street and Ocean Avenue is projected to extend 173 feet. The 95th percentile BOQ would extend 330 feet. The morning peak hour 95th percentile westbound BOQ could almost extend up to the adjacent signalized intersection at "G" Street, and may have a minor impact on the operation of that signal. However, "G" Street serves relatively low traffic volumes, and the intersection of "G" Street and Ocean Avenue is currently operating at LOS B. Therefore, the projected BOQ at the intersection of "H" Street and Ocean Avenue would not impact the operation of the signalized intersections located further to the east.

Conclusions

The three intersections evaluated on "H" Street are all currently operating at LOS C during the morning and evening peak hours. The addition of project-related traffic will increase the peak hour delay by up to 0.6 seconds and increase the volume-to-capacity ratio by up to one percent. With the addition of traffic from seven cumulative projects, a 1.5 percent annual growth rate, and traffic from the proposed project, one of the three key intersections will require additional lanes to maintain acceptable levels of service (LOS C or better). The City of Lompoc is currently developing plans to construct a second northbound left-turn lane, a second southbound left-turn lane, and a northbound right-turn lane to maintain LOS C at the intersection of "H" Street and Central Avenue in conjunction with development of the Wye Specific Plan. These improvements are consistent with the findings in the *Wye Specific Plan Annexation #70 Traffic Impact Study*.

There are closely spaced traffic signals located adjacent to the intersections of "H" Street at Central Avenue and "H" Street at Ocean Avenue. The northbound BOQ analysis indicates that the 95th percentile BOQ may extend to or 10 feet past the adjacent signalized intersection, south of Central Avenue. Although the northbound queue may impact the operation of the adjacent traffic signal, the adjacent signal has excess capacity (because of the low volumes on the minor approaches). The impact of the queue at the intersection of "H" Street and Central Avenue should not be significant at the adjacent signalized intersections to the south.

The 95th percentile BOQ for the westbound approach to the intersection of "H" Street and Ocean Avenue may almost extend up to the traffic signal at "G" Street with existing+growth+cumulative+project traffic volumes. This queue could have a minor impact at the signalized intersection at "G" Street and Ocean Avenue, but should not have a significant impact on the operation of signalized intersections located further to the east.

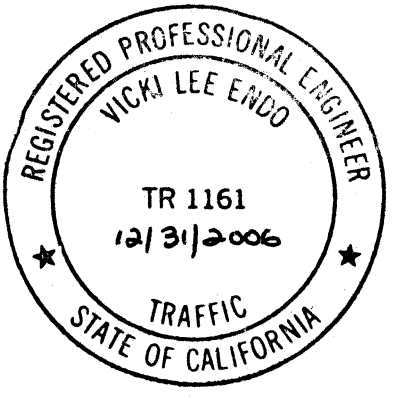
The queue at two of the key intersections may have a minor impact on the adjacent signalized intersection. However, in both cases, the adjacent signalized intersection serves relatively low volumes on the minor approaches and is operating at good levels of service. The queues at the key intersections should not cause significant impacts on the adjacent circulation system.

We trust that the information provided herein will be of value in the preparation of the required environmental documentation and assist the City of Lompoc in their review of the impacts and conditions of approval associated with the project. Should questions or comments arise regarding the findings and recommendations within this letter report, please do not hesitate to contact our offices. We look forward to discussing our findings and recommendations with you.

Cordially,
ENDO ENGINEERING

Vicki Lee Endo

Vicki Lee Endo, P.E., T.E.
Registered Professional
Traffic Engineer TR 1161



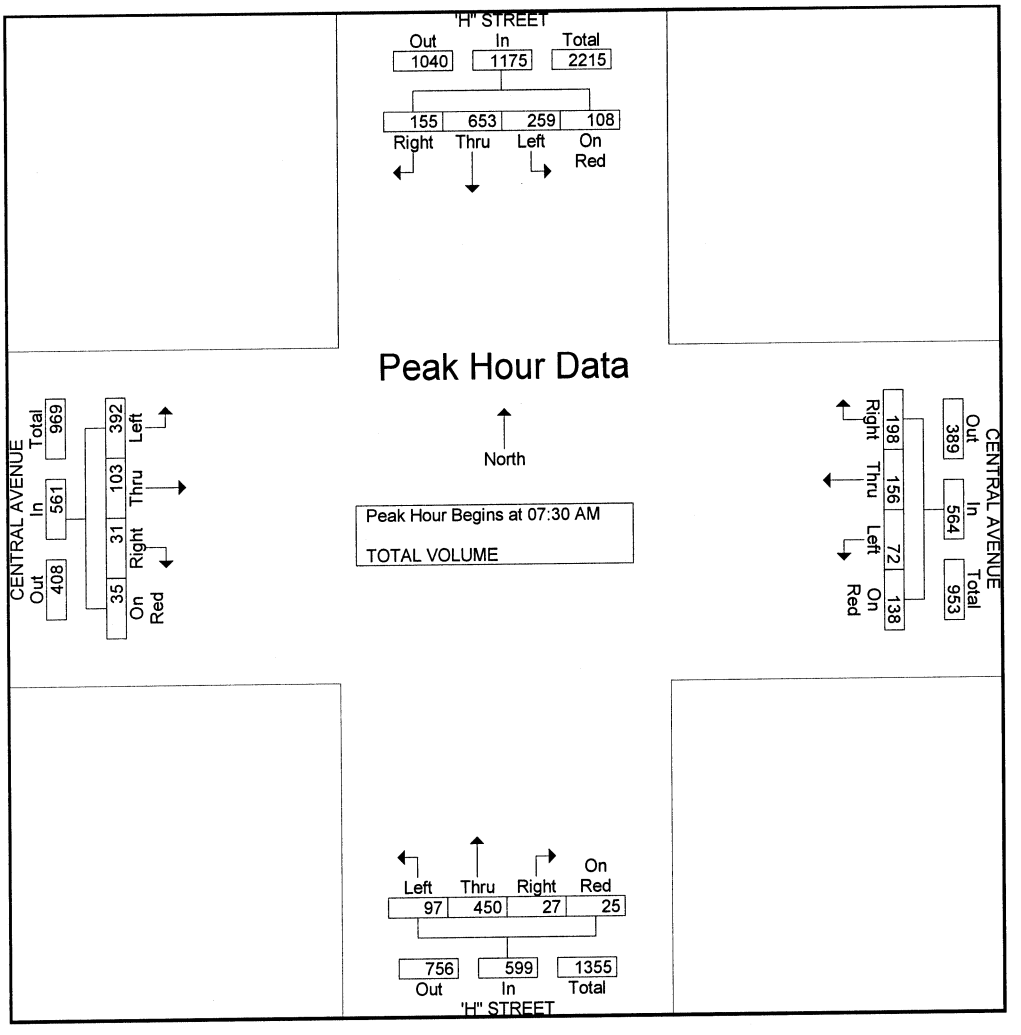
Attachment A

Traffic Count Data

COUNTS UNLIMITED INC.
25424 JACLYN AVENUE
MORENO VALLEY CA, 92557
951-247-6716

CITY OF LOMPOC
N/S: "H" STREET
E/W: CENTRAL AVENUE
WEATHER: SUNNY

File Name : LOHCEAM
Site Code : 096425
Start Date : 4/20/2005
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					07:15 AM					07:45 AM					07:15 AM				
+0 mins.	58	144	47	18	267	14	**51**	63	36	164	21	**124**	3	5	153	109	22	2	4	137
+15 mins.	**81**	**204**	**51**	27	**363**	12	44	**84**	44	**184**	30	116	**11**	**13**	**170**	**137**	16	3	10	**166**
+30 mins.	71	161	19	**41**	292	18	34	32	**46**	130	29	122	8	6	165	84	29	**13**	8	134
+45 mins.	49	144	38	22	253	**22**	40	55	22	139	**31**	93	2	4	130	83	**34**	9	**11**	137
Total Volume	259	653	155	108	1175	66	169	234	148	617	111	455	24	28	618	413	101	27	33	574
% App. Total	22	55.6	13.2	9.2		10.7	27.4	37.9	24		18	73.6	3.9	4.5		72	17.6	4.7	5.7	
PHF	.799	.800	.760	.659	.809	.750	.828	.696	.804	.838	.895	.917	.545	.538	.909	.754	.743	.519	.750	.864

COUNTS UNLIMITED INC.
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WEATHER: SUNNY

File Name : LOHCEAM
Site Code : 096425
Start Date : 4/20/2005
Page No : 1

Groups Printed- TOTAL VOLUME

	'H" STREET Southbound				CENTRAL AVENUE Westbound				'H" STREET Northbound				CENTRAL AVENUE Eastbound				
Start Time	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Int. Total
07:00 AM	30	95	28	24	18	41	28	29	21	80	1	5	71	28	0	3	502
07:15 AM	33	96	28	28	14	51	63	36	21	111	1	1	109	22	2	4	620
07:30 AM	58	144	47	18	12	44	84	44	17	88	5	1	137	16	3	10	728
07:45 AM	81	204	51	27	18	34	32	46	21	124	3	5	84	29	13	8	780
Total	202	539	154	97	62	170	207	155	80	403	10	12	401	95	18	25	2630
08:00 AM	71	161	19	41	22	40	55	22	30	116	11	13	83	34	9	11	738
08:15 AM	49	144	38	22	20	38	27	26	29	122	8	6	88	24	6	6	653
08:30 AM	42	122	28	17	18	21	17	27	31	93	2	4	79	21	12	5	539
08:45 AM	39	122	26	22	16	20	26	26	27	99	4	5	86	21	16	8	563
Total	201	549	111	102	76	119	125	101	117	430	25	28	336	100	43	30	2493
Grand Total	403	1088	265	199	138	289	332	256	197	833	35	40	737	195	61	55	5123
Apprch %	20.6	55.7	13.6	10.2	13.6	28.5	32.7	25.2	17.8	75.4	3.2	3.6	70.3	18.6	5.8	5.2	
Total %	7.9	21.2	5.2	3.9	2.7	5.6	6.5	5	3.8	16.3	0.7	0.8	14.4	3.8	1.2	1.1	

	'H" STREET Southbound					CENTRAL AVENUE Westbound					'H" STREET Northbound					CENTRAL AVENUE Eastbound					
Start Time	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	58	144	47	18	267	12	**44**	**84**	44	**184**	17	88	5	1	111	**137**	16	3	10	**166**	728
07:45 AM	**81**	**204**	**51**	27	**363**	18	34	32	**46**	130	21	**124**	3	5	153	84	29	**13**	8	134	**780**
08:00 AM	71	161	19	**41**	292	**22**	40	55	22	139	**30**	116	**11**	**13**	**170**	83	**34**	9	**11**	137	738
08:15 AM	49	144	38	22	253	20	38	27	26	111	29	122	8	6	165	88	24	6	6	124	653
Total Volume	259	653	155	108	1175	72	156	198	138	564	97	450	27	25	599	392	103	31	35	561	2899
% App. Total	22	55.6	13.2	9.2		12.8	27.7	35.1	24.5		16.2	75.1	4.5	4.2		69.9	18.4	5.5	6.2		
PHF	.799	.800	.760	.659	.809	.818	.886	.589	.750	.766	.808	.907	.614	.481	.881	.715	.757	.596	.795	.845	.929

COUNTS UNLIMITED INC.
25424 JACLYN AVENUE
MORENO VALLEY CA, 92557
951-247-6716

CITY OF LOMPOC
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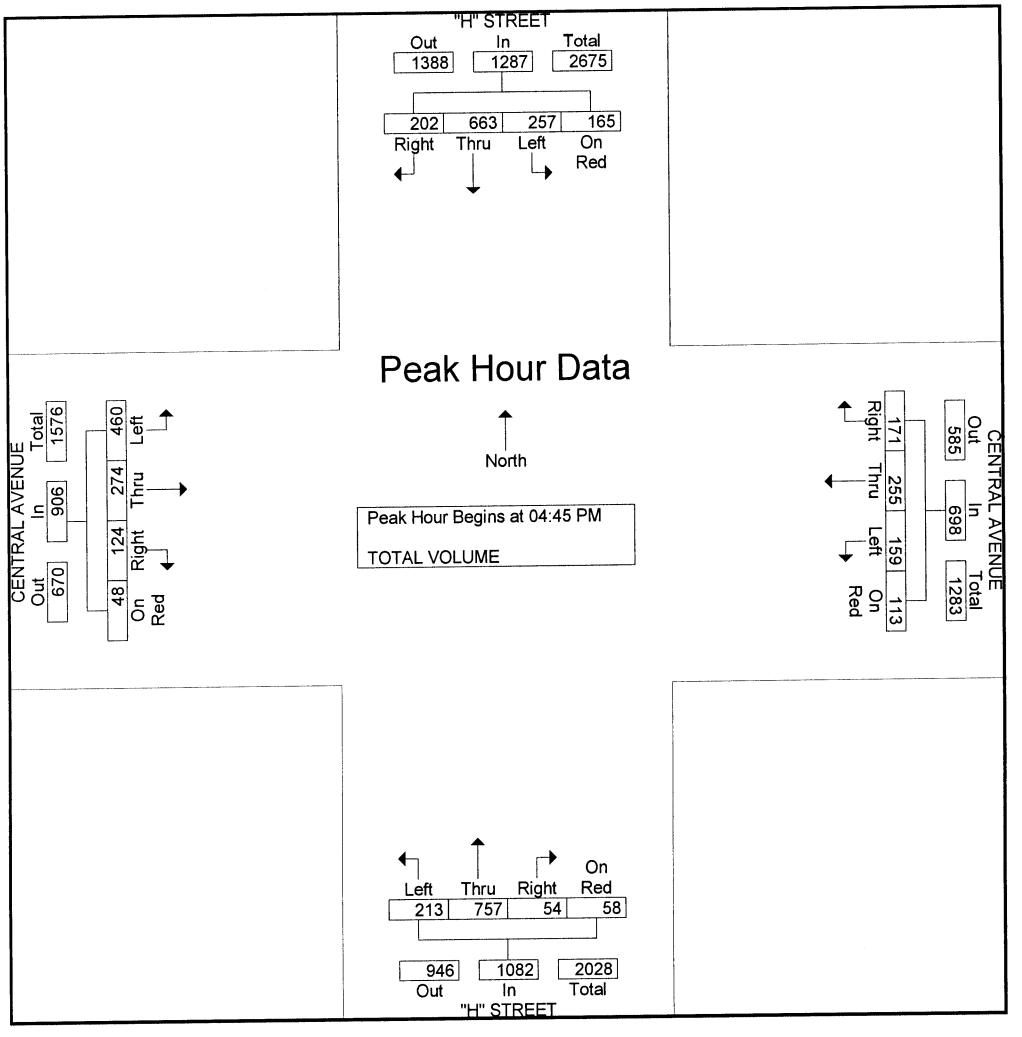
E/W: CENTRAL AVENUE
WEATHER: SUNNY

File Name : LOHCEPM
Site Code : 096425
Start Date : 4/19/2005
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:30 PM					04:45 PM					04:45 PM					04:00 PM				
+0 mins.	68	175	45	**44**	332	43	68	40	**30**	181	53	187	12	16	268	**125**	69	28	8	230
+15 mins.	62	148	41	34	285	**45**	**78**	35	27	**185**	51	191	10	**18**	270	116	71	25	14	226
+30 mins.	**75**	168	49	40	332	34	59	**52**	30	175	**58**	**210**	**23**	9	**300**	114	70	**31**	**16**	231
+45 mins.	63	**191**	**54**	37	**345**	37	50	44	26	157	51	169	9	15	244	113	**82**	31	15	**241**
Total Volume	268	682	189	155	1294	159	255	171	113	698	213	757	54	58	1082	468	292	115	53	928
% App. Total	20.7	52.7	14.6	12		22.8	36.5	24.5	16.2		19.7	70	5	5.4		50.4	31.5	12.4	5.7	
PHF	.893	.893	.875	.881	.938	.883	.817	.822	.942	.943	.918	.901	.587	.806	.902	.936	.890	.927	.828	.963

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File Name : LOHCEPM
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Page No : 1

Groups Printed- TOTAL VOLUME

	"H" STREET Southbound				CENTRAL AVENUE Westbound				"H" STREET Northbound				CENTRAL AVENUE Eastbound				
Start Time	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Int. Total
04:00 PM	49	153	44	32	37	44	37	28	58	176	12	10	125	69	28	8	910
04:15 PM	74	150	41	35	49	57	39	17	46	154	13	12	116	71	25	14	913
04:30 PM	68	175	45	44	38	45	32	34	47	132	10	12	114	70	31	16	913
04:45 PM	62	148	41	34	43	68	40	30	53	187	12	16	113	82	31	15	975
Total	253	626	171	145	167	214	148	109	204	649	47	50	468	292	115	53	3711
05:00 PM	75	168	49	40	45	78	35	27	51	191	10	18	129	62	26	12	1016
05:15 PM	63	191	54	37	34	59	52	30	58	210	23	9	94	70	31	15	1030
05:30 PM	57	156	58	54	37	50	44	26	51	169	9	15	124	60	36	6	952
05:45 PM	63	156	40	32	28	49	25	18	52	156	8	10	101	45	18	11	812
Total	258	671	201	163	144	236	156	101	212	726	50	52	448	237	111	44	3810
Grand Total	511	1297	372	308	311	450	304	210	416	1375	97	102	916	529	226	97	7521
Apprch %	20.5	52.1	15	12.4	24.4	35.3	23.8	16.5	20.9	69.1	4.9	5.1	51.8	29.9	12.8	5.5	
Total %	6.8	17.2	4.9	4.1	4.1	6	4	2.8	5.5	18.3	1.3	1.4	12.2	7	3	1.3	

	"H" STREET Southbound					CENTRAL AVENUE Westbound					"H" STREET Northbound					CENTRAL AVENUE Eastbound					
Start Time	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	62	148	41	34	285	43	68	40	**30**	181	53	187	12	16	268	113	**82**	31	**15**	**241**	975
05:00 PM	**75**	168	49	40	332	**45**	**78**	35	27	**185**	51	191	10	**18**	270	**129**	62	26	12	229	1016
05:15 PM	63	**191**	54	37	**345**	34	59	**52**	30	175	**58**	**210**	**23**	9	**300**	94	70	31	15	210	**1030**
05:30 PM	57	156	**58**	**54**	325	37	50	44	26	157	51	169	9	15	244	124	60	**36**	6	226	952
Total Volume	257	663	202	165	1287	159	255	171	113	698	213	757	54	58	1082	460	274	124	48	906	3973
% App. Total	20	51.5	15.7	12.8		22.8	36.5	24.5	16.2		19.7	70	5	5.4		50.8	30.2	13.7	5.3		
PHF	.857	.868	.871	.764	.933	.883	.817	.822	.942	.943	.918	.901	.587	.806	.902	.891	.835	.861	.800	.940	.964

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CITY OF LOMPOC
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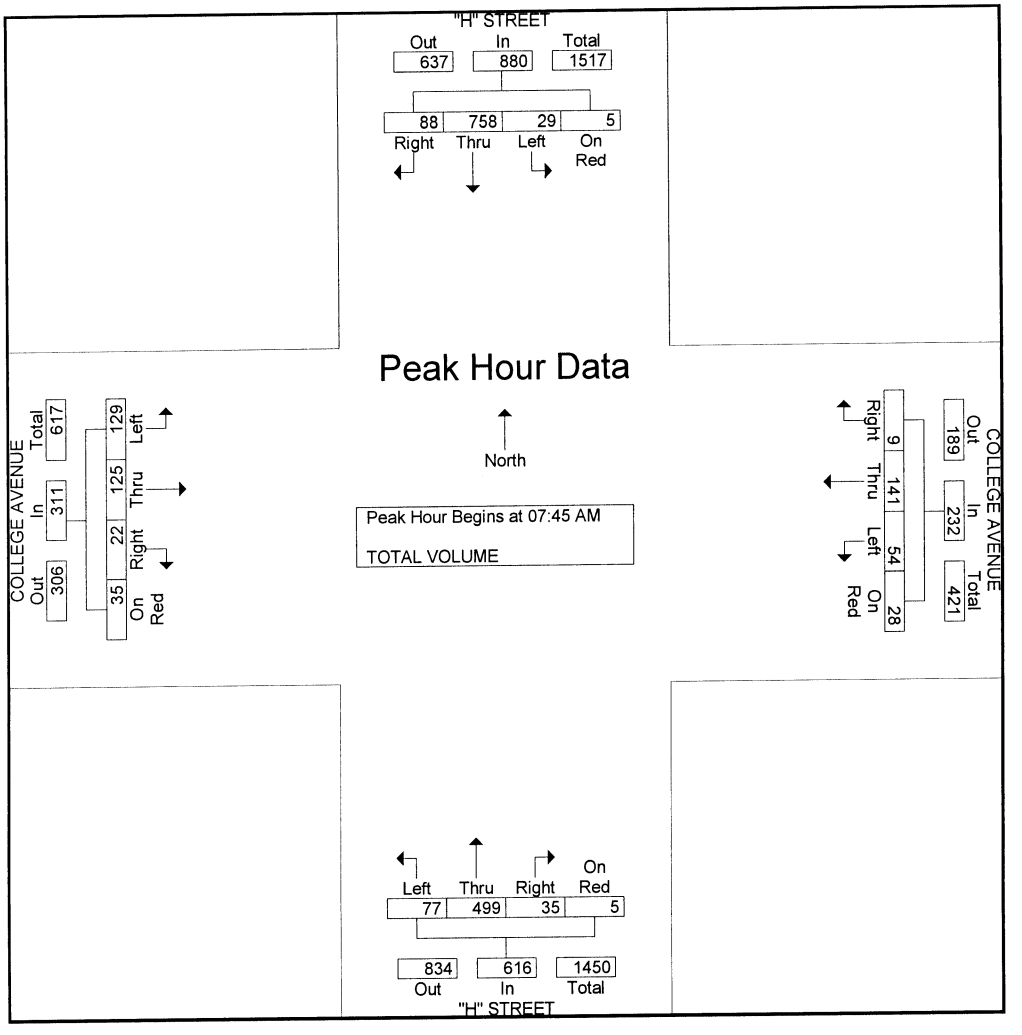
WEATHER: SUNNY

File Name : LOHCOAM
Site Code : 096425
Start Date : 4/19/2005
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM					07:15 AM					07:45 AM					07:30 AM				
+0 mins.	**10**	202	**37**	**2**	**251**	9	21	**5**	1	36	**50**	129	11	1	**191**	18	21	1	7	47
+15 mins.	7	**221**	12	2	242	11	42	3	2	58	9	**157**	**14**	**4**	184	**45**	**59**	**8**	**18**	**130**
+30 mins.	4	160	19	0	183	**20**	**76**	4	**13**	**113**	9	122	5	0	136	39	33	6	10	88
+45 mins.	8	175	20	1	204	15	23	3	5	46	9	91	5	0	105	26	21	5	5	57
Total Volume	29	758	88	5	880	55	162	15	21	253	77	499	35	5	616	128	134	20	40	322
% App. Total	3.3	86.1	10	0.6		21.7	64	5.9	8.3		12.5	81	5.7	0.8		39.8	41.6	6.2	12.4	
PHF	.725	.857	.595	.625	.876	.688	.533	.750	.404	.560	.385	.795	.625	.313	.806	.711	.568	.625	.556	.619

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WEATHER: SUNNY

File Name : LOHCOAM
Site Code : 096425
Start Date : 4/19/2005
Page No : 1

Groups Printed- TOTAL VOLUME

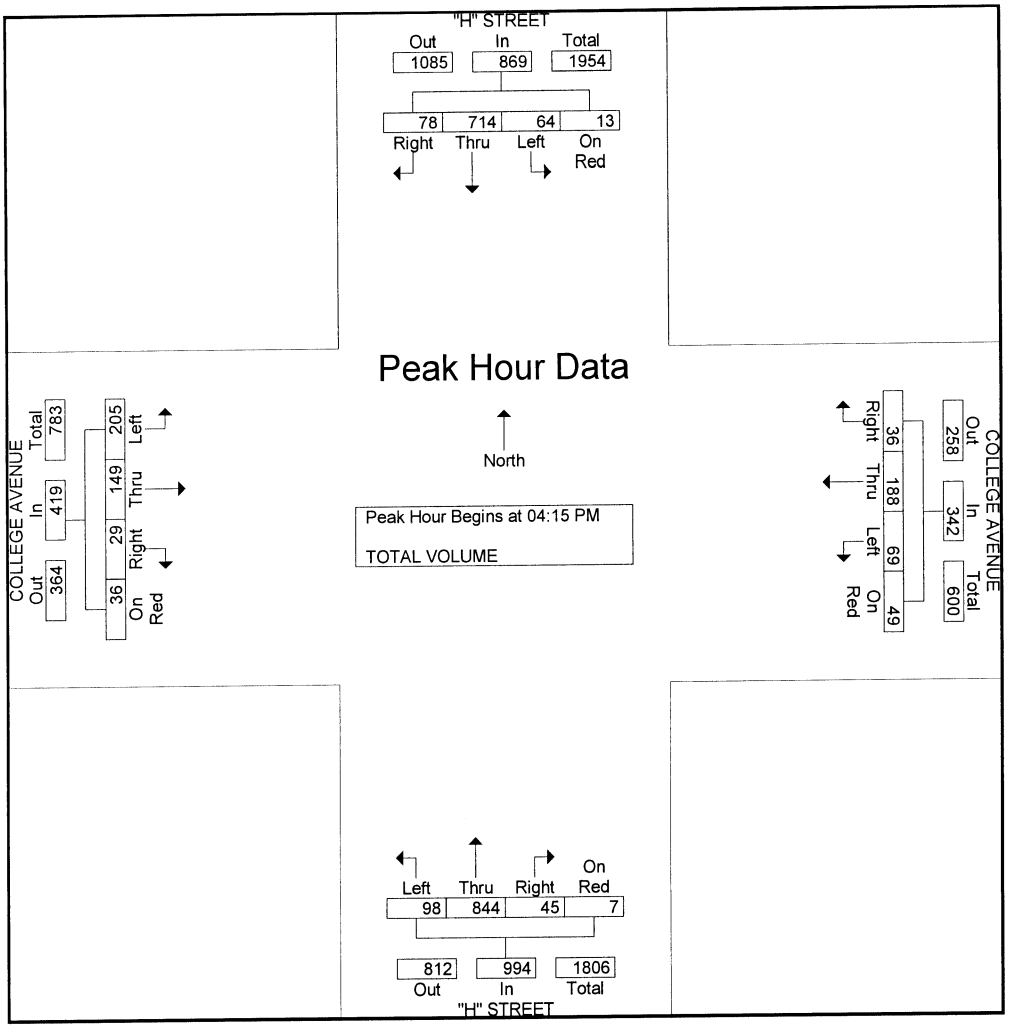
	"H" STREET Southbound				COLLEGE AVENUE Westbound				"H" STREET Northbound				COLLEGE AVENUE Eastbound				
Start Time	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Int. Total
07:00 AM	1	108	15	3	10	13	1	5	5	67	7	0	7	13	6	5	266
07:15 AM	1	106	14	1	9	21	5	1	4	94	0	0	16	24	4	5	305
07:30 AM	3	150	29	4	11	42	3	2	20	67	4	2	18	21	1	7	384
07:45 AM	10	202	37	2	20	76	4	13	50	129	11	1	45	59	8	18	685
Total	15	566	95	10	50	152	13	21	79	357	22	3	86	117	19	35	1640
08:00 AM	7	221	12	2	15	23	3	5	9	157	14	4	39	33	6	10	560
08:15 AM	4	160	19	0	9	16	0	5	9	122	5	0	26	21	5	5	406
08:30 AM	8	175	20	1	10	26	2	5	9	91	5	0	19	12	3	2	388
08:45 AM	16	143	13	4	3	17	4	5	7	96	8	1	20	10	4	9	360
Total	35	699	64	7	37	82	9	20	34	466	32	5	104	76	18	26	1714
Grand Total	50	1265	159	17	87	234	22	41	113	823	54	8	190	193	37	61	3354
Apprch %	3.4	84.8	10.7	1.1	22.7	60.9	5.7	10.7	11.3	82.5	5.4	0.8	39.5	40.1	7.7	12.7	
Total %	1.5	37.7	4.7	0.5	2.6	7	0.7	1.2	3.4	24.5	1.6	0.2	5.7	5.8	1.1	1.8	

	"H" STREET Southbound					COLLEGE AVENUE Westbound					"H" STREET Northbound					COLLEGE AVENUE Eastbound					
Start Time	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	**10**	202	**37**	**2**	**251**	**20**	**76**	**4**	**13**	**113**	**50**	129	11	1	**191**	**45**	**59**	**8**	**18**	**130**	**685**
08:00 AM	7	**221**	12	2	242	15	23	3	5	46	9	**157**	**14**	**4**	184	39	33	6	10	88	560
08:15 AM	4	160	19	0	183	9	16	0	5	30	9	122	5	0	136	26	21	5	5	57	406
08:30 AM	8	175	20	1	204	10	26	2	5	43	9	91	5	0	105	19	12	3	2	36	388
Total Volume	29	758	88	5	880	54	141	9	28	232	77	499	35	5	616	129	125	22	35	311	2039
% App. Total	3.3	86.1	10	0.6		23.3	60.8	3.9	12.1		12.5	81	5.7	0.8		41.5	40.2	7.1	11.3		
PHF	.725	.857	.595	.625	.876	.675	.464	.563	.538	.513	.385	.795	.625	.313	.806	.717	.530	.688	.486	.598	.744

COUNTS UNLIMITED INC.
25424 JACLYN AVENUE
MORENO VALLEY CA, 92557
951-247-6716

CITY OF LOMPOC
N/S: "H" STREET
E/W: COLLEGE AVENUE
WEATHER: SUNNY

File Name : LOHCOPM
Site Code : 096425
Start Date : 4/19/2005
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM					04:15 PM					04:15 PM					04:00 PM				
+0 mins.	16	**196**	**29**	**5**	**246**	11	43	9	11	74	**30**	199	10	**3**	242	49	38	6	8	101
+15 mins.	15	178	15	3	211	16	52	6	12	86	21	200	12	2	235	**58**	36	7	**10**	**111**
+30 mins.	**17**	174	24	4	219	20	**53**	7	12	**92**	26	205	10	0	241	52	**41**	8	9	110
+45 mins.	16	180	25	1	222	**22**	40	**14**	**14**	90	21	**240**	**13**	2	**276**	52	37	**11**	10	110
Total Volume	64	728	93	13	898	69	188	36	49	342	98	844	45	7	994	211	152	32	37	432
% App. Total	7.1	81.1	10.4	1.4		20.2	55	10.5	14.3		9.9	84.9	4.5	0.7		48.8	35.2	7.4	8.6	
PHF	.941	.929	.802	.650	.913	.784	.887	.643	.875	.929	.817	.879	.865	.583	.900	.909	.927	.727	.925	.973

COUNTS UNLIMITED INC.
25424 JACLYN AVENUE
MORENO VALLEY CA, 92557
951-247-6716

CITY OF LOMPOC
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WEATHER: SUNNY

File Name : LOHCOPM
Site Code : 096425
Start Date : 4/19/2005
Page No : 1

Groups Printed- TOTAL VOLUME

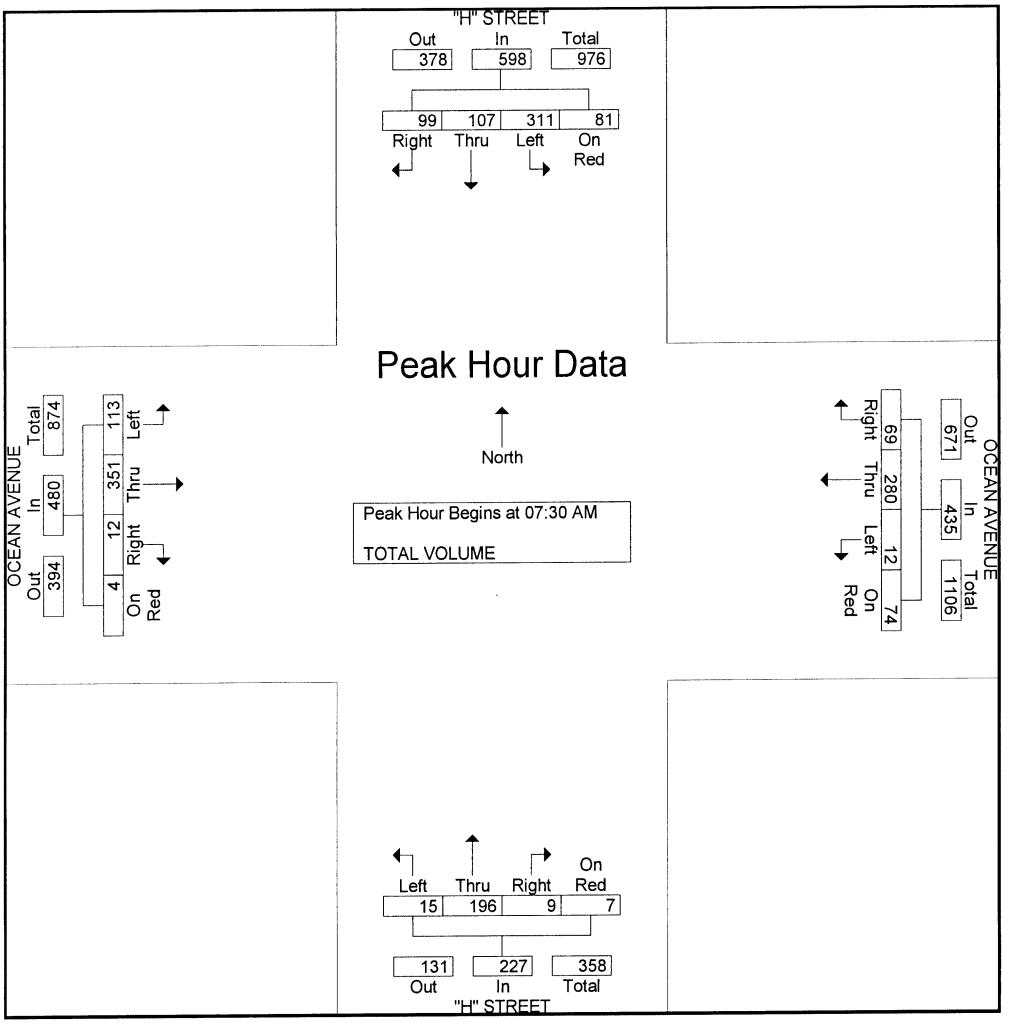
	"H" STREET Southbound				COLLEGE AVENUE Westbound				"H" STREET Northbound				COLLEGE AVENUE Eastbound				
Start Time	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Int. Total
04:00 PM	16	196	29	5	19	25	11	15	17	203	11	1	49	38	6	8	649
04:15 PM	15	178	15	3	11	43	9	11	30	199	10	3	58	36	7	10	638
04:30 PM	17	174	24	4	16	52	6	12	21	200	12	2	52	41	8	9	650
04:45 PM	16	180	25	1	20	53	7	12	26	205	10	0	52	37	11	10	665
Total	64	728	93	13	66	173	33	50	94	807	43	6	211	152	32	37	2602
05:00 PM	16	182	14	5	22	40	14	14	21	240	13	2	43	35	3	7	671
05:15 PM	25	185	26	2	9	40	5	8	22	194	9	1	43	36	3	8	616
05:30 PM	22	155	30	5	16	34	3	7	16	186	10	1	28	27	3	11	554
05:45 PM	21	164	34	3	13	35	4	13	20	176	9	1	33	35	6	15	582
Total	84	686	104	15	60	149	26	42	79	796	41	5	147	133	15	41	2423
Grand Total	148	1414	197	28	126	322	59	92	173	1603	84	11	358	285	47	78	5025
Apprch %	8.3	79.1	11	1.6	21	53.8	9.8	15.4	9.2	85.7	4.5	0.6	46.6	37.1	6.1	10.2	
Total %	2.9	28.1	3.9	0.6	2.5	6.4	1.2	1.8	3.4	31.9	1.7	0.2	7.1	5.7	0.9	1.6	

	"H" STREET Southbound					COLLEGE AVENUE Westbound					"H" STREET Northbound					COLLEGE AVENUE Eastbound					
Start Time	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	15	178	15	3	211	11	43	9	11	74	**30**	199	10	**3**	242	**58**	36	7	**10**	**111**	638
04:30 PM	**17**	174	24	4	219	16	52	6	12	86	21	200	12	2	235	52	**41**	8	9	110	650
04:45 PM	16	180	**25**	1	**222**	20	**53**	7	12	**92**	26	205	10	0	241	52	37	**11**	10	110	665
05:00 PM	16	**182**	14	**5**	217	**22**	40	**14**	**14**	90	21	**240**	**13**	2	**276**	43	35	3	7	88	**671**
Total Volume	64	714	78	13	869	69	188	36	49	342	98	844	45	7	994	205	149	29	36	419	2624
% App. Total	7.4	82.2	9	1.5		20.2	55	10.5	14.3		9.9	84.9	4.5	0.7		48.9	35.6	6.9	8.6		
PHF	.941	.981	.780	.650	.979	.784	.887	.643	.875	.929	.817	.879	.865	.583	.900	.884	.909	.659	.900	.944	.978

COUNTS UNLIMITED INC.
25424 JACLYN AVENUE
MORENO VALLEY CA, 92557
951-247-6716

CITY OF LOMPOC
N/S: "H" STREET
E/W: OCEAN AVENUE
WEATHER: SUNNY

File Name : LOHOCAM
Site Code : 096425
Start Date : 4/21/2005
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM					07:30 AM					07:30 AM					07:45 AM				
+0 mins.	79	**37**	34	**34**	**184**	2	64	14	17	97	3	40	0	2	45	33	86	**7**	1	127
+15 mins.	**96**	33	**39**	14	182	2	**84**	**21**	17	**124**	2	**67**	2	1	**72**	**39**	90	2	**2**	133
+30 mins.	66	22	16	15	119	3	72	17	**24**	116	**6**	48	**4**	**3**	61	25	**109**	2	1	**137**
+45 mins.	63	34	16	18	131	**5**	60	17	16	98	4	41	3	1	49	19	77	0	0	96
Total Volume	304	126	105	81	616	12	280	69	74	435	15	196	9	7	227	116	362	11	4	493
% App. Total	49.4	20.5	17	13.1		2.8	64.4	15.9	17		6.6	86.3	4	3.1		23.5	73.4	2.2	0.8	
PHF	.792	.851	.673	.596	.837	.600	.833	.821	.771	.877	.625	.731	.563	.583	.788	.744	.830	.393	.500	.900

COUNTS UNLIMITED INC.
25424 JACLYN AVENUE
MORENO VALLEY CA, 92557
951-247-6716

CITY OF LOMPOC
N/S: "H" STREET
E/W: OCEAN AVENUE
WEATHER: SUNNY

File Name : LOHOCAM
Site Code : 096425
Start Date : 4/21/2005
Page No : 1

Groups Printed- TOTAL VOLUME

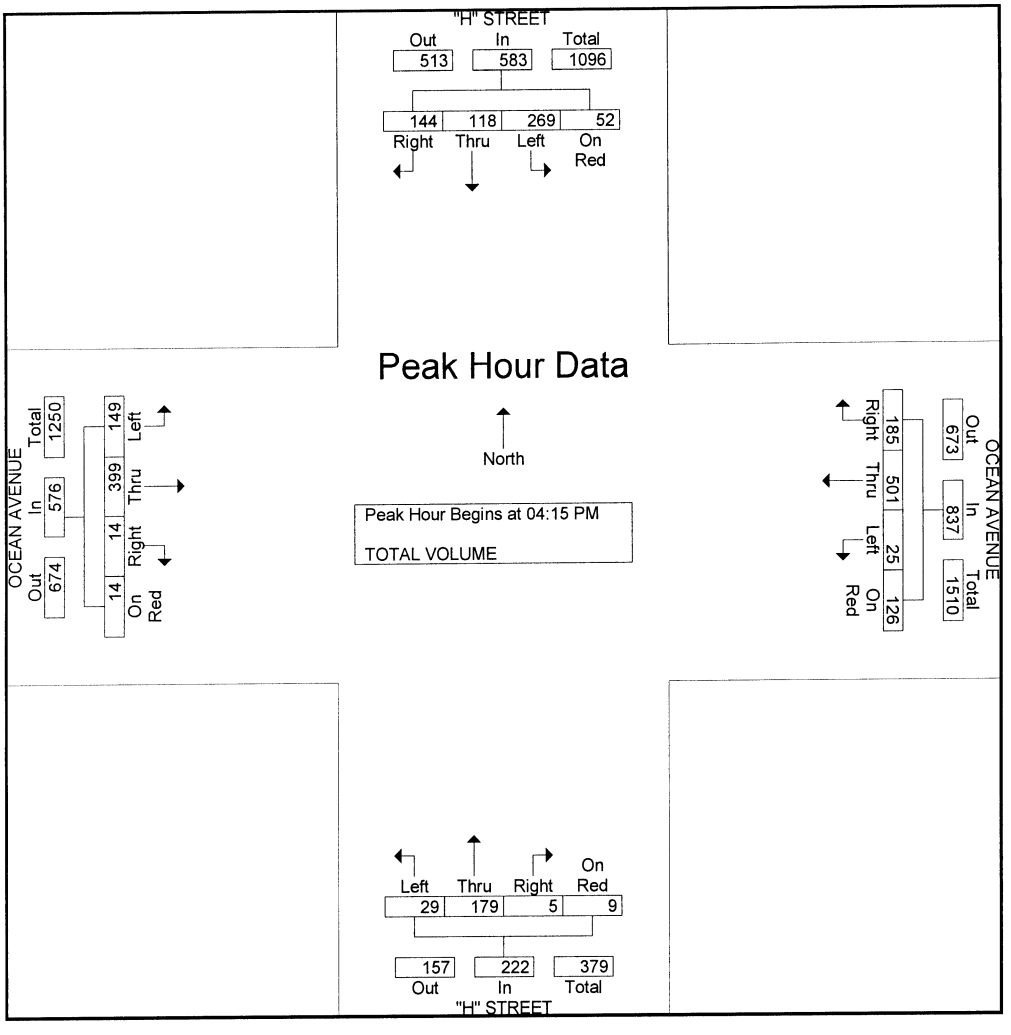
	"H" STREET Southbound				OCEAN AVENUE Westbound				"H" STREET Northbound				OCEAN AVENUE Eastbound				
Start Time	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Int. Total
07:00 AM	65	13	14	19	1	46	16	6	2	22	1	2	13	75	1	1	297
07:15 AM	65	18	7	18	4	51	12	12	1	30	2	1	16	69	1	0	307
07:30 AM	70	15	10	18	2	64	14	17	3	40	0	2	16	66	1	0	338
07:45 AM	79	37	34	34	2	84	21	17	2	67	2	1	33	86	7	1	507
Total	279	83	65	89	9	245	63	52	8	159	5	6	78	296	10	2	1449
08:00 AM	96	33	39	14	3	72	17	24	6	48	4	3	39	90	2	2	492
08:15 AM	66	22	16	15	5	60	17	16	4	41	3	1	25	109	2	1	403
08:30 AM	63	34	16	18	5	52	18	12	1	16	2	5	19	77	0	0	338
08:45 AM	69	25	13	10	3	35	18	21	4	15	3	1	18	64	0	4	303
Total	294	114	84	57	16	219	70	73	15	120	12	10	101	340	4	7	1536
Grand Total	573	197	149	146	25	464	133	125	23	279	17	16	179	636	14	9	2985
Apprch %	53.8	18.5	14	13.7	3.3	62.1	17.8	16.7	6.9	83.3	5.1	4.8	21.4	75.9	1.7	1.1	
Total %	19.2	6.6	5	4.9	0.8	15.5	4.5	4.2	0.8	9.3	0.6	0.5	6	21.3	0.5	0.3	

	"H" STREET Southbound					OCEAN AVENUE Westbound					"H" STREET Northbound					OCEAN AVENUE Eastbound					
Start Time	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	70	15	10	18	113	2	64	14	17	97	3	40	0	2	45	16	66	1	0	83	338
07:45 AM	79	**37**	34	**34**	**184**	2	**84**	**21**	17	**124**	2	**67**	2	1	**72**	33	86	**7**	1	127	**507**
08:00 AM	**96**	33	**39**	14	182	3	72	17	**24**	116	**6**	48	**4**	**3**	61	**39**	90	2	**2**	133	492
08:15 AM	66	22	16	15	119	**5**	60	17	16	98	4	41	3	1	49	25	**109**	2	1	**137**	403
Total Volume	311	107	99	81	598	12	280	69	74	435	15	196	9	7	227	113	351	12	4	480	1740
% App. Total	52	17.9	16.6	13.5		2.8	64.4	15.9	17		6.6	86.3	4	3.1		23.5	73.1	2.5	0.8		
PHF	.810	.723	.635	.596	.813	.600	.833	.821	.771	.877	.625	.731	.563	.583	.788	.724	.805	.429	.500	.876	.858

COUNTS UNLIMITED INC.
25424 JACLYN AVENUE
MORENO VALLEY CA, 92557
951-247-6716

CITY OF LOMPOC
N/S: "H" STREET
E/W: OCEAN AVENUE
WEATHER: SUNNY

File Name : LOHOCPM
Site Code : 096425
Start Date : 4/20/2005
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM					04:15 PM					04:00 PM					04:15 PM				
+0 mins.	71	29	37	**18**	155	**12**	123	39	17	191	4	**54**	**6**	**3**	**67**	39	90	3	3	135
+15 mins.	72	17	35	14	138	2	117	**59**	34	212	**10**	49	1	3	63	31	87	3	2	123
+30 mins.	71	**39**	**41**	10	**161**	4	**133**	42	**39**	**218**	5	37	2	2	46	**45**	**112**	**4**	4	**165**
+45 mins.	**74**	31	30	18	153	7	128	45	36	216	7	42	0	0	49	34	110	4	**5**	153
Total Volume	288	116	143	60	607	25	501	185	126	837	26	182	9	8	225	149	399	14	14	576
% App. Total	47.4	19.1	23.6	9.9		3	59.9	22.1	15.1		11.6	80.9	4	3.6		25.9	69.3	2.4	2.4	
PHF	.973	.744	.872	.833	.943	.521	.942	.784	.808	.960	.650	.843	.375	.667	.840	.828	.891	.875	.700	.873

COUNTS UNLIMITED INC.
25424 JACLYN AVENUE
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951-247-6716

CITY OF LOMPOC
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WEATHER: SUNNY

File Name : LOHOCPM
Site Code : 096425
Start Date : 4/20/2005
Page No : 1

Groups Printed- TOTAL VOLUME

	"H" STREET Southbound				OCEAN AVENUE Westbound				"H" STREET Northbound				OCEAN AVENUE Eastbound				
Start Time	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Left	Thru	Right	On Red	Int. Total
04:00 PM	71	16	30	13	6	93	29	38	4	54	6	3	39	77	7	9	495
04:15 PM	55	33	31	10	12	123	39	17	10	49	1	3	39	90	3	3	518
04:30 PM	71	29	37	18	2	117	59	34	5	37	2	2	31	87	3	2	536
04:45 PM	72	17	35	14	4	133	42	39	7	42	0	0	45	112	4	4	570
Total	269	95	133	55	24	466	169	128	26	182	9	8	154	366	17	18	2119
05:00 PM	71	39	41	10	7	128	45	36	7	51	2	4	34	110	4	5	594
05:15 PM	74	31	30	18	6	105	30	35	4	35	1	2	38	84	4	1	498
05:30 PM	62	31	44	13	4	128	43	28	3	47	2	1	39	55	1	2	503
05:45 PM	58	39	30	9	9	122	47	25	3	54	0	3	46	78	2	2	527
Total	265	140	145	50	26	483	165	124	17	187	5	10	157	327	11	10	2122
Grand Total	534	235	278	105	50	949	334	252	43	369	14	18	311	693	28	28	4241
Apprch %	46.4	20.4	24.1	9.1	3.2	59.9	21.1	15.9	9.7	83.1	3.2	4.1	29.3	65.4	2.6	2.6	
Total %	12.6	5.5	6.6	2.5	1.2	22.4	7.9	5.9	1	8.7	0.3	0.4	7.3	16.3	0.7	0.7	

	"H" STREET Southbound					OCEAN AVENUE Westbound					"H" STREET Northbound					OCEAN AVENUE Eastbound					
Start Time	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Left	Thru	Right	On Red	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	55	33	31	10	129	**12**	123	39	17	191	**10**	49	1	3	63	39	90	3	3	135	518
04:30 PM	71	29	37	**18**	155	2	117	**59**	34	212	5	37	**2**	2	46	31	87	3	2	123	536
04:45 PM	**72**	17	35	14	138	4	**133**	42	**39**	**218**	7	42	0	0	49	**45**	**112**	**4**	4	**165**	570
05:00 PM	71	**39**	**41**	10	**161**	7	128	45	36	216	7	**51**	2	**4**	**64**	34	110	4	**5**	153	**594**
Total Volume	269	118	144	52	583	25	501	185	126	837	29	179	5	9	222	149	399	14	14	576	2218
% App. Total	46.1	20.2	24.7	8.9		3	59.9	22.1	15.1		13.1	80.6	2.3	4.1		25.9	69.3	2.4	2.4		
PHF	.934	.756	.878	.722	.905	.521	.942	.784	.808	.960	.725	.877	.625	.563	.867	.828	.891	.875	.700	.873	.934

Attachment B

HCS Methodology

HCS Worksheets

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ Central Avenue*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/6/2005*	Jurisdiction	*Lompoc*
Time Period	*AM Peak Hour*	Analysis Year	*Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*2*	*2*	*0*	*1*	*2*	*1*	*1*	*2*	*0*	*1*	*2*	*1*
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*TR*		*L*	*T*	*R*
Volume (vph)	*392*	*103*	*66*	*72*	*156*	*336*	*97*	*450*	*52*	*259*	*653*	*263*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*

Phasing	Excl. Left	EB Only	Thru & RT	04	Excl. Left	SB Only	Thru & RT	08
Timing	G = *10.0*	G = *4.0*	G = *7.0*	G =	G = *14.0*	G = *5.0*	G = *32.0*	G =
	Y = *3*	Y = *3*	Y = *3*	Y =	Y = *3*	Y = *3*	Y = *3*	Y =

Duration of Analysis (hrs) = *1.00* — Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*422*	*182*		*77*	*168*	*361*	*104*	*540*		*278*	*702*	*283*
Lane group cap.	*631*	*505*		*191*	*268*	*1145*	*267*	*1206*		*420*	*1531*	*1196*
v/c ratio	*0.67*	*0.36*		*0.40*	*0.63*	*0.32*	*0.39*	*0.45*		*0.66*	*0.46*	*0.24*
Green ratio	*0.19*	*0.16*		*0.11*	*0.08*	*0.74*	*0.16*	*0.36*		*0.24*	*0.44*	*0.78*
Unif. delay d1	*33.9*	*34.0*		*37.2*	*40.2*	*3.8*	*34.2*	*22.2*		*30.6*	*17.4*	*2.7*
Delay factor k	*0.24*	*0.11*		*0.11*	*0.21*	*0.11*	*0.11*	*0.11*		*0.24*	*0.11*	*0.11*
Increm. delay d2	*2.8*	*0.4*		*1.4*	*4.7*	*0.2*	*0.9*	*0.3*		*3.9*	*0.2*	*0.1*
PF factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*
Control delay	*36.7*	*34.4*		*38.6*	*44.9*	*4.0*	*35.1*	*22.5*		*34.6*	*17.7*	*2.8*
Lane group LOS	*D*	*C*		*D*	*D*	*A*	*D*	*C*		*C*	*B*	*A*
Apprch. delay	*36.0*			*19.7*			*24.5*			*18.1*		
Approach LOS	*D*			*B*			*C*			*B*		
Intersec. delay	*23.2*			Intersection LOS						*C*		

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ Central Avenue*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/6/2005*	Jurisdiction	*Lompoc*
Time Period	*PM Peak Hour*	Analysis Year	*Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*2*	*2*	*0*	*1*	*2*	*1*	*1*	*2*	*0*	*1*	*2*	*1*
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*TR*		*L*	*T*	*R*
Volume (vph)	*460*	*274*	*172*	*159*	*255*	*284*	*213*	*757*	*112*	*257*	*663*	*367*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*

Phasing	Excl. Left	EB Only	Thru & RT	04	Excl. Left	SB Only	Thru & RT	08
Timing	G = *12.0*	G = *3.0*	G = *11.0*	G =	G = *15.0*	G = *1.0*	G = *30.0*	G =
	Y = *3*	Y = *3*	Y = *3*	Y =	Y = *3*	Y = *3*	Y = *3*	Y =

Duration of Analysis (hrs) = *1.00* | Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*479*	*464*		*166*	*266*	*296*	*222*	*906*		*268*	*691*	*382*
Lane group cap.	*668*	*613*		*229*	*421*	*1128*	*287*	*1126*		*363*	*1301*	*1179*
v/c ratio	*0.72*	*0.76*		*0.72*	*0.63*	*0.26*	*0.77*	*0.80*		*0.74*	*0.53*	*0.32*
Green ratio	*0.20*	*0.19*		*0.13*	*0.12*	*0.73*	*0.17*	*0.33*		*0.21*	*0.38*	*0.77*
Unif. delay d1	*33.6*	*34.5*		*37.4*	*37.6*	*4.0*	*35.9*	*27.3*		*33.2*	*21.8*	*3.3*
Delay factor k	*0.28*	*0.31*		*0.29*	*0.21*	*0.11*	*0.32*	*0.35*		*0.30*	*0.13*	*0.11*
Increm. delay d2	*3.8*	*5.6*		*11.6*	*3.1*	*0.1*	*13.4*	*4.5*		*8.1*	*0.4*	*0.2*
PF factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*
Control delay	*37.4*	*40.1*		*49.0*	*40.7*	*4.1*	*49.3*	*31.8*		*41.3*	*22.2*	*3.4*
Lane group LOS	*D*	*D*		*D*	*D*	*A*	*D*	*C*		*D*	*C*	*A*
Apprch. delay	*38.8*			*27.7*			*35.3*			*20.7*		
Approach LOS	*D*			*C*			*D*			*C*		
Intersec. delay	*30.0*			Intersection LOS						*C*		

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ Central Avenue*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/6/2003*	Jurisdiction	*Lompoc*
Time Period	*AM Peak Hour*	Analysis Year	*Existing+Project*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*2*	*2*	*0*	*1*	*2*	*1*	*1*	*2*	*0*	*1*	*2*	*1*
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*TR*		*L*	*T*	*R*
Volume (vph)	*392*	*104*	*68*	*72*	*160*	*339*	*102*	*454*	*52*	*260*	*654*	*263*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*

Phasing	Excl. Left	EB Only	Thru & RT	04	Excl. Left	SB Only	Thru & RT	08
Timing	G = *10.0*	G = *4.0*	G = *8.0*	G =	G = *14.0*	G = *5.0*	G = *31.0*	G =
	Y = *3*	Y = *3*	Y = *3*	Y =	Y = *3*	Y = *3*	Y = *3*	Y =

Duration of Analysis (hrs) = *1.00* | Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*422*	*185*		*77*	*172*	*365*	*110*	*544*		*280*	*703*	*283*
Lane group cap.	*631*	*540*		*191*	*306*	*1145*	*267*	*1168*		*420*	*1493*	*1196*
v/c ratio	*0.67*	*0.34*		*0.40*	*0.56*	*0.32*	*0.41*	*0.47*		*0.67*	*0.47*	*0.24*
Green ratio	*0.19*	*0.17*		*0.11*	*0.09*	*0.74*	*0.16*	*0.34*		*0.24*	*0.43*	*0.78*
Unif. delay d1	*33.9*	*33.1*		*37.2*	*39.3*	*3.9*	*34.3*	*23.0*		*30.7*	*18.2*	*2.7*
Delay factor k	*0.24*	*0.11*		*0.11*	*0.16*	*0.11*	*0.11*	*0.11*		*0.24*	*0.11*	*0.11*
Increm. delay d2	*2.8*	*0.4*		*1.4*	*2.4*	*0.2*	*1.0*	*0.3*		*4.1*	*0.2*	*0.1*
PF factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*
Control delay	*36.7*	*33.5*		*38.6*	*41.7*	*4.0*	*35.3*	*23.3*		*34.8*	*18.4*	*2.8*
Lane group LOS	*D*	*C*		*D*	*D*	*A*	*D*	*C*		*C*	*B*	*A*
Apprch. delay	*35.7*			*18.9*			*25.3*			*18.5*		
Approach LOS	*D*			*B*			*C*			*B*		
Intersec. delay	*23.3*			Intersection LOS						*C*		

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ Central Avenue*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/6/2005*	Jurisdiction	*Lompoc*
Time Period	*PM Peak Hour*	Analysis Year	*Existing+Project*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*2*	*2*	*0*	*1*	*2*	*1*	*1*	*2*	*0*	*1*	*2*	*1*
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*TR*		*L*	*T*	*R*
Volume (vph)	*460*	*279*	*178*	*159*	*258*	*286*	*217*	*760*	*112*	*260*	*668*	*367*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*

Phasing	Excl. Left	EB Only	Thru & RT	04	Excl. Left	SB Only	Thru & RT	08
Timing	G = *12.0*	G = *3.0*	G = *11.0*	G =	G = *15.0*	G = *1.0*	G = *30.0*	G =
	Y = *3*	Y = *3*	Y = *3*	Y =	Y = *3*	Y = *3*	Y = *3*	Y =

Duration of Analysis (hrs) = *1.00* | Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*479*	*476*		*166*	*269*	*298*	*226*	*909*		*271*	*696*	*382*
Lane group cap.	*668*	*613*		*229*	*421*	*1128*	*287*	*1126*		*363*	*1301*	*1179*
v/c ratio	*0.72*	*0.78*		*0.72*	*0.64*	*0.26*	*0.79*	*0.81*		*0.75*	*0.53*	*0.32*
Green ratio	*0.20*	*0.19*		*0.13*	*0.12*	*0.73*	*0.17*	*0.33*		*0.21*	*0.38*	*0.77*
Unif. delay d1	*33.6*	*34.7*		*37.4*	*37.6*	*4.0*	*36.0*	*27.4*		*33.2*	*21.8*	*3.3*
Delay factor k	*0.28*	*0.33*		*0.29*	*0.22*	*0.11*	*0.33*	*0.35*		*0.30*	*0.14*	*0.11*
Increm. delay d2	*3.8*	*6.5*		*11.6*	*3.3*	*0.1*	*14.9*	*4.6*		*8.7*	*0.4*	*0.2*
PF factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*
Control delay	*37.4*	*41.2*		*49.0*	*40.9*	*4.1*	*50.9*	*32.0*		*41.9*	*22.3*	*3.4*
Lane group LOS	*D*	*D*		*D*	*D*	*A*	*D*	*C*		*D*	*C*	*A*
Apprch. delay	*39.3*			*27.8*			*35.8*			*20.9*		
Approach LOS	*D*			*C*			*D*			*C*		
Intersec. delay	*30.4*			Intersection LOS						*C*		

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ Central Avenue*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/6/2005*	Jurisdiction	*Lompoc*
Time Period	*AM Peak Hour*	Analysis Year	*Growth+Cumulative+Project*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*2*	*2*	*0*	*1*	*2*	*1*	*1*	*2*	*0*	*1*	*2*	*1*
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*TR*		*L*	*T*	*R*
Volume (vph)	*476*	*107*	*74*	*76*	*165*	*413*	*108*	*601*	*54*	*386*	*914*	*403*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*

Phasing	Excl. Left	EB Only	Thru & RT	04	Excl. Left	SB Only	Thru & RT	08
Timing	G = *9.0*	G = *6.0*	G = *7.0*	G =	G = *10.0*	G = *15.0*	G = *25.0*	G =
	Y = *3*	Y = *3*	Y = *3*	Y =	Y = *3*	Y = *3*	Y = *3*	Y =

Duration of Analysis (hrs) = *1.00*

Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*512*	*195*		*82*	*177*	*444*	*116*	*704*		*415*	*983*	*433*
Lane group cap.	*668*	*575*		*172*	*268*	*1128*	*191*	*945*		*535*	*1646*	*1265*
v/c ratio	*0.77*	*0.34*		*0.48*	*0.66*	*0.39*	*0.61*	*0.74*		*0.78*	*0.60*	*0.34*
Green ratio	*0.20*	*0.18*		*0.10*	*0.08*	*0.73*	*0.11*	*0.28*		*0.31*	*0.48*	*0.82*
Unif. delay d1	*34.0*	*32.4*		*38.3*	*40.3*	*4.5*	*38.1*	*29.6*		*28.1*	*17.2*	*2.0*
Delay factor k	*0.32*	*0.11*		*0.11*	*0.24*	*0.11*	*0.19*	*0.30*		*0.33*	*0.19*	*0.11*
Increm. delay d2	*5.5*	*0.4*		*2.1*	*6.1*	*0.2*	*5.6*	*3.3*		*7.4*	*0.6*	*0.2*
PF factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*
Control delay	*39.6*	*32.7*		*40.4*	*46.4*	*4.7*	*43.7*	*32.9*		*35.6*	*17.8*	*2.1*
Lane group LOS	*D*	*C*		*D*	*D*	*A*	*D*	*C*		*D*	*B*	*A*
Apprch. delay	*37.7*			*19.4*			*34.5*			*18.1*		
Approach LOS	*D*			*B*			*C*			*B*		
Intersec. delay	*25.0*			Intersection LOS						*C*		

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ Central Avenue*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/6/2005*	Jurisdiction	*Lompoc*
Time Period	*AM Peak Hour*	Analysis Year	*Growth+Cumulative+Project*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*2*	*2*	*0*	*1*	*2*	*1*	*2*	*2*	*1*	*2*	*2*	*1*
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Volume (vph)	*476*	*107*	*74*	*76*	*165*	*413*	*108*	*601*	*54*	*386*	*914*	*403*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*

Phasing	Excl. Left	EB Only	Thru & RT	04	Excl. Left	SB Only	Thru & RT	08
Timing	G = *9.0*	G = *7.0*	G = *7.0*	G =	G = *6.0*	G = *10.0*	G = *33.0*	G =
	Y = *3*	Y = *3*	Y = *3*	Y =	Y = *3*	Y = *3*	Y = *3*	Y =

Duration of Analysis (hrs) = *1.00* — Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*512*	*195*		*82*	*177*	*444*	*116*	*646*	*58*	*415*	*983*	*433*
Lane group cap.	*705*	*611*		*172*	*268*	*1111*	*223*	*1263*	*1111*	*705*	*1761*	*1333*
v/c ratio	*0.73*	*0.32*		*0.48*	*0.66*	*0.40*	*0.52*	*0.51*	*0.05*	*0.59*	*0.56*	*0.32*
Green ratio	*0.21*	*0.19*		*0.10*	*0.08*	*0.72*	*0.07*	*0.37*	*0.72*	*0.21*	*0.51*	*0.87*
Unif. delay d1	*33.1*	*31.5*		*38.3*	*40.3*	*4.9*	*40.6*	*22.2*	*3.6*	*32.0*	*15.0*	*1.1*
Delay factor k	*0.29*	*0.11*		*0.11*	*0.24*	*0.11*	*0.13*	*0.12*	*0.11*	*0.18*	*0.16*	*0.11*
Increm. delay d2	*3.9*	*0.3*		*2.1*	*6.1*	*0.2*	*2.2*	*0.4*	*0.0*	*1.3*	*0.4*	*0.1*
PF factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Control delay	*36.9*	*31.8*		*40.4*	*46.4*	*5.1*	*42.8*	*22.6*	*3.6*	*33.3*	*15.5*	*1.3*
Lane group LOS	*D*	*C*		*D*	*D*	*A*	*D*	*C*	*A*	*C*	*B*	*A*
Apprch. delay	*35.5*			*19.6*			*24.1*			*16.1*		
Approach LOS	*D*			*B*			*C*			*B*		
Intersec. delay	*21.7*			Intersection LOS						*C*		

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *River Terrace*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*512*	*195*		*82*	*177*	*444*	*116*	*646*	*58*	*415*	*983*	*433*
Satflow per lane	*1719*	*1698*		*1719*	*1809*	*1538*	*1719*	*1809*	*1538*	*1719*	*1809*	*1538*
Capacity/lane	*705*	*611*		*172*	*268*	*1111*	*223*	*1263*	*1111*	*705*	*1761*	*1333*
Flow ratio	*0.15*	*0.06*		*0.05*	*0.05*	*0.29*	*0.03*	*0.19*	*0.04*	*0.12*	0.29	*0.28*
v/c ratio	*0.73*	*0.32*		*0.48*	*0.66*	*0.40*	*0.52*	*0.51*	*0.05*	*0.59*	*0.56*	*0.32*
I factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*6.1*	*2.2*		*1.9*	*2.2*	*4.3*	*1.4*	*6.6*	*0.4*	*4.8*	*8.8*	*2.0*
k_B	*0.4*	*0.3*		*0.2*	*0.2*	*0.7*	*0.2*	*0.5*	*0.7*	*0.4*	*0.7*	*0.8*
Q_2	*1.0*	*0.2*		*0.2*	*0.4*	*0.5*	*0.2*	*0.6*	*0.0*	*0.5*	*0.8*	*0.4*
Q avg.	*7.1*	*2.4*		*2.2*	*2.6*	*4.8*	*1.6*	*7.2*	*0.5*	*5.3*	*9.7*	*2.4*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.9*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*1.9*	*2.1*	*1.9*	*1.9*	*2.0*
BOQ, $Q_{\%}$	*13.5*	*4.8*		*4.4*	*5.3*	*9.4*	*3.3*	*13.6*	*1.0*	*10.4*	*17.9*	*4.9*

Queue Storage Ratio

Q spacing	*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ Central Avenue*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/6/2005*	Jurisdiction	*Lompoc*
Time Period	*PM Peak Hour*	Analysis Year	*Growth+Cumulative+Project*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*2*	*2*	*0*	*1*	*2*	*1*	*1*	*2*	*0*	*1*	*2*	*1*
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*TR*		*L*	*T*	*R*
Volume (vph)	*609*	*287*	*190*	*166*	*266*	*416*	*229*	*1032*	*117*	*347*	*852*	*466*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*

Phasing	Excl. Left	EB Only	Thru & RT	04	Excl. Left	SB Only	Thru & RT	08
Timing	G = *11.0*	G = *4.0*	G = *8.0*	G =	G = *15.0*	G = *1.0*	G = *33.0*	G =
	Y = *3*	Y = *3*	Y = *3*	Y =	Y = *3*	Y = *3*	Y = *3*	Y =

Duration of Analysis (hrs) = *1.00* — Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*634*	*497*		*173*	*277*	*433*	*239*	*1197*		*361*	*888*	*485*
Lane group cap.	*668*	*540*		*210*	*306*	*1128*	*287*	*1244*		*363*	*1416*	*1179*
v/c ratio	*0.95*	*0.92*		*0.82*	*0.91*	*0.38*	*0.83*	*0.96*		*0.99*	*0.63*	*0.41*
Green ratio	*0.20*	*0.17*		*0.12*	*0.09*	*0.73*	*0.17*	*0.37*		*0.21*	*0.41*	*0.77*
Unif. delay d1	*35.5*	*36.9*		*38.6*	*40.6*	*4.5*	*36.3*	*27.9*		*35.4*	*21.0*	*3.6*
Delay factor k	*0.46*	*0.44*		*0.36*	*0.43*	*0.11*	*0.37*	*0.47*		*0.50*	*0.21*	*0.11*
Increm. delay d2	*33.8*	*28.2*		*26.8*	*39.0*	*0.2*	*21.5*	*25.3*		*89.0*	*0.9*	*0.2*
PF factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*
Control delay	*69.3*	*65.1*		*65.4*	*79.6*	*4.7*	*57.8*	*53.2*		*124.4*	*21.9*	*3.8*
Lane group LOS	*E*	*E*		*E*	*E*	*A*	*E*	*D*		*F*	*C*	*A*
Apprch. delay	*67.5*			*40.1*			*53.9*			*38.2*		
Approach LOS	*E*			*D*			*D*			*D*		
Intersec. delay	*49.3*			Intersection LOS						*D*		

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ Central Avenue*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/6/2005*	Jurisdiction	*Lompoc*
Time Period	*PM Peak Hour*	Analysis Year	*Growth+Cumulative+Project*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*2*	*2*	*0*	*1*	*2*	*1*	*2*	*2*	*1*	*2*	*2*	*1*
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Volume (vph)	*609*	*287*	*190*	*166*	*266*	*416*	*229*	*1032*	*117*	*347*	*852*	*466*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*	*0.96*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*

Phasing	Excl. Left	EB Only	Thru & RT	04	Excl. Left	SB Only	Thru & RT	08
Timing	G = *12.0*	G = *6.0*	G = *10.0*	G =	G = *9.0*	G = *1.0*	G = *34.0*	G =
	Y = *3*	Y = *3*	Y = *3*	Y =	Y = *3*	Y = *3*	Y = *3*	Y =

Duration of Analysis (hrs) = *1.00* — Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*634*	*497*		*173*	*277*	*433*	*239*	*1075*	*122*	*361*	*888*	*485*
Lane group cap.	*779*	*684*		*229*	*383*	*1077*	*334*	*1301*	*1213*	*482*	*1455*	*1282*
v/c ratio	*0.81*	*0.73*		*0.76*	*0.72*	*0.40*	*0.72*	*0.83*	*0.10*	*0.75*	*0.61*	*0.38*
Green ratio	*0.23*	*0.21*		*0.13*	*0.11*	*0.70*	*0.10*	*0.38*	*0.79*	*0.14*	*0.42*	*0.83*
Unif. delay d1	*32.7*	*33.1*		*37.6*	*38.7*	*5.6*	*39.3*	*25.3*	*2.2*	*36.9*	*20.2*	*1.8*
Delay factor k	*0.35*	*0.29*		*0.31*	*0.28*	*0.11*	*0.28*	*0.36*	*0.11*	*0.30*	*0.20*	*0.11*
Increm. delay d2	*7.0*	*4.0*		*14.5*	*6.9*	*0.2*	*7.4*	*4.7*	*0.0*	*6.7*	*0.8*	*0.2*
PF factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Control delay	*39.7*	*37.1*		*52.1*	*45.5*	*5.9*	*46.7*	*30.1*	*2.2*	*43.6*	*21.0*	*2.0*
Lane group LOS	*D*	*D*		*D*	*D*	*A*	*D*	*C*	*A*	*D*	*C*	*A*
Apprch. delay	*38.5*			*27.4*			*30.5*			*20.4*		
Approach LOS	*D*			*C*			*C*			*C*		
Intersec. delay	*28.3*			Intersection LOS						*C*		

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *River Terrace*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*T*	*R*	*L*	*T*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Flow rate/lane	*634*	*497*		*173*	*277*	*433*	*239*	*1075*	*122*	*361*	*888*	*485*
Satflow per lane	*1719*	*1701*		*1719*	*1809*	*1538*	*1719*	*1809*	*1538*	*1719*	*1809*	*1538*
Capacity/lane	*779*	*684*		*229*	*383*	*1077*	*334*	*1301*	*1213*	*482*	*1455*	*1282*
Flow ratio	*0.19*	*0.15*		*0.10*	*0.08*	*0.28*	*0.07*	*0.31*	*0.08*	*0.11*	0.26	*0.32*
v/c ratio	*0.81*	*0.73*		*0.76*	*0.72*	*0.40*	*0.72*	*0.83*	*0.10*	*0.75*	*0.61*	*0.38*
I factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Q_1	*7.7*	*6.1*		*4.2*	*3.5*	*4.5*	*3.0*	*12.8*	*0.7*	*4.4*	*9.1*	*3.0*
k_B	*0.4*	*0.4*		*0.3*	*0.3*	*0.7*	*0.2*	*0.5*	*0.8*	*0.3*	*0.6*	*0.8*
Q_2	*1.7*	*1.0*		*0.9*	*0.7*	*0.5*	*0.6*	*2.5*	*0.1*	*0.9*	*0.9*	*0.5*
Q avg.	*9.4*	*7.1*		*5.0*	*4.2*	*5.0*	*3.6*	*15.2*	*0.8*	*5.3*	*10.0*	*3.4*
Percentile Back of Queue (95th percentile)												
$f_{B\%}$	*1.9*	*1.9*		*2.0*	*2.0*	*2.0*	*2.0*	*1.8*	*2.1*	*1.9*	*1.8*	*2.0*
BOQ, $Q_{\%}$	*17.4*	*13.4*		*9.8*	*8.2*	*9.8*	*7.1*	*26.8*	*1.6*	*10.3*	*18.4*	*6.9*
Queue Storage Ratio												
Q spacing	*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ College*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*05/11/2005*	Jurisdiction	*Lompoc*
Time Period	*AM Peak Hour*	Analysis Year	*Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*0*	*1*	*2*	*0*
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*TR*		*L*	*TR*	
Volume (vph)	*129*	*125*	*57*	*54*	*141*	*37*	*77*	*499*	*40*	*29*	*758*	*93*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Ext. eff. green	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*		*3*	*3*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	

Phasing	WB Only	EB Only	03	04	Excl. Left	Thru & RT	07	08
Timing	G = *13.0*	G = *13.0*	G =	G =	G = *8.0*	G = *44.0*	G =	G =
	Y = *3*	Y = *3*	Y =	Y =	Y = *3*	Y = *3*	Y =	Y =

Duration of Analysis (hrs) = *1.00* — Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*174*	*169*	*77*	*73*	*191*	*50*	*104*	*728*		*39*	*1150*	
Lane group cap.	*248*	*261*	*1213*	*248*	*261*	*1213*	*153*	*1666*		*153*	*1657*	
v/c ratio	*0.70*	*0.65*	*0.06*	*0.29*	*0.73*	*0.04*	*0.68*	*0.44*		*0.25*	*0.69*	
Green ratio	*0.14*	*0.14*	*0.79*	*0.14*	*0.14*	*0.79*	*0.09*	*0.49*		*0.09*	*0.49*	
Unif. delay d1	*36.7*	*36.3*	*2.1*	*34.4*	*36.8*	*2.1*	*39.8*	*14.9*		*38.2*	*17.8*	
Delay factor k	*0.27*	*0.23*	*0.11*	*0.11*	*0.29*	*0.11*	*0.25*	*0.11*		*0.11*	*0.26*	
Increm. delay d2	*9.0*	*5.7*	*0.0*	*0.7*	*10.7*	*0.0*	*12.2*	*0.2*		*0.9*	*1.3*	
PF factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	
Control delay	*45.6*	*42.0*	*2.1*	*35.1*	*47.5*	*2.1*	*52.0*	*15.1*		*39.1*	*19.1*	
Lane group LOS	*D*	*D*	*A*	*D*	*D*	*A*	*D*	*B*		*D*	*B*	
Apprch. delay	*36.2*			*37.4*			*19.7*			*19.7*		
Approach LOS	*D*			*D*			*B*			*B*		
Intersec. delay	*24.3*			Intersection LOS						*C*		

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ College*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/11/2005*	Jurisdiction	*Lompoc*
Time Period	*PM Peak Hour*	Analysis Year	*Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*0*	*1*	*2*	*0*
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*TR*		*L*	*TR*	
Volume (vph)	*205*	*149*	*65*	*69*	*188*	*85*	*98*	*844*	*52*	*64*	*714*	*91*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Ext. eff. green	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*		*3*	*3*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	

Phasing	WB Only	EB Only	03	04	Excl. Left	Thru & RT	07	08
Timing	G = *13.0*	G = *15.0*	G =	G =	G = *8.0*	G = *42.0*	G =	G =
	Y = *3*	Y = *3*	Y =	Y =	Y = *3*	Y = *3*	Y =	Y =

Duration of Analysis (hrs) = *1.00* — Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*209*	*152*	*66*	*70*	*192*	*87*	*100*	*914*		*65*	*822*	
Lane group cap.	*287*	*302*	*1213*	*248*	*261*	*1179*	*153*	*1594*		*153*	*1581*	
v/c ratio	*0.73*	*0.50*	*0.05*	*0.28*	*0.74*	*0.07*	*0.65*	*0.57*		*0.42*	*0.52*	
Green ratio	*0.17*	*0.17*	*0.79*	*0.14*	*0.14*	*0.77*	*0.09*	*0.47*		*0.09*	*0.47*	
Unif. delay d1	*35.6*	*34.1*	*2.1*	*34.3*	*36.9*	*2.6*	*39.7*	*17.5*		*38.8*	*16.9*	
Delay factor k	*0.29*	*0.11*	*0.11*	*0.11*	*0.29*	*0.11*	*0.23*	*0.17*		*0.11*	*0.13*	
Increm. delay d2	*9.5*	*1.4*	*0.0*	*0.6*	*11.0*	*0.0*	*10.0*	*0.5*		*1.9*	*0.3*	
PF factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	
Control delay	*45.1*	*35.5*	*2.1*	*35.0*	*47.9*	*2.6*	*49.7*	*18.0*		*40.7*	*17.2*	
Lane group LOS	*D*	*D*	*A*	*C*	*D*	*A*	*D*	*B*		*D*	*B*	
Apprch. delay	*35.0*			*34.0*			*21.1*			*18.9*		
Approach LOS	*D*			*C*			*C*			*B*		
Intersec. delay	*24.3*			Intersection LOS						*C*		

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ College*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*05/11/2005*	Jurisdiction	*Lompoc*
Time Period	*AM Peak Hour*	Analysis Year	*Existing+Project*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*0*	*1*	*2*	*0*
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*TR*		*L*	*TR*	
Volume (vph)	*129*	*128*	*59*	*54*	*149*	*44*	*82*	*507*	*40*	*31*	*761*	*93*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Ext. eff. green	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*		*3*	*3*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	

Phasing	WB Only	EB Only	03	04	Excl. Left	Thru & RT	07	08
Timing	G = *13.0*	G = *13.0*	G =	G =	G = *8.0*	G = *44.0*	G =	G =
	Y = *3*	Y = *3*	Y =	Y =	Y = *3*	Y = *3*	Y =	Y =

Duration of Analysis (hrs) = *1.00* — Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*174*	*173*	*80*	*73*	*201*	*59*	*111*	*739*		*42*	*1154*	
Lane group cap.	*248*	*261*	*1213*	*248*	*261*	*1213*	*153*	*1666*		*153*	*1657*	
v/c ratio	*0.70*	*0.66*	*0.07*	*0.29*	*0.77*	*0.05*	*0.73*	*0.44*		*0.27*	*0.70*	
Green ratio	*0.14*	*0.14*	*0.79*	*0.14*	*0.14*	*0.79*	*0.09*	*0.49*		*0.09*	*0.49*	
Unif. delay d1	*36.7*	*36.4*	*2.1*	*34.4*	*37.1*	*2.1*	*39.9*	*15.0*		*38.3*	*17.8*	
Delay factor k	*0.27*	*0.24*	*0.11*	*0.11*	*0.32*	*0.11*	*0.29*	*0.11*		*0.11*	*0.26*	
Increm. delay d2	*9.0*	*6.4*	*0.0*	*0.7*	*14.3*	*0.0*	*17.2*	*0.2*		*1.0*	*1.3*	
PF factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	
Control delay	*45.6*	*42.8*	*2.1*	*35.1*	*51.4*	*2.1*	*57.1*	*15.2*		*39.3*	*19.1*	
Lane group LOS	*D*	*D*	*A*	*D*	*D*	*A*	*E*	*B*		*D*	*B*	
Apprch. delay	*36.3*			*39.1*			*20.7*			*19.8*		
Approach LOS	*D*			*D*			*C*			*B*		
Intersec. delay	*24.9*			Intersection LOS						*C*		

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ College*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/11/2005*	Jurisdiction	*Lompoc*
Time Period	*PM Peak Hour*	Analysis Year	*Existing+Project*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*0*	*1*	*2*	*0*
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*TR*		*L*	*TR*	
Volume (vph)	*205*	*158*	*71*	*69*	*194*	*90*	*102*	*850*	*52*	*72*	*723*	*91*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Ext. eff. green	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*		*3*	*3*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	

Phasing	WB Only	EB Only	03	04	Excl. Left	Thru & RT	07	08
Timing	G = *13.0*	G = *15.0*	G =	G =	G = *8.0*	G = *42.0*	G =	G =
	Y = *3*	Y = *3*	Y =	Y =	Y = *3*	Y = *3*	Y =	Y =

Duration of Analysis (hrs) = *1.00* — Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*209*	*161*	*72*	*70*	*198*	*92*	*104*	*920*		*73*	*831*	
Lane group cap.	*287*	*302*	*1213*	*248*	*261*	*1179*	*153*	*1594*		*153*	*1581*	
v/c ratio	*0.73*	*0.53*	*0.06*	*0.28*	*0.76*	*0.08*	*0.68*	*0.58*		*0.48*	*0.53*	
Green ratio	*0.17*	*0.17*	*0.79*	*0.14*	*0.14*	*0.77*	*0.09*	*0.47*		*0.09*	*0.47*	
Unif. delay d1	*35.6*	*34.3*	*2.1*	*34.3*	*37.0*	*2.6*	*39.8*	*17.5*		*39.0*	*17.0*	
Delay factor k	*0.29*	*0.14*	*0.11*	*0.11*	*0.31*	*0.11*	*0.25*	*0.17*		*0.11*	*0.13*	
Increm. delay d2	*9.5*	*1.8*	*0.0*	*0.6*	*13.1*	*0.0*	*12.2*	*0.5*		*2.4*	*0.3*	
PF factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	
Control delay	*45.1*	*36.1*	*2.1*	*35.0*	*50.1*	*2.6*	*52.0*	*18.0*		*41.4*	*17.3*	
Lane group LOS	*D*	*D*	*A*	*C*	*D*	*A*	*D*	*B*		*D*	*B*	
Apprch. delay	*34.8*			*35.0*			*21.5*			*19.2*		
Approach LOS	*C*			*D*			*C*			*B*		
Intersec. delay	*24.7*			Intersection LOS						*C*		

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ College*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*05/11/2005*	Jurisdiction	*Lompoc*
Time Period	*AM Peak Hour*	Analysis Year	*Growth+Cumulative+Project*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*0*	*1*	*2*	*0*
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*TR*		*L*	*TR*	
Volume (vph)	*182*	*136*	*70*	*59*	*161*	*60*	*95*	*574*	*43*	*60*	*876*	*187*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*	*0.74*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Ext. eff. green	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*		*3*	*3*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	

Phasing	WB Only	EB Only	03	04	Excl. Left	Thru & RT	07	08
Timing	G = *12.0*	G = *15.0*	G =	G =	G = *8.0*	G = *43.0*	G =	G =
	Y = *3*	Y = *3*	Y =	Y =	Y = *3*	Y = *3*	Y =	Y =

Duration of Analysis (hrs) = *1.00* — Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*246*	*184*	*95*	*80*	*218*	*81*	*128*	*834*		*81*	*1437*	
Lane group cap.	*287*	*302*	*1230*	*229*	*241*	*1179*	*153*	*1629*		*153*	*1602*	
v/c ratio	*0.86*	*0.61*	*0.08*	*0.35*	*0.90*	*0.07*	*0.84*	*0.51*		*0.53*	*0.90*	
Green ratio	*0.17*	*0.17*	*0.80*	*0.13*	*0.13*	*0.77*	*0.09*	*0.48*		*0.09*	*0.48*	
Unif. delay d1	*36.5*	*34.8*	*1.9*	*35.5*	*38.4*	*2.6*	*40.4*	*16.2*		*39.2*	*21.5*	
Delay factor k	*0.39*	*0.20*	*0.11*	*0.11*	*0.43*	*0.11*	*0.37*	*0.12*		*0.13*	*0.42*	
Increm. delay d2	*26.5*	*3.6*	*0.0*	*0.9*	*47.3*	*0.0*	*39.6*	*0.3*		*3.5*	*7.9*	
PF factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	
Control delay	*63.0*	*38.4*	*1.9*	*36.4*	*85.7*	*2.6*	*79.9*	*16.5*		*42.7*	*29.4*	
Lane group LOS	*E*	*D*	*A*	*D*	*F*	*A*	*E*	*B*		*D*	*C*	
Apprch. delay	*43.3*			*57.5*			*25.0*			*30.1*		
Approach LOS	*D*			*E*			*C*			*C*		
Intersec. delay	*33.7*			Intersection LOS						*C*		

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *River Terrace*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*TR*		*L*	*TR*	
Init. queue/lane	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*		*0.0*	*0.0*	
Flow rate/lane	*246*	*184*	*95*	*80*	*218*	*81*	*128*	*834*		*81*	*1437*	
Satflow per lane	*1719*	*1810*	*1538*	*1719*	*1810*	*1538*	*1719*	*1790*		*1719*	*1761*	
Capacity/lane	*287*	*302*	*1230*	*229*	*241*	*1179*	*153*	*1629*		*153*	*1602*	
Flow ratio	*0.14*	*0.10*	*0.06*	*0.05*	*0.12*	*0.05*	*0.07*	*0.24*		*0.05*	0.43	
v/c ratio	*0.86*	*0.61*	*0.08*	*0.35*	*0.90*	*0.07*	*0.84*	*0.51*		*0.53*	*0.90*	
I factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*		*3*	*3*	
Platoon ratio	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*		*1.00*	*1.00*	
PF factor	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*		*1.00*	*1.00*	
Q_1	*6.0*	*4.3*	*0.5*	*1.8*	*5.4*	*0.5*	*3.1*	*7.6*		*1.9*	*17.2*	
k_B	*0.3*	*0.3*	*0.8*	*0.3*	*0.3*	*0.8*	*0.2*	*0.6*		*0.2*	*0.6*	
Q_2	*1.8*	*0.5*	*0.1*	*0.2*	*2.3*	*0.1*	*1.1*	*0.7*		*0.2*	*4.8*	
Q avg.	*7.8*	*4.8*	*0.6*	*2.0*	*7.7*	*0.6*	*4.2*	*8.2*		*2.2*	*22.1*	

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.9*	*2.0*	*2.1*	*2.0*	*1.9*	*2.1*	*2.0*	*1.9*		*2.0*	*1.7*	
BOQ, $Q_{\%}$	*14.7*	*9.4*	*1.2*	*4.0*	*14.5*	*1.2*	*8.3*	*15.5*		*4.4*	*37.0*	

Queue Storage Ratio

Q spacing	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*		*25.0*	*25.0*	
Q storage	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Avg. R_Q												
95% $R_{Q\%}$												

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ College*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/11/2005*	Jurisdiction	*Lompoc*
Time Period	*PM Peak Hour*	Analysis Year	*Growth+Cumulative+Project*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*2*	*0*	*1*	*2*	*0*
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*TR*		*L*	*TR*	
Volume (vph)	*307*	*173*	*96*	*77*	*206*	*121*	*121*	*977*	*59*	*92*	*821*	*156*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*	*0.98*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Ext. eff. green	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*		*3*	*3*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Unit Extension	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	

Phasing	WB Only	EB Only	03	04	Excl. Left	Thru & RT	07	08
Timing	G = *13.0*	G = *20.0*	G =	G =	G = *9.0*	G = *36.0*	G =	G =
	Y = *3*	Y = *3*	Y =	Y =	Y = *3*	Y = *3*	Y =	Y =

Duration of Analysis (hrs) = *1.00* — Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*313*	*177*	*98*	*79*	*210*	*123*	*123*	*1057*		*94*	*997*	
Lane group cap.	*382*	*402*	*1213*	*248*	*261*	*1094*	*172*	*1366*		*172*	*1345*	
v/c ratio	*0.82*	*0.44*	*0.08*	*0.32*	*0.80*	*0.11*	*0.72*	*0.77*		*0.55*	*0.74*	
Green ratio	*0.22*	*0.22*	*0.79*	*0.14*	*0.14*	*0.71*	*0.10*	*0.40*		*0.10*	*0.40*	
Unif. delay d1	*33.3*	*30.2*	*2.1*	*34.5*	*37.3*	*4.1*	*39.3*	*23.5*		*38.6*	*23.0*	
Delay factor k	*0.36*	*0.11*	*0.11*	*0.11*	*0.35*	*0.11*	*0.28*	*0.32*		*0.15*	*0.30*	
Increm. delay d2	*14.7*	*0.8*	*0.0*	*0.7*	*18.7*	*0.0*	*14.2*	*2.9*		*3.7*	*2.3*	
PF factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	
Control delay	*48.0*	*30.9*	*2.2*	*35.3*	*56.0*	*4.1*	*53.5*	*26.4*		*42.2*	*25.3*	
Lane group LOS	*D*	*C*	*A*	*D*	*E*	*A*	*D*	*C*		*D*	*C*	
Apprch. delay	*35.2*			*36.5*			*29.2*			*26.8*		
Approach LOS	*D*			*D*			*C*			*C*		
Intersec. delay	*30.4*			Intersection LOS						*C*		

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *River Terrace*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*T*	*R*	*L*	*T*	*R*	*L*	*TR*		*L*	*TR*	
Init. queue/lane	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*		*0.0*	*0.0*	
Flow rate/lane	*313*	*177*	*98*	*79*	*210*	*123*	*123*	*1057*		*94*	*997*	
Satflow per lane	*1719*	*1810*	*1538*	*1719*	*1810*	*1538*	*1719*	*1794*		*1719*	*1766*	
Capacity/lane	*382*	*402*	*1213*	*248*	*261*	*1094*	*172*	*1366*		*172*	*1345*	
Flow ratio	*0.18*	*0.10*	*0.06*	*0.05*	*0.12*	*0.08*	*0.07*	*0.31*		*0.05*	0.30	
v/c ratio	*0.82*	*0.44*	*0.08*	*0.32*	*0.80*	*0.11*	*0.72*	*0.77*		*0.55*	*0.74*	
I factor	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	
Arrival type	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*		*3*	*3*	
Platoon ratio	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*		*1.00*	*1.00*	
PF factor	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*		*1.00*	*1.00*	
Q_1	*7.4*	*3.8*	*0.6*	*1.8*	*5.1*	*1.0*	*3.0*	*12.1*		*2.2*	*11.1*	
k_B	*0.4*	*0.4*	*0.8*	*0.3*	*0.3*	*0.7*	*0.2*	*0.6*		*0.2*	*0.6*	
Q_2	*1.7*	*0.3*	*0.1*	*0.1*	*1.2*	*0.1*	*0.6*	*1.9*		*0.3*	*1.6*	
Q avg.	*9.1*	*4.1*	*0.6*	*1.9*	*6.3*	*1.1*	*3.6*	*14.0*		*2.5*	*12.7*	

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.9*	*2.0*	*2.1*	*2.0*	*1.9*	*2.1*	*2.0*	*1.8*		*2.0*	*1.8*	
BOQ, $Q_{\%}$	*17.0*	*8.2*	*1.3*	*3.9*	*12.1*	*2.2*	*7.1*	*24.8*		*5.1*	*22.8*	

Queue Storage Ratio

Q spacing	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*	*25.0*		*25.0*	*25.0*	
Q storage	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*	*0*	
Avg. R_Q												
95% $R_{Q\%}$												

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ Ocean Avenue*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/6/2005*	Jurisdiction	*Lompoc*
Time Period	*AM Peak Hour*	Analysis Year	*Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*1*	*2*	*0*	*1*	*2*	*1*	*1*	*2*	*0*	*1*	*1*	*1*
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*TR*		*L*	*LT*	*R*
Volume (vph)	*149*	*399*	*28*	*25*	*501*	*311*	*29*	*179*	*14*	*269*	*118*	*196*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*

Phasing	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *13.0*	G = *34.0*	G =	G =	G = *21.0*	G = *10.0*	G =	G =
	Y = *3*	Y = *3*	Y =	Y =	Y = *3*	Y = *3*	Y =	Y =

Duration of Analysis (hrs) = *1.00* — Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*173*	*497*		*29*	*583*	*362*	*34*	*224*		*222*	*228*	*228*
Lane group cap.	*248*	*1289*		*248*	*1301*	*1213*	*191*	*379*		*401*	*414*	*1265*
v/c ratio	*0.70*	*0.39*		*0.12*	*0.45*	*0.30*	*0.18*	*0.59*		*0.55*	*0.55*	*0.18*
Green ratio	*0.14*	*0.38*		*0.14*	*0.38*	*0.79*	*0.11*	*0.11*		*0.23*	*0.23*	*0.82*
Unif. delay d1	*36.6*	*20.4*		*33.5*	*21.0*	*2.6*	*36.3*	*38.1*		*30.4*	*30.4*	*1.7*
Delay factor k	*0.26*	*0.11*		*0.11*	*0.11*	*0.11*	*0.11*	*0.18*		*0.15*	*0.15*	*0.11*
Increm. delay d2	*8.7*	*0.2*		*0.2*	*0.2*	*0.1*	*0.4*	*2.5*		*1.7*	*1.6*	*0.1*
PF factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*
Control delay	*45.3*	*20.6*		*33.7*	*21.2*	*2.8*	*36.7*	*40.5*		*32.1*	*31.9*	*1.7*
Lane group LOS	*D*	*C*		*C*	*C*	*A*	*D*	*D*		*C*	*C*	*A*
Apprch. delay	*27.0*			*14.7*			*40.0*			*21.8*		
Approach LOS	*C*			*B*			*D*			*C*		
Intersec. delay	*22.3*			Intersection LOS						*C*		

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ Ocean Avenue*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/6/2005*	Jurisdiction	*Lompoc*
Time Period	*PM Peak Hour*	Analysis Year	*Existing*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*1*	*2*	*0*	*1*	*2*	*1*	*1*	*2*	*0*	*1*	*1*	*1*
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*TR*		*L*	*LT*	*R*
Volume (vph)	*113*	*351*	*16*	*12*	*280*	*143*	*15*	*196*	*16*	*311*	*107*	*180*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*

Phasing	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *11.0*	G = *33.0*	G =	G =	G = *24.0*	G = *10.0*	G =	G =
	Y = *3*	Y = *3*	Y =	Y =	Y = *3*	Y = *3*	Y =	Y =

Duration of Analysis (hrs) = *1.00* — Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*122*	*394*		*13*	*301*	*154*	*16*	*228*		*224*	*225*	*194*
Lane group cap.	*210*	*1255*		*210*	*1263*	*1247*	*191*	*379*		*458*	*471*	*1265*
v/c ratio	*0.58*	*0.31*		*0.06*	*0.24*	*0.12*	*0.08*	*0.60*		*0.49*	*0.48*	*0.15*
Green ratio	*0.12*	*0.37*		*0.12*	*0.37*	*0.81*	*0.11*	*0.11*		*0.27*	*0.27*	*0.82*
Unif. delay d1	*37.3*	*20.4*		*34.9*	*19.8*	*1.8*	*35.9*	*38.1*		*27.8*	*27.7*	*1.6*
Delay factor k	*0.17*	*0.11*		*0.11*	*0.11*	*0.11*	*0.11*	*0.19*		*0.11*	*0.11*	*0.11*
Increm. delay d2	*4.1*	*0.1*		*0.1*	*0.1*	*0.0*	*0.2*	*2.7*		*0.8*	*0.8*	*0.1*
PF factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*
Control delay	*41.4*	*20.5*		*35.1*	*19.9*	*1.8*	*36.1*	*40.8*		*28.7*	*28.5*	*1.7*
Lane group LOS	*D*	*C*		*D*	*B*	*A*	*D*	*D*		*C*	*C*	*A*
Apprch. delay	*25.5*			*14.4*			*40.5*			*20.5*		
Approach LOS	*C*			*B*			*D*			*C*		
Intersec. delay	*22.9*			Intersection LOS						*C*		

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ Ocean Avenue*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/6/2005*	Jurisdiction	*Lompoc*
Time Period	*AM Peak Hour*	Analysis Year	*Existing+Project*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*1*	*2*	*0*	*1*	*2*	*1*	*1*	*2*	*0*	*1*	*1*	*1*
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*TR*		*L*	*LT*	*R*
Volume (vph)	*150*	*401*	*28*	*26*	*508*	*316*	*29*	*179*	*14*	*271*	*119*	*199*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*

Phasing	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *13.0*	G = *34.0*	G =	G =	G = *21.0*	G = *10.0*	G =	G =
	Y = *3*	Y = *3*	Y =	Y =	Y = *3*	Y = *3*	Y =	Y =

Duration of Analysis (hrs) = *1.00* — Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*174*	*499*		*30*	*591*	*367*	*34*	*224*		*224*	*229*	*231*
Lane group cap.	*248*	*1289*		*248*	*1301*	*1213*	*191*	*379*		*401*	*414*	*1265*
v/c ratio	*0.70*	*0.39*		*0.12*	*0.45*	*0.30*	*0.18*	*0.59*		*0.56*	*0.55*	*0.18*
Green ratio	*0.14*	*0.38*		*0.14*	*0.38*	*0.79*	*0.11*	*0.11*		*0.23*	*0.23*	*0.82*
Unif. delay d1	*36.7*	*20.4*		*33.5*	*21.0*	*2.6*	*36.3*	*38.1*		*30.4*	*30.4*	*1.7*
Delay factor k	*0.27*	*0.11*		*0.11*	*0.11*	*0.11*	*0.11*	*0.18*		*0.16*	*0.15*	*0.11*
Increm. delay d2	*9.0*	*0.2*		*0.2*	*0.3*	*0.1*	*0.4*	*2.5*		*1.8*	*1.6*	*0.1*
PF factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*
Control delay	*45.6*	*20.6*		*33.7*	*21.3*	*2.8*	*36.7*	*40.5*		*32.2*	*32.0*	*1.7*
Lane group LOS	*D*	*C*		*C*	*C*	*A*	*D*	*D*		*C*	*C*	*A*
Apprch. delay	*27.1*			*14.8*			*40.0*			*21.8*		
Approach LOS	*C*			*B*			*D*			*C*		
Intersec. delay	*22.3*			Intersection LOS						*C*		

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ Ocean Avenue*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/6/2005*	Jurisdiction	*Lompoc*
Time Period	*PM Peak Hour*	Analysis Year	*Existing+Project*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*1*	*2*	*0*	*1*	*2*	*1*	*1*	*2*	*0*	*1*	*1*	*1*
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*TR*		*L*	*LT*	*R*
Volume (vph)	*116*	*359*	*16*	*13*	*285*	*147*	*15*	*198*	*18*	*317*	*108*	*182*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*

Phasing	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *11.0*	G = *33.0*	G =	G =	G = *23.0*	G = *11.0*	G =	G =
	Y = *3*	Y = *3*	Y =	Y =	Y = *3*	Y = *3*	Y =	Y =

Duration of Analysis (hrs) = *1.00* — Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*125*	*403*		*14*	*306*	*158*	*16*	*232*		*228*	*229*	*196*
Lane group cap.	*210*	*1255*		*210*	*1263*	*1247*	*210*	*416*		*439*	*451*	*1247*
v/c ratio	*0.60*	*0.32*		*0.07*	*0.24*	*0.13*	*0.08*	*0.56*		*0.52*	*0.51*	*0.16*
Green ratio	*0.12*	*0.37*		*0.12*	*0.37*	*0.81*	*0.12*	*0.12*		*0.26*	*0.26*	*0.81*
Unif. delay d1	*37.4*	*20.5*		*35.0*	*19.8*	*1.8*	*35.0*	*37.2*		*28.8*	*28.7*	*1.8*
Delay factor k	*0.18*	*0.11*		*0.11*	*0.11*	*0.11*	*0.11*	*0.15*		*0.13*	*0.12*	*0.11*
Increm. delay d2	*4.6*	*0.1*		*0.1*	*0.1*	*0.0*	*0.2*	*1.7*		*1.1*	*1.0*	*0.1*
PF factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*
Control delay	*42.0*	*20.6*		*35.1*	*19.9*	*1.8*	*35.2*	*38.9*		*29.9*	*29.6*	*1.9*
Lane group LOS	*D*	*C*		*D*	*B*	*A*	*D*	*D*		*C*	*C*	*A*
Apprch. delay	*25.7*			*14.4*			*38.7*			*21.4*		
Approach LOS	*C*			*B*			*D*			*C*		
Intersec. delay	*23.1*			Intersection LOS						*C*		

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ Ocean Avenue*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/6/2005*	Jurisdiction	*Lompoc*
Time Period	*AM Peak Hour*	Analysis Year	*Growth+Cumulative+Project*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*1*	*2*	*0*	*1*	*2*	*1*	*1*	*2*	*0*	*1*	*1*	*1*
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*TR*		*L*	*LT*	*R*
Volume (vph)	*180*	*425*	*29*	*27*	*539*	*343*	*30*	*187*	*14*	*308*	*130*	*242*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*	*0.86*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*

Phasing	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *15.0*	G = *33.0*	G =	G =	G = *21.0*	G = *9.0*	G =	G =
	Y = *3*	Y = *3*	Y =	Y =	Y = *3*	Y = *3*	Y =	Y =

Duration of Analysis (hrs) = *1.00* Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*209*	*528*		*31*	*627*	*399*	*35*	*233*		*254*	*255*	*281*
Lane group cap.	*287*	*1251*		*287*	*1263*	*1179*	*172*	*341*		*401*	*414*	*1282*
v/c ratio	*0.73*	*0.42*		*0.11*	*0.50*	*0.34*	*0.20*	*0.68*		*0.63*	*0.62*	*0.22*
Green ratio	*0.17*	*0.37*		*0.17*	*0.37*	*0.77*	*0.10*	*0.10*		*0.23*	*0.23*	*0.83*
Unif. delay d1	*35.6*	*21.4*		*31.8*	*22.1*	*3.3*	*37.2*	*39.1*		*31.0*	*30.9*	*1.5*
Delay factor k	*0.29*	*0.11*		*0.11*	*0.11*	*0.11*	*0.11*	*0.25*		*0.21*	*0.20*	*0.11*
Increm. delay d2	*9.5*	*0.2*		*0.2*	*0.3*	*0.2*	*0.6*	*5.7*		*3.3*	*2.8*	*0.1*
PF factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*
Control delay	*45.1*	*21.6*		*32.0*	*22.4*	*3.5*	*37.8*	*44.8*		*34.3*	*33.7*	*1.6*
Lane group LOS	*D*	*C*		*C*	*C*	*A*	*D*	*D*		*C*	*C*	*A*
Apprch. delay	*28.2*			*15.5*			*43.9*			*22.5*		
Approach LOS	*C*			*B*			*D*			*C*		
Intersec. delay	*23.4*			Intersection LOS						*C*		

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *River Terrace*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*TR*		*L*	*LT*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*		*0.0*	*0.0*	*0.0*
Flow rate/lane	*209*	*528*		*31*	*627*	*399*	*35*	*233*		*254*	*255*	*281*
Satflow per lane	*1719*	*1792*		*1719*	*1809*	*1538*	*1719*	*1790*		*1719*	*1773*	*1538*
Capacity/lane	*287*	*1251*		*287*	*1263*	*1179*	*172*	*341*		*401*	*414*	*1282*
Flow ratio	*0.12*	*0.15*		*0.02*	*0.18*	*0.26*	*0.02*	*0.07*		*0.15*	0.14	*0.18*
v/c ratio	*0.73*	*0.42*		*0.11*	*0.50*	*0.34*	*0.20*	*0.68*		*0.63*	*0.62*	*0.22*
I factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*
Q_1	*5.0*	*5.2*		*0.7*	*6.4*	*3.1*	*0.8*	*2.9*		*5.7*	*5.7*	*1.4*
k_B	*0.3*	*0.5*		*0.3*	*0.5*	*0.8*	*0.2*	*0.2*		*0.4*	*0.4*	*0.8*
Q_2	*0.9*	*0.4*		*0.0*	*0.5*	*0.4*	*0.1*	*0.5*		*0.7*	*0.6*	*0.2*
Q avg.	*5.8*	*5.6*		*0.7*	*6.9*	*3.5*	*0.9*	*3.5*		*6.4*	*6.4*	*1.7*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*1.9*	*1.9*		*2.1*	*1.9*	*2.0*	*2.1*	*2.0*		*1.9*	*1.9*	*2.0*
BOQ, $Q_{\%}$	*11.2*	*10.8*		*1.4*	*13.2*	*7.0*	*1.8*	*6.9*		*12.3*	*12.2*	*3.4*

Queue Storage Ratio

Q spacing	*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*		*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

SHORT REPORT

General Information		Site Information	
Analyst	*Greg*	Intersection	*"H" @ Ocean Avenue*
Agency or Co.	*Endo Engineering*	Area Type	*All other areas*
Date Performed	*5/6/2005*	Jurisdiction	*Lompoc*
Time Period	*PM Peak Hour*	Analysis Year	*Growth+Cumulative+Project*

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	*1*	*2*	*0*	*1*	*2*	*1*	*1*	*2*	*0*	*1*	*1*	*1*
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*TR*		*L*	*LT*	*R*
Volume (vph)	*174*	*399*	*16*	*13*	*330*	*181*	*15*	*211*	*18*	*347*	*116*	*248*
% Heavy veh	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*	*5*
PHF	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*	*0.93*
Actuated (P/A)	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*	*A*
Startup lost time	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Ext. eff. green	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*	*2.0*	*2.0*		*2.0*	*2.0*	*2.0*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	*3*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*
Ped/Bike/RTOR Volume	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Lane Width	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*	*12.0*	*12.0*		*12.0*	*12.0*	*12.0*
Parking/Grade/Parking	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*	*N*	*0*	*N*
Parking/hr												
Bus stops/hr	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Unit Extension	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*	*3.0*	*3.0*		*3.0*	*3.0*	*3.0*

Phasing	Excl. Left	Thru & RT	03	04	SB Only	NB Only	07	08
Timing	G = *15.0*	G = *29.0*	G =	G =	G = *23.0*	G = *11.0*	G =	G =
	Y = *3*	Y = *3*	Y =	Y =	Y = *3*	Y = *3*	Y =	Y =

Duration of Analysis (hrs) = *1.00* Cycle Length C = *90.0*

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adj. flow rate	*187*	*446*		*14*	*355*	*195*	*16*	*246*		*246*	*252*	*267*
Lane group cap.	*287*	*1104*		*287*	*1110*	*1179*	*210*	*416*		*439*	*451*	*1247*
v/c ratio	*0.65*	*0.40*		*0.05*	*0.32*	*0.17*	*0.08*	*0.59*		*0.56*	*0.56*	*0.21*
Green ratio	*0.17*	*0.32*		*0.17*	*0.32*	*0.77*	*0.12*	*0.12*		*0.26*	*0.26*	*0.81*
Unif. delay d1	*35.1*	*23.8*		*31.5*	*23.0*	*2.8*	*35.0*	*37.4*		*29.1*	*29.1*	*1.9*
Delay factor k	*0.23*	*0.11*		*0.11*	*0.11*	*0.11*	*0.11*	*0.18*		*0.16*	*0.16*	*0.11*
Increm. delay d2	*5.3*	*0.2*		*0.1*	*0.2*	*0.1*	*0.2*	*2.3*		*1.6*	*1.6*	*0.1*
PF factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*
Control delay	*40.4*	*24.0*		*31.6*	*23.2*	*2.9*	*35.2*	*39.6*		*30.7*	*30.7*	*2.0*
Lane group LOS	*D*	*C*		*C*	*C*	*A*	*D*	*D*		*C*	*C*	*A*
Apprch. delay	*28.8*			*16.4*			*39.4*			*20.7*		
Approach LOS	*C*			*B*			*D*			*C*		
Intersec. delay	*24.1*			Intersection LOS						*C*		

BACK-OF-QUEUE WORKSHEET

General Information

Project Description *River Terrace*

Average Back of Queue

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Lane group	*L*	*TR*		*L*	*T*	*R*	*L*	*TR*		*L*	*LT*	*R*
Init. queue/lane	*0.0*	*0.0*		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*		*0.0*	*0.0*	*0.0*
Flow rate/lane	*187*	*446*		*14*	*355*	*195*	*16*	*246*		*246*	*252*	*267*
Satflow per lane	*1719*	*1799*		*1719*	*1809*	*1538*	*1719*	*1788*		*1719*	*1765*	*1538*
Capacity/lane	*287*	*1104*		*287*	*1110*	*1179*	*210*	*416*		*439*	*451*	*1247*
Flow ratio	*0.11*	*0.13*		*0.01*	*0.10*	*0.13*	*0.01*	*0.07*		*0.14*	0.14	*0.17*
v/c ratio	*0.65*	*0.40*		*0.05*	*0.32*	*0.17*	*0.08*	*0.59*		*0.56*	*0.56*	*0.21*
I factor	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*	*1.000*	*1.000*		*1.000*	*1.000*	*1.000*
Arrival type	*3*	*3*		*3*	*3*	*3*	*3*	*3*		*3*	*3*	*3*
Platoon ratio	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*
PF factor	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*	*1.00*	*1.00*		*1.00*	*1.00*	*1.00*
Q_1	*4.4*	*4.6*		*0.3*	*3.5*	*1.3*	*0.4*	*3.1*		*5.3*	*5.5*	*1.5*
k_B	*0.3*	*0.5*		*0.3*	*0.5*	*0.8*	*0.3*	*0.3*		*0.4*	*0.4*	*0.8*
Q_2	*0.6*	*0.3*		*0.0*	*0.2*	*0.2*	*0.0*	*0.4*		*0.5*	*0.5*	*0.2*
Q avg.	*5.0*	*4.9*		*0.3*	*3.7*	*1.5*	*0.4*	*3.4*		*5.9*	*6.0*	*1.7*

Percentile Back of Queue (95th percentile)

$f_{B\%}$	*2.0*	*2.0*		*2.1*	*2.0*	*2.1*	*2.1*	*2.0*		*1.9*	*1.9*	*2.0*
BOQ, $Q_{\%}$	*9.7*	*9.6*		*0.6*	*7.4*	*3.0*	*0.8*	*6.9*		*11.4*	*11.6*	*3.6*

Queue Storage Ratio

Q spacing	*25.0*	*25.0*		*25.0*	*25.0*	*25.0*	*25.0*	*25.0*		*25.0*	*25.0*	*25.0*
Q storage	*0*	*0*		*0*	*0*	*0*	*0*	*0*		*0*	*0*	*0*
Avg. R_Q												
95% $R_{Q\%}$												

APPENDIX D

Conditional Letter of Map Revision Based on Fill

Federal Emergency Management Agency

Washington, D.C. 20472

CONDITIONAL LETTER OF MAP REVISION BASED ON FILL COMMENT DOCUMENT

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF LOMPOC, SANTA BARBARA COUNTY, CALIFORNIA	A portion of Farm Lot 100, Ranchos Lompoc and Mission Vieja (APN: 099-141-021)
	COMMUNITY NO.: 060334	The legal description of the portion mentioned above is as follows:
AFFECTED MAP PANEL	NUMBER: 0603340003D	COMMENCING at the brass cap at the intersection of Laurel Avenue and North 7th Street; thence S89°59'09"E, 1301.53 feet to the POINT OF BEGINNING; thence N01°56'25"E, 1161.23 feet; thence S88°05'02"E,
	NAME: CITY OF LOMPOC, SANTA BARBARA COUNTY, CALIFORNIA	
	DATE: 06/05/1997	
FLOODING SOURCE: SANTA YNEZ RIVER		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 34.644, -120.438 SOURCE OF LAT & LONG: PRECISION MAPPING STREETS 4.0 DATUM: NAD 83

COMMENT TABLE REGARDING THE PROPOSED PROPERTY (PLEASE NOTE THAT THIS IS NOT A FINAL DETERMINATION. A FINAL DETERMINATION WILL BE MADE UPON RECEIPT OF AS-BUILT INFORMATION REGARDING THIS PROPERTY.)

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT WOULD BE REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NGVD 29)	LOWEST ADJACENT GRADE ELEVATION (NGVD 29)	LOWEST LOT ELEVATION (NGVD 29)
—	—	—	1701 Laurel Avenue	Portion of Property	X (shaded)	—	—	—

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

LEGAL PROPERTY DESCRIPTION
PORTIONS REMAIN IN THE SFHA

This document provides the Federal Emergency Management Agency's comment regarding a request for a Conditional Letter of Map Revision based on Fill for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the proposed described portion(s) of the property(ies) would not be located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) if built as proposed. Our final determination will be made upon receipt of a copy of this document, as-built elevations, and a completed Community Acknowledgement form. Proper completion of this form certifies the subject property is reasonably safe from flooding in accordance with Part 65.5(a)(4) of our regulations. Further guidance on determining if the subject property is reasonably safe from flooding may be found in FEMA Technical Bulletin 10-01. A copy of this bulletin can be obtained by calling the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or from our web site at http://www.fema.gov/mit/tb1001.pdf. This document is not a final determination; it only provides our comment on the proposed project in relation to the SFHA shown on the effective NFIP map.

This comment document is based on the flood data presently available. The enclosed documents provide additional information regarding this request. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, 3601 Eisenhower Avenue, Suite 600, Alexandria, VA 22304-6439.

Doug Bellomo, P.E., CFM, Acting Chief
Hazard Identification Section, Mitigation Division
Emergency Preparedness and Response Directorate

Federal Emergency Management Agency
Washington, D.C. 20472

CONDITIONAL LETTER OF MAP REVISION BASED ON FILL
COMMENT DOCUMENT

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

LEGAL PROPERTY DESCRIPTION (CONTINUED)

135.40 feet; thence S19°04'20"E, 213.95 feet; thence S22°28'22"E, 460.20 feet; thence S23°29'06"E, 156.07 feet; thence S21°04'29"E, 114.20 feet, thence S23°40'10"E, 135.87 feet; thence S25°54'31"E, 182.89 feet; thence S85°07'29"W, 104.08 feet; thence N88°02'45"W, 554.80 feet to the POINT OF BEGINNING.

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, 3601 Eisenhower Avenue, Suite 600, Alexandria, VA 22304-6439.

Doug Bellomo, P.E., CFM, Acting Chief
Hazard Identification Section, Mitigation Division
Emergency Preparedness and Response Directorate

Federal Emergency Management Agency

Washington, D.C. 20472

April 28, 2004

THE HONORABLE DICK DEWEES
MAYOR, CITY OF LOMPOC
P.O. BOX 8001
LOMPOC, CA 93438-8001

CASE NO.: 04-09-0803C
COMMUNITY: CITY OF LOMPOC, SANTA BARBARA COUNTY, CALIFORNIA
COMMUNITY NO.: 060334

DEAR MAYOR DEWEES:

This is in reference to a request that the Federal Emergency Management Agency (FEMA) determine if the property described in the enclosed document is located within an identified Special Flood Hazard Area, the area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood), on the effective National Flood Insurance Program (NFIP) map. Using the information submitted and the effective NFIP map, our determination is shown on the attached Conditional Letter of Map Revision based on Fill (CLOMR-F) Comment Document. This comment document provides additional information regarding the effective NFIP map, the legal description of the property and our comments regarding this proposed project.

Additional documents are enclosed which provide information regarding the subject property and CLOMR-Fs. Please see the List of Enclosures below to determine which documents are enclosed. Other attachments specific to this request may be included as referenced in the Determination/Comment document. If you have any questions about this letter or any of the enclosures, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, 3601 Eisenhower Avenue, Suite 600, Alexandria, VA 22304-6439.

Sincerely,

Doug Bellomo, P.E., CFM, Acting Chief
Hazard Identification Section, Mitigation Division
Emergency Preparedness and Response Directorate

LIST OF ENCLOSURES:
CLOMR-F COMMENT DOCUMENT

cc: Mr. Carlos C Yanez

Federal Emergency Management Agency

Washington, D.C. 20472

ADDITIONAL INFORMATION REGARDING DENIALS OF REQUESTS FOR CONDITIONAL LETTERS OF MAP AMENDMENT AND CONDITIONAL LETTERS OF MAP REVISION BASED ON FILL

When making determinations on requests for Conditional Letters of Map Amendment (CLOMAs) and Conditional Letters of Map Revision based on the placement of fill (CLOMR-Fs), the Federal Emergency Management Agency (FEMA) bases its determination on the flood hazard information available at the time of the determination. Requesters should be aware that flood conditions may change or new information may be generated that would supersede FEMA's determination. In such cases, the community will be informed by letter.

Requesters also should be aware that FEMA's conditional denial of a request to remove a property (parcel of land or structure) from the Special Flood Hazard Area (SFHA) means FEMA has determined the property will continue to be subject to inundation by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). As mentioned earlier, this determination is based on the flood hazard information available at the time. If more detailed property or flood hazard information becomes available, and the requester believes the information will support removing the property from the SFHA, the requester may submit the information to FEMA at any time and request that FEMA reconsider its determination. In areas where base flood elevations (BFEs) shown on the effective National Flood Insurance Program (NFIP) map were used for the original determination, new BFEs cannot be used until they have been proposed and finalized through the community appeal process. The appeal process is described in detail in Part 67 of the NFIP regulations.

If FEMA denies a request for a CLOMA because the elevation of the lowest adjacent grade (the lowest ground touching a structure) would be below the BFE and that elevation is raised to or above the BFE by the placement of fill material, the requester may submit the appropriate supporting data and request a LOMR-F in accordance with Paragraph 65.5(a)(4) of the NFIP regulations. In this circumstance, if both the elevation of the lowest ground touching the structure *and* the elevation of the lowest floor (including basement/crawl space) are at or above the BFE, FEMA will issue a LOMR-F to remove the structure from the SFHA. If fill material is used to elevate the lowest ground touching the structure and the lowest floor (including basement/crawl space) to or above the BFE, the requester also must submit a completed copy of Form 4, "Community Acknowledgment of Requests Involving Fill," from the MT-1 application/certification forms package that must be used for all LOMR-F requests. The application/certification forms package maybe downloaded directly from our website at http://www/fema.gov/mit/tsd/HM_mpchg.htm, or copies maybe obtained by calling our Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627).

The NFIP regulations provide a requester with a period of 90 days from the date of a denial letter to submit data and request that FEMA reconsider its determination without repayment of review and processing fees. Data submitted after 90 days, or data which show that a project has been significantly altered in design or scope other than as necessary to respond to findings made in FEMA's original determination, are subject to all submittal/payment procedures.

Effective September 1, 2002, FEMA revised the fee schedule for reviewing and processing requests for conditional and final modifications to published flood information and maps, thereby establishing flat review and processing fees for most types of requests. Effective September 1, 2002, FEMA modified that fee schedule. All new requests will be processed under the current fee schedule.

There is no review and processing fee for a LOMA request. The review and processing fees for requests for CLOMAs, CLOMR-Fs, and LOMR-Fs are shown below.

Single-lot/single-structure CLOMAs, CLOMR-Fs	$500
Single-lot/single-structure LOMR-Fs	$425
Single-lot/single-structure LOMR-Fs based on as built information (CLOMR-F previously Issued by us)	$325
Multiple-lot/multiple-structure CLOMAs	$700
Multiple-lot/multiple-structure CLOMR-Fs and LOMR-Fs	$800
Multiple-lot/multiple-structure LOMR-Fs based on as built information (CLOMR-F previously issued by us)	$700

The review and processing fee must be received before FEMA can begin processing a request. Payment of the fee shall be made in the form of a check or money order, made payable in U.S. funds to the National Flood Insurance Program, or by credit card. The payment must be forwarded to the following address:

Federal Emergency Management Agency
Fee-Charge System Administrator
P.O. Box 3173
Merrifield, VA 22116-3173

APPENDIX E

Environmental Closure Statement

Fire Department

"Serving the community since 1926"

4410 Cathedral Oaks Road
Santa Barbara, CA 93110-1042
(805) 681-5500 FAX (805) 681-5563

John M. Scherrei
Fire Chief

OCT 2 7 2004

Carlos Yanez
Coastal Vision
1701 Laurel Avenue
Lompoc, CA 93436

Mike Conley
Grefco, Inc.
225 City Avenue Ste #14
Bala Cynwyd, PA 19004

Subject: Hwy 1 & Hwy 246 (A.K.A. 12th St. and Laurel Ave., 333 Hwy 246, #351 Hwy 246, Lompoc, CA); Former Grefco North
SMU Site #394

This letter confirms the completion of the site investigation and remediation at the above referenced site limited to the specific areas identified in the attached map containing the reported Global Positioning System, (GPS) coordinates. With the provision that the information provided to this agency is accurate and representative of existing conditions, it is our position that no further action is required at this time.

Please be advised that this letter does not relieve you of any liability under the California Health and Safety Code or Water Code for past, present, or future conditions at the site. Nor does it relieve you of the responsibility to clean up existing, additional, or previously unidentified conditions at the site, which cause or threaten to cause pollution or nuisance or otherwise pose a threat to water quality or public health.

Changes in the present or proposed use of the site may require further site characterization and mitigation activity. It is the property owner's responsibility to notify this agency of any changes in report content, future contamination findings, or site usage.

Additionally, you may receive a final invoice. This billing would be for the specialist's time in processing the site closure paperwork. Due to our accounting process, it my take a few months before you receive your final invoice.

Please contact our office if you have any questions regarding this matter.

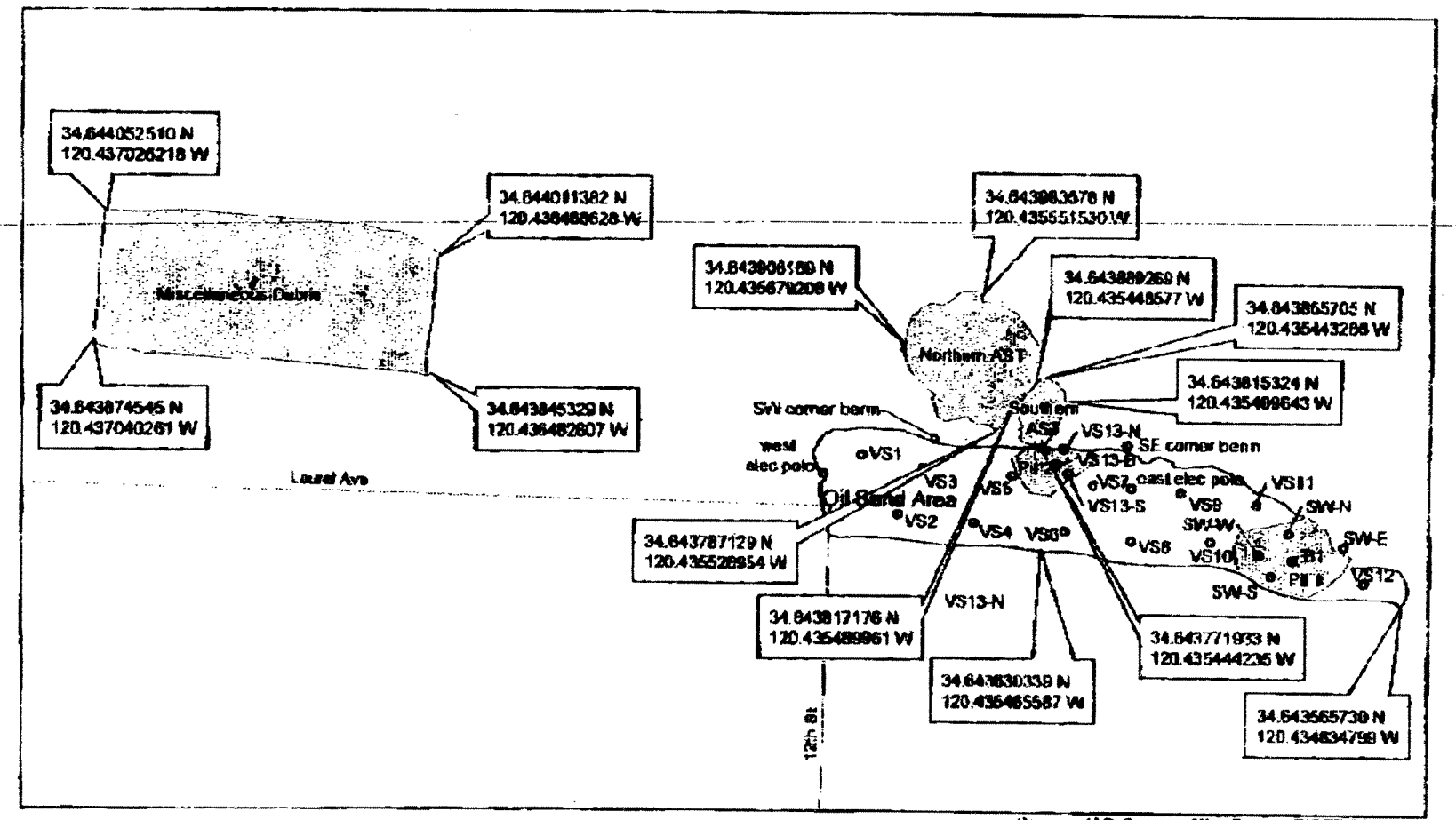
Sincerely,

Kate Sulka
Supervising Hazardous Materials Specialist

esn: Grefco North - SMU#394 Close Ltr

attachment

pc: Tricia Bartholome, Rincon Consultants, Inc.
Stacy Lawson, City of Lompoc Planning Department



GPS Data Coordinates