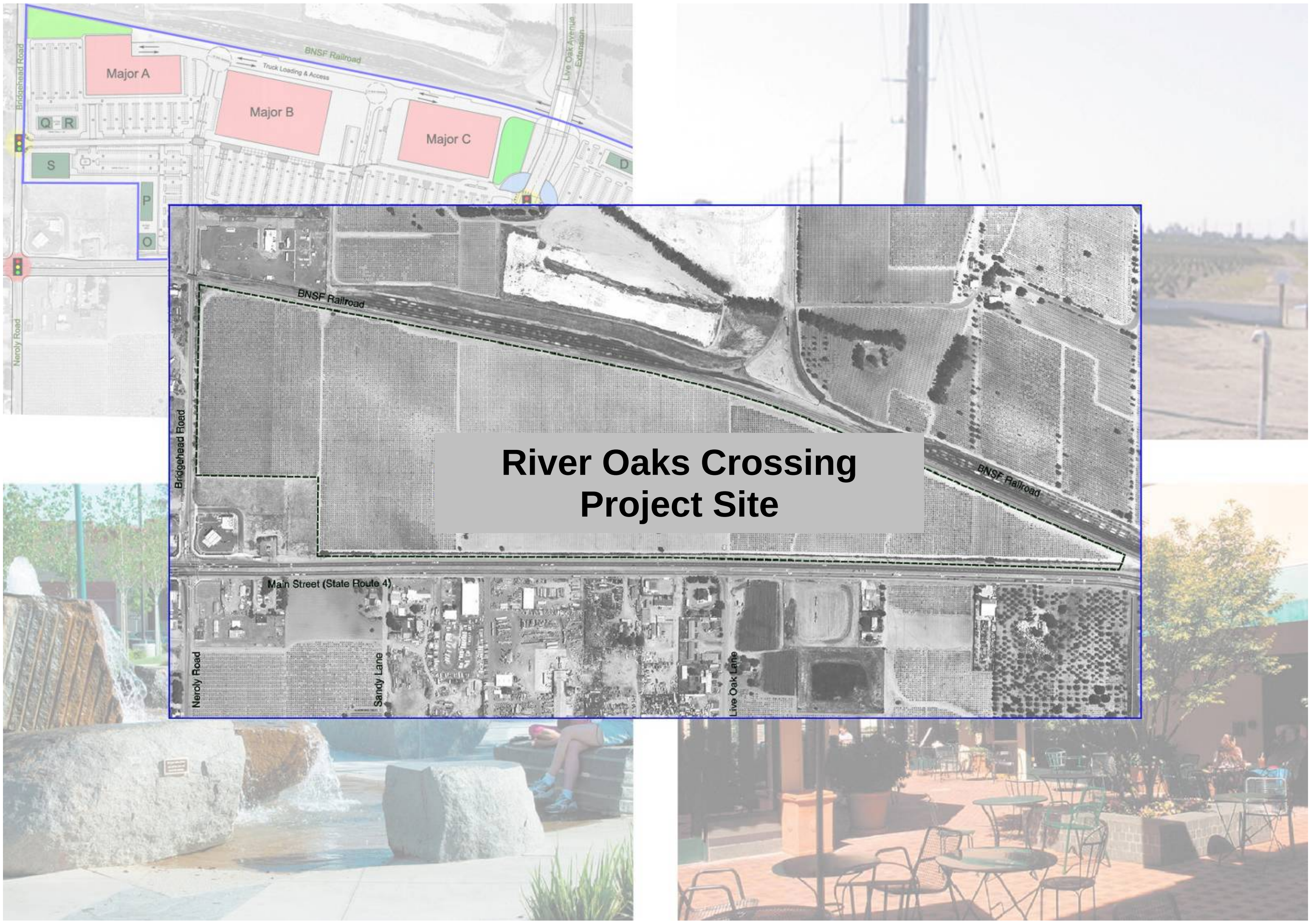
River Oaks Crossing Specific Plan
Final Environmental Impact Report

(Previously known as the Cline Specific Plan Draft EIR)
State Clearinghouse # 2003112042



March 2008

City of Oakley
A Place for Families in the Heart of the Delta

FINAL
ENVIRONMENTAL IMPACT REPORT
RIVER OAKS CROSSING
SPECIFIC PLAN PROJECT

State Clearinghouse #: 2003112042

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

1. INTRODUCTION AND LIST OF COMMENTERS

INTRODUCTION

This Final Environmental Impact Report (Final EIR) contains public and agency comments received during the public review period of the River Oaks Crossing Specific Plan Draft Environmental Impact Report (Draft EIR). This document has been prepared by the City of Oakley in accordance with the California Environmental Quality Act (CEQA).

BACKGROUND

A Notice of Preparation (NOP) for the Draft EIR was released November 10, 2003 for a 30-day review period. In addition, a public scoping meeting was held on November 12, 2003. The comments received from the NOP were addressed in the River Oaks Crossing Specific Plan Draft EIR. The River Oaks Crossing Specific Plan Draft EIR is an informational document intended to disclose the environmental consequences of approving and implementing the River Oaks Crossing Specific Plan project. All written comments received on the Draft EIR during the public review period, from September 13, 2007 to November 1, 2007, are addressed in this Final EIR.

RESPONSES TO COMMENTS

Responses to comments received on the Draft EIR during the public review period are presented in Chapter 2, Comments and Responses. Comments were received during the public comment period solely from written correspondence. Each comment letter received has been numbered at the top and then bracketed to indicate how the letter has been divided into individual comments. Each comment is given a number with the letter number appearing first, followed by the comment number. For example, the first comment in Letter 1 would have the following format: 1-1. In Chapter 2 of the Final EIR, the bracketed comment letters precede responses to the comments found in the letters.

LIST OF COMMENTERS

The following is a list of comment letters received identifying the letter number, agency or person submitting the letter, and the page number on which the letter appears.

<u>Letter</u>	<u>Page</u>
1. Contra Costa County Environmental Health, Joe Doser	3-12
2. City of Brentwood Economic Development Department, Linda Maurer	3-14
3. Public Utilities Commission, Kevin Boles	3-16
4. Resident, Robert Caughron	3-18

2. REVISIONS TO THE DRAFT EIR TEXT

INTRODUCTION

This chapter presents all of the revisions made to the Draft EIR in response to comments received. New text is double underlined and deleted text is struck through. Text changes are presented in the page order in which they appear in the Draft EIR. It should be noted that none of the following text revisions change the conclusions of the Draft EIR.

TEXT CHANGES

NOTE: New text is double underlined; deleted text is ~~struck through~~.

2.0 PROJECT DESCRIPTION

Figure 2-20, on page 2-27 of the Draft EIR is hereby replaced with the revised Figure 2-20 found on page 3-57 of this Final EIR. This change is for clarification purposes only, as the figure included in the Draft EIR did not properly delineate the Antioch city limit line or the correct zoning for the portion of the figure that is located in the City of Antioch. This change does not alter any of the conclusions contained within the Draft EIR.

3.2 CIRCULATION AND TRANSPORTATION

Mitigation Measure CT-10 in Chapter 3.2, Circulation and Transportation and in Table 1-1, Chapter 1, Introduction and Summary of the Draft EIR is hereby amended as follows:

CT-10 *The Wilbur Avenue/SR 160 southbound ramps intersection shall be signalized. Due to its proximity to the Wilbur Avenue/SR 160 northbound ramps and the Wilbur Avenue/Bridgehead Road intersections, the three intersections shall be signalized at the same time and signal timings and phasings shall be coordinated. The SR 160 ramp intersections are located in the City of Antioch, and the need for this improvement is dependent on the timing of other cumulative projects in Oakley and Antioch. In order to facilitate the construction of improvements on those transportation facilities within the control of Antioch, the City will collect, through development agreements or other document approved as to form by the city attorney, a fair share payment with the issuance of each building permit associated with the project. The City will hold the payments until such time improvements are installed at the subject intersection at which time the City will use the held payments to reimburse the applicable entity. The fair share amount shall be a fee payment based on the project's proportionate contribution of traffic to the subject intersection, which has been estimated to be approximately 21~~36~~%. This amount has been estimated assuming maximum build out of the shopping center (770,000 square feet).*

Mitigation Measure CT-11 in Chapter 3.2, Circulation and Transportation and in Table 1-1, Chapter 1, Introduction and Summary of the Draft EIR is hereby amended as follows:

CT-11 *The Wilbur Avenue/SR 160 northbound ramps intersection shall be signalized. Due to its proximity to the Wilbur Avenue/SR 160 southbound ramps and Wilbur Avenue/Bridgehead Road intersections, the three intersections shall be signalized at the same time and signal timings and phasings shall be coordinated. The SR 160 ramp intersections are located in the City of Antioch, and the need for this improvement is dependent on the timing of other cumulative projects in Oakley and Antioch. In order to facilitate the construction of improvements on those transportation facilities within the control of Antioch, the City will collect, through development agreements or other document approved as to form by the city attorney, a fair share payment with the issuance of each building permit associated with the project. The City will hold the payments until such time improvements are installed at the subject intersection at which time the City will use the held payments to reimburse the applicable entity. The fair share amount shall be a fee payment based on the project's proportionate contribution of traffic to the subject intersection, which has been estimated to be approximately 28%. This amount has been estimated assuming maximum build out of the shopping center (770,000 square feet).*

The above changes to Mitigation Measures CT-10 and CT-11 do not result in changes to the previous environmental analysis contained in the Draft EIR. The impacts would remain less-than-significant with implementation of the required mitigation measures. The changes to Mitigation Measures CT-10 and CT-11 serve only to include the correct percentage that will be used to calculate the project's fair share fees and to clarify the implementation process for the mitigation measures.

To reflect the changes in the time frame of the impacts, the title of Impact CT-13, on page 3.2-34 of the Draft EIR is hereby amended as follows:

Impact CT-13 - ~~Cumulative Plus 15 Project (2030)~~ Near Term (Existing + Project) Impacts to Main Street / Neroly Road / Bridgehead Road

To address issues regarding the timing of mitigation CT-13 and to ensure that the required improvements are implemented in the near-term scenario through the City's Five Year Capital Improvement Plan, Mitigation Measure CT-13 in Chapter 3.2, Circulation and Transportation and in Table 1-1, Chapter 1, Introduction and Summary of the Draft EIR is hereby amended as follows:

CT-13 *Should the connector ramps not be funded prior to the issuance of building permits, mitigation of the unacceptable conditions at Main Street / Neroly Road / Bridgehead Road intersection will be achieved by converting the second exclusive left-turn lane to a share left-turn/through lane on the northbound approach. The above improvement to the Main Street / Neroly Road / Bridgehead Road intersection is included in the City's Transportation Impact Fee Program, but is not currently included in the City's Five Year CIP. If the improvement is included in the City's*

Five Year CIP upon issuance of the first building permit then the Project shall contribute to the mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit. In the event the improvement has not been added to the City's Five Year CIP upon issuance of the first building permit then the Project shall install the improvement and be eligible for reimbursement from the Transportation Impact Fee Program. ~~included in the City's Transportation Impact Fee Program. The Project shall contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit.~~

The above analysis does not identify any new significant impacts, nor does it require the addition of a new mitigation measure. Accordingly, the information presented in this response is not "significant new information," as defined in CEQA Guidelines Section 15088.5, but rather is information that clarifies and amplifies the Draft EIR's analysis of potential traffic and circulation impacts. Given this, recirculation of the Draft EIR is not required.

Mitigation Measure CT-19 in Chapter 3.2, Circulation and Transportation and in Table 1-1, Chapter 1, Introduction and Summary of the Draft EIR is hereby amended as follows:

CT-19 *A second exclusive left-turn lane ~~and one exclusive right-turn lane~~ shall be added on the eastbound approach, and an exclusive right-turn lane shall be added on the southbound approach to the Laurel Road/Empire Avenue intersection. This improvement is ~~not currently~~ included in the City's Transportation Impact Fee Program. ~~If the improvement is included in the City's Transportation Impact Fee Program upon issuance of the first building permit then the Project shall contribute to the mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit. In the event the improvement has not been added to the City's Transportation Impact Fee Program upon issuance of the first building permit then the Project shall install the improvement and be eligible for reimbursement from the Transportation Impact Fee Program.~~ The Project shall contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit.*

The above changes to Mitigation Measure CT-19 do not result in changes to the previous environmental analysis contained in the Draft EIR. The impact would remain less-than-significant with implementation of the required mitigation measure. The changes to Mitigation Measure CT-19 were made to indicate that the improvement is currently included in the City's Transportation Impact Fee Program and that the exclusive right-turn lane has already been constructed. The changes serve only to clarify the timing for implementation of the mitigation measure.

Mitigation Measure BR-3(e) in Chapter 3.4, Biological Resources and in Table 1-1, Chapter 1, Introduction and Summary of the Draft EIR is hereby amended as follows:

BR-3(e) *The City ~~is in the process of approving~~ has adopted an ordinance to enforce mitigation fee payment schedules based upon the recently approved East Contra*

Costa County Habitat Conservation Plan (HCP). The River Oaks Crossing Specific Plan area is within the HCP inventory area. The HCP development fee is based on the project location. The HCP includes three Fee Zones, defined by a map that determines the fee paid by development (Figure 9-1 of the HCP), regardless of the land cover type within them. The River Oaks Crossing site is within the HCP Development Fee Zone I: Cultivated and Disturbed Lands. ~~The development fee in Zone I is approximately $12,000 per acre.~~ Prior to the issuance of grading permits, the applicant shall pay the appropriate HCP Development Fee Zone I fees for the proposed project site.~~ The HCP fee will apply to the entire 76.4-acre site, which would is approximately $916,800 in present day dollars (76.4 acres times $12,000)~~.

The above change to Mitigation Measure BR-3(e) does not result in a change to the previous environmental analysis contained in the Draft EIR. The impact would remain less-than-significant with implementation of the required mitigation measure. The change to Mitigation Measure BR-3(e) was made to indicate that the ordinance to enforce mitigation fee payment schedules based on the East Contra Costa County Habitat Conservation Plan has been adopted. In addition, Mitigation Measure BR-3(e) was revised to remove specific dollar amounts for the HCP development fee because the fee will increase in mid-March to an amount that has yet to be determined.

Mitigation Measure GS-1(a) in Chapter 3.10, Geology and Soils and in Table 1-1, Chapter 1, Introduction and Summary of the Draft EIR is hereby amended as follows:

GS-1(a) *Construction of the Proposed Project shall conform to the seismic requirements stipulated in the current Uniform Building Code ~~(UBC, 1997)~~ for the ~~S~~seismic ~~Z~~zone ~~4~~ of highest seismic risk.*

The above change to Mitigation Measure GS-1(a) does not result in a change to the previous environmental analysis contained in the Draft EIR. The impact would remain less-than-significant with implementation of the required mitigation measure. The change to Mitigation Measure GS-1(a) was made to clarify the implementation process for the mitigation measure.

Mitigation Measure GS-1(b) in Chapter 3.10, Geology and Soils and in Table 1-1, Chapter 1, Introduction and Summary of the Draft EIR is hereby amended as follows:

GS-1(b) *A detailed geotechnical engineering design report for proposed building sites shall be submitted to the ~~City Engineer~~ Chief Building Official to ensure sufficient foundation stability prior to issuance of building permits.*

Mitigation Measure GS-4 in Chapter 3.10, Geology and Soils and in Table 1-1, Chapter 1, Introduction and Summary of the Draft EIR is hereby amended as follows:

GS-4 *Prior to approval of improvement plans, the Project developer shall conduct a design-level geotechnical study, which shall specifically address whether expansive soils are present in the development area and include measures to address these soils where they occur. The recommendations from the geotechnical study shall be incorporated into the design of roadway and infrastructure* *improvements as well as foundation and building design for the review and approval of the City Engineer and Chief Building Official. Improvements, as directed by the soils engineer, may involve replacing the material under foundations and slabs-on-grade with "non-expansive" material, or modifying the expansive soil by compaction control, pre-wetting and the installation of moisture barriers.*

The above changes to Mitigation Measures GS-1(b) and GS-4 do not result in changes to the previous environmental analysis contained in the Draft EIR. The impacts would remain less-than-significant with implementation of the required mitigation measures. The changes to Mitigation Measures GS-1(a) and GS-4 were made to indicate the appropriate monitoring agency for implementation of the mitigation measures.

Mitigation Measure HWQ-1(a) in Chapter 3.11, Hydrology and Water Quality and in Table 1-1, Chapter 1, Introduction and Summary of the Draft EIR is hereby amended as follows:

HWQ-1(a) *Prior to any grading activities, the applicant shall provide a Storm Water Pollution Prevention Plan (SWPPP) for the ~~entire~~ area disturbed by grading or other construction activities on the Project site which shall include construction and post construction BMPs (including both physical and programs BMPs) to the satisfaction of the City Engineer. The SWPPP may include the following:*

- *Straw Wattle;*
- *Silt Fences;*
- *Silt Slacks and Rock Bags for Drain Inlet Protection;*
- *Hydro-Seeding;*
- *Erosion Control Blankets;*
- *Concrete Washouts; and/or*
- *Wheel Washing Stations.*

The above change to Mitigation Measure HWQ-1(a) does not result in a change to the previous environmental analysis contained in the Draft EIR. The impact would remain less-than-significant with implementation of the required mitigation measure. The change to Mitigation Measure HWQ-1(a) was made to specify which portions of the project site will be subject to the SWPPP for the project.

Mitigation Measure AES-3 in Chapter 3.14, Aesthetics and in Table 1-1, Chapter 1, Introduction and Summary of the Draft EIR is hereby amended as follows:

AES-3 *During construction, the developer shall install hooded and/or shielded streetlights to avoid excessive lighting on adjacent properties. The method for shielding of the lighting shall be subject to ~~for~~ the review and approval of the Community Development Director.*

The above change to Mitigation Measure AES-3 does not result in a change to the previous environmental analysis contained in the Draft EIR. The impact would remain less-than-significant with implementation of the required mitigation measure.

3. COMMENTS AND RESPONSES

INTRODUCTION

This chapter includes the text of each of the comment letter received during the public comment period for the River Oaks Crossing Specific Plan Draft EIR. Each bracketed comment letter is followed by numbered responses to each bracketed comment. In addition to the comments and responses, the City has also included two Master Responses to address concerns regarding the Urban Decay and Traffic and Circulation analyses in the EIR. The Master Responses, included at the beginning of this section, are referred to in the responses to comments where relevant.

Master Response: Urban Decay Analysis

Given the number of comments which include references to the Proposed Project's potential economic impacts and/or its potential to result in physical impacts indirectly related to economic impacts, the City has prepared the following master response on the subject of Urban Decay.

A. Socio-Economic Impacts of a Project Are Not Impacts Considered Under CEQA

Several comments express concern regarding the potential for the closure of local businesses as a result of the Proposed Project. The City notes that CEQA is not concerned with the socio-economic impacts of a project, only with a project's potential to result in physical impacts to the environment. (CEQA Guidelines § 15131.) Accordingly, the closure of a business as a result of the Proposed Project would not be considered an impact under CEQA. To the extent that comments have been received expressing such policy concerns, those comments are noted and will be forwarded to the City Council for its consideration.

B. Review of Potential Urban Decay Impacts

Under CEQA and CEQA case law, an EIR must consider whether the indirect physical impact of a large-scale retail development may be the creation of "urban decay," stemming from the long-term closure of competitors' retail stores as a result of the Proposed Project. (*Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173.) "Urban decay" is generally understood to be the deterioration of existing shopping centers due to graffiti and other physical symptoms of long-term vacancies. (The City notes that several commenters have expressed concern that the Proposed Project will result in "urban blight." As "urban blight" is a term used in redevelopment law, not CEQA, it is assumed that the commenters intended to refer to concerns regarding "urban decay.")

1. Draft EIR's Analysis of Potential Urban Decay Impacts

Chapter 3.16 of the Draft EIR, Retail Market Effects and Potential for Urban Decay, addresses the potential for the Proposed Project to result in Urban Decay impacts. Chapter 3.16 is based, in part, on a report prepared by Bay Area Economics ("BAE"), included as Appendix H to the Draft EIR. BAE was retained to prepare this economic impact analysis to provide the information necessary to determine whether the economic impacts of the Proposed Project were great enough that there would be potential for urban decay to develop.

The Market Study preformed for the Proposed Project determined that its development, in conjunction with other large retail developments in and around the City of Oakley, would have the potential to result in the closure of several businesses within the Primary and Secondary Trade Areas of the Proposed Project. However, due to several factors, including growth rates within the City, and the increasing demand for shopping in the project area, the Market Analysis determined that most vacancies would be short-term. It did conclude that one site, the Big K-Mart in Antioch, would be expected to experience a long-term vacancy. The Draft EIR concluded that during both short and long-term vacancies, Oakley and Antioch's Municipal Code provisions concerning nuisance abatement, which are discussed on page 3.16-5 - 3.16-6 of the Draft EIR, would operate to address any potential for physical deterioration at the sites and therefore the Proposed Project would not be expected to result in urban decay. The Draft EIR concludes that potential urban decay impacts of the Proposed Project are less than significant.

Comments received expressed concern that the market analysis performed for the Proposed Project looked at impacts to only major competitors rather than smaller retailers. While the BAE analysis does not look at specific small retailers, the analysis does include an assessment of the additional supportable square footage of retail space in all retail sectors, thus considering the potential for additional retail support across the spectrum of both small and large retail outlets.

The analysis, as shown in Table 13 of BAE's report, estimates that the total supportable square footage in the Trade Area is greater than the Proposed Project by 2010. While there are some sectors (including mixed retail, which consists of store types not otherwise specified) where the assumed project square footage is larger, the tenant mix for much of the Proposed Project, especially with respect to the smaller stores, is speculative, and as noted in the footnote on page 28 of BAE's report, "[w]hile the total support for miscellaneous retail is slightly below the project size, this difference is minor and the project could easily fill this space through non-retail businesses or through specialty general merchandise, building materials, or food stores within the project." As a result, there should be sufficient demand to support both the Proposed Project and existing retail outlets regardless of store size.

Furthermore, small retailers in the area have been competing with big box competitors for many years, and have in large part adjusted their market niche to deal with competition from larger competitors. An additional competitor in this category does not change the competitive environment greatly for these kinds of stores, which rely on service, convenience, or product differentiation to compete in a retail environment already dominated by big retail competitors.

Also, smaller store vacancies on their own are less likely to lead to the downward cycle of decline caused by the loss of key anchor stores in shopping centers. When an anchor store of a center (e.g., supermarket) closes, the surrounding smaller shops that are dependent on the foot traffic generated by the anchor can be impacted adversely. Closures of smaller non-anchor stores are not likely to cause the level of impacts as the loss of an anchor tenant and if smaller retail site vacancies become too limited and rents rise as a result, it constrains the ability of local entrepreneurs to start retail and small commercial enterprises.

2. Updates to Market Impact Analysis

After publication of the Draft EIR, the City began conducting environmental review of the Oakley Station Shopping Center, a project that proposes a total of 203,599 square feet of retail initially, with an additional 18,500 square feet in a second later phase. The project would be anchored by a Home Depot store of 137,270 square feet. The project is anticipated to open in 2009. The City requested that BAE review the Oakley Station project and provide an update to its Market Impact Analysis.[1] The analysis indicated that the addition of the Oakley Station

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[1] BAE Memorandum of January 24, 2008 to City of Oakley, "Effects of Changing Conditions on Economic Impact Analysis for River Oaks Crossing EIR" (Appendix C of this Final EIR).

project, with its Home Depot anchor, could lead to an oversupply of retail space in Oakley and the Subregion, particularly in the building improvements store retail category. Stores that could be impacted include the Lowe's and Home Depot on Lone Tree Way. While one likely outcome would be that some of the planned space is not built over the next several years, in a worst-case scenario, if all this space came onto the market it could cause substantial and long-term vacancies in retail space elsewhere in Oakley and nearby in the Subregion.

As part of BAE's provision of an update to the Market Impact Analysis, the City also requested that BAE consider the recent changes in the housing market.[2] BAE's analysis indicated that the short-term population growth originally expected by 2010 was unlikely to occur by that date, but that because the Bay Area has a chronic housing shortage and the economic downturn is expected to be short-lived, this growth would merely be postponed, with more population growth shifted to the 2010 to 2015 period. As a result, some vacancies resulting from Proposed Project impacts could be longer and re-tenanting could be delayed, but by 2015 increased demand would lead to absorption of the vacant space.

3. Evaluation of Potential for Urban Decay in Light of Updates

The City has reviewed the information provided by BAE with regard to the Oakley Station Shopping Center and the recent changes in the housing market and has determined that, even if the potential store vacancies identified by BAE occur and persist until 2015, Oakley and Antioch Municipal Code provisions, which are discussed in Chapter 3.16, would still be expected to operate to address any potential for physical deterioration at the sites of those vacancies. Given this, the Proposed Project's potential impacts associated with urban decay, on both a project and cumulative level, remain less-than-significant. Accordingly, the information presented in this response is not "significant new information," as defined in CEQA Guidelines Section 15088.5, but rather is information that clarifies and amplifies the Draft EIR's analysis of potential urban decay impacts.

As discussed in Chapter 3.16, Antioch's Municipal Code addresses any potential negative impacts of a vacancy by declaring a "public nuisance" for any person owning, leasing, occupying, or having charge of possession of any premises in the city to maintain such a premises in such a manner that any one of a list of 30 conditions exist. The Code Enforcement Division can work with the Planning Division, Police Department, and Waste Management Division on abatement procedures. Antioch also has ordinance allowing abatement of graffiti and an ordinance in place that allows for recovery of abatement costs.

Further, Oakley's Municipal Code operates similarly to Antioch's. Title 1, Chapter 6 defines and identifies a "public nuisance" and sets forth the procedures for abatement. The Code Enforcement Division works with the Building Division, Planning Division, Public Works, and Police Department as needed in the abatement of nuisances. Graffiti may also be declared a nuisance and abatement pursued either through cooperation with the property owner or, if on public property, by the City. The City may also notice and eventually abate and remove graffiti

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[2] BAE Memorandum of January 24, 2008 to City of Oakley, "Effects of Changing Conditions on Population Forecasts for River Oaks Crossing EIR" (Appendix D of this Final EIR).

from a private property in the event the property owner is unwilling or unable to remove such graffiti. The Municipal Code contains language that allows for recovery of abatement costs and attorney fees. With implementation of Antioch and Oakley Municipal Codes, both cities have the authority to abate public nuisances and graffiti within their jurisdictions.

As with Antioch and Oakley, Brentwood's Municipal Code addresses the abatement of nuisances within its city limits (Title 8 Health and Safety). In the Brentwood Municipal Code a nuisance can be any of 29 conditions that could result in declaration of a nuisance. Conditions that would likely relate with enforcement to prevent urban decay would be weeds growing from cracks in pavement or sidewalks and planter strips, abandoned or destroyed buildings, buildings with chipping or peeling paint, broken windows, or missing windows, and defective or hazardous walls, fences, driveways or sidewalks. In the event a nuisance is declared, the City of Brentwood Code Enforcement Division may send the property owner a notice to abate. Much like Oakley, if the property owner fails to abate the nuisance, the City may choose to abate the nuisance at the cost of the property owner by placing a lien against the property. Attorney fees, if applicable, may also be recovered. These sections of the code allow the City to actively discourage urban decay and recover all costs associated with abatement of nuisances from unwilling or unable property owners.

C. Continuing Operation of Local Nuisance Abatement Laws Will Preclude the Development of Signs of Urban Decay

The City has also received comments suggesting that the existence of enforcement mechanisms to ensure the type of nuisance conditions typified by urban decay do not occur as a result of the Proposed Project is not sufficient to conclude that urban decay will not result from the Proposed Project. The comments do not present any evidence or rationale as to why existing nuisance enforcement mechanism would not be sufficient to preclude the development of urban decay. Further, as noted in Chapter 3.16, though Oakley does not have authority over the enforcement of Antioch and Brentwood's ordinances, under California Evidence Code section 664, it is presumed that a city's official duties are regularly performed, which includes Antioch's and Brentwood's continued implementation and enforcement of its nuisance ordinances.

A review of the operations of Oakley's Code Enforcement Division demonstrates that the efficacy of active nuisance enforcement measures. In 2007, the Division handled approximately 275 cases.[3] The City's Code Enforcement officer estimates that 75 percent of those cases were derived from complaints and the remaining 25 percent were opened based on field observations. Nuisance abatement actions included graffiti, weed and sign abatement. (Sign abatement involves illegal signs that are put in place without any way to contact a sign owner, and where the property owner has not approved such signage.) The City was also able to avoid opening nuisance cases by working cooperatively with business owners who are familiar with the City's abatement process and who voluntarily abated nuisances on their property without necessitating the opening of a nuisance case. Further, the City's Code Enforcement Officer also abates small amounts of graffiti rather than opening a nuisance case. Based on the City's records of code enforcement actions in 2007, the City is able to stay on top of graffiti, out of control weeds,

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[3] Conversation with Robert Downing, City of Oakley Code Enforcement Officer, February 6, 2008.

illegal signs, and other miscellaneous nuisances throughout the City in an efficient and successful manner. Accordingly, evidence in the record supports the City's determination that Oakley’s, as well as Antioch and Brentwood’s, existing code enforcement programs will continue to operate to preclude the development of any signs of urban decay at the sites of any short or long-term vacancies that may occur as a result of the Proposed Project.

Master Response: Traffic and Circulation Comments Related to the Oakley Station and Carol Lane Projects

Given comments received regarding the development of the Oakley Station and Carol Lane projects, the City has prepared the following master response on the subject of Traffic and Circulation, as it pertains to the potential cumulative traffic impacts of the Proposed Project in combination with those two projects.

The Oakley Station project is a 206,000 square-foot shopping center on the south side of Main Street between Live Oak Avenue and Big Break Road. The Oakley Station project application was deemed complete after release of the River Oaks Crossing Specific Plan Draft EIR. This project is consistent with the City of Oakley General Plan designation for the project area. The Carol Lane project is a multi-family residential development just south of the Oakley Station project with access through Carol Lane. This site was designated as light industrial in the City’s General Plan and was redesignated as part of the Oakley Housing Element Update.

In order to ensure that the Draft EIR adequately addressed traffic impacts, including any potential cumulative impacts related to those two projects, the City requested that Fehr & Peers update the Draft EIR’s traffic analysis to include the Oakley Station and Carol Lane projects. Based on this updated traffic analysis, it was determined that the additional traffic generated by these projects would not result in a new impact under Near Term (2010) conditions. While the previously identified Mitigation Measure CT-1 would not be sufficient, by itself, to mitigate project impacts at the Main Street/Bridgehead Road/Neroly Road intersection under Near Term (2010) conditions, because the traffic associated with the buildout of the Carol Lane and Oakley Station projects was included in the long-term cumulative analysis, existing Mitigation Measure CT-13, which was identified as a Cumulative (2030) mitigation measure for this intersection, would, with an adjustment in the timing of its implementation, mitigate the project impacts under Near Term (2010) conditions. Accordingly, no new mitigation measure is required to address the cumulative traffic impacts of the Project, even taking into consideration the Oakley Station and Carol Lane projects.

The Cumulative (2030) analysis completed for the River Oaks Crossing Specific Plan Draft EIR accounted for the buildout of the City of Oakley General Plan. Because the Oakley Station project would be consistent with the City’s General Plan, the Cumulative (2030) analysis already accounts for this project. As well, the proposed uses at the Carol Lane Project site would generate fewer trips than the previous light industrial designation. Thus, the Cumulative (2030) analysis presented in the Draft EIR is based on more conservative assumptions and the analysis and conclusions presented in the Draft EIR continue to be valid.

The updated Near Term (2010) and consistency with the Cumulative (2030) analyses are described in more detail below.

A. Updated Near Term 2010 Analysis

Because the Near Term (2010) analysis presented in the River Oaks Crossing Specific Plan Draft EIR did not account for the Oakley Station and Carol Lane projects, the Contra Costa Transportation Authority (CCTA) Decennial Countywide Travel Demand model used in the Draft EIR analysis was rerun to include these two projects. Similar to the analysis presented in the Draft EIR, intersection operations were analyzed using CCTALOS and Highway Capacity Manual (HCM) methods. Table 3-1 summarizes the intersection LOS analysis results. The LOS calculation sheets are provided in Appendix B.

TABLE 3-1
UPDATED NEAR TERM (2010) WITH AND WITHOUT PROJECT CONDITIONS INTERSECTION PEAK HOUR LOS SUMMARY

			NEAR TERM NO PROJECT				NEAR TERM WITH PROJECT			
			CCTALOS		HCM		CCTALOS		HCM	
Intersection	Control[1]	Peak Hour	V/C Ratio[2]	LOS	Delay[3]	LOS	V/C Ratio[2]	LOS	Delay[3]	LOS
1. Wilbur Avenue/Minaker Drive	Signal	AM PM	0.25 0.22	A A	10 9	A A	0.25 0.24	A A	10 9	B A
2. Wilbur Avenue/Vierra Avenue	SSSC	AM PM	-- --	-- --	2 (15) 1 (14)	A (B) A (B)	-- --	-- --	2 (16) 1 (16)	A (C) A (C)
3. Wilbur Avenue/SR 160 SB Ramps	SSSC	AM PM	-- --	-- --	3 (11) 7 (27)	A (B) A (D)	-- --	-- --	4 (13) **27 (>60)**	A (B) **D (F)**
4. Wilbur Avenue/SR 160 NB Ramps	SSSC	AM PM	-- --	-- --	1 (11) 3 (16)	A (B) A (C)	-- --	-- --	1 (12) 3 (20)	A (B) A (C)
5. Wilbur Avenue/Bridgehead Road	AWSC	AM PM	-- --	-- --	13 10	B A	-- --	-- --	15 16	C C
6. East 18th Street/Hillcrest Avenue	Signal	AM PM	0.33 0.58	A A	19 27	B C	0.33 0.59	A A	19 29	B C
7. East 18th Street/Vierra Avenue	Signal	AM PM	0.44 0.50	A A	7 6	A A	0.47 0.57	A A	7 7	A A
8. East 18th Avenue/Phillips Lane	Signal	AM PM	0.20 0.29	A A	14 16	B B	0.23 0.35	A A	14 16	B B
9. Main Street/SR 160 SB Ramps	Signal	AM PM	0.40 0.47	A A	16 29	B C	0.45 0.59	A A	15 30	B C
10. Main Street/SR 160 NB Ramps	Signal	AM PM	0.54 0.65	A B	11 19	B B	0.60 0.79	B C	11 25	B C
11. Main Street/Bridgehead Road/Neroly Road	Signal	AM PM	0.42 0.85	A D	20 39	B D	0.48 **0.96**	A **E**	20 **71**	C **E**
12. Main Street/Sandy Lane	SSSC/ Signal[4]	AM PM	-- --	-- --	0 (20) **1 (>60)**	A (C) **A (F)**	0.51 0.73	A C	6 17	A B
13. Main Street/Live Oak Avenue	Signal	AM PM	0.43 0.58	A A	7 4	A A	0.57 0.85	A D	17 38	B D

TABLE 3-1
UPDATED NEAR TERM (2010) WITH AND WITHOUT PROJECT CONDITIONS INTERSECTION PEAK HOUR LOS SUMMARY

			NEAR TERM NO PROJECT				NEAR TERM WITH PROJECT			
			CCTALOS		HCM		CCTALOS		HCM	
Intersection	Control[1]	Peak Hour	V/C Ratio[2]	LOS	Delay[3]	LOS	V/C Ratio[2]	LOS	Delay[3]	LOS
14. Main Street/Big Break Road	Signal	AM	0.47	A	16	B	0.53	A	16	B
		PM	0.59	A	25	C	0.71	C	22	C
15. Oakley Road/Neroly Road	AWSC	AM	--	--	12	B	--	--	13	B
		PM	--	--	16	B	--	--	24	C
16. Oakley Road/Live Oak Avenue	AWSC	AM	--	--	9	A	--	--	12	B
		PM	--	--	10	B	--	--	**>60**	**F**
17. Oakley Road/Empire Avenue	Signal	AM	0.30	A	18	B	0.34	A	18	B
		PM	0.51	A	24	C	0.61	B	30	C
18. Main Street/Empire Avenue	Signal	AM	0.41	A	20	B	0.46	A	21	C
		PM	0.57	A	22	C	0.68	A	27	C
19. Main Street/Vintage Parkway	Signal	AM	0.39	A	11	B	0.44	A	11	B
		PM	0.44	A	11	B	0.53	A	13	B
20. Main Street/O'Hara Avenue	Signal	AM	0.50	A	11	B	0.58	A	14	B
		PM	0.72	C	17	B	0.88	D	37	D
21. Cypress Road/Empire Avenue	Signal	AM	0.25	A	11	B	0.28	A	11	B
		PM	0.38	A	12	B	0.44	A	13	B
22. Cypress Road/Main Street	Signal	AM	0.36	A	22	C	0.40	A	23	C
		PM	0.42	A	28	C	0.50	A	29	C
23. Neroly Road/Live Oak Avenue	AWSC	AM	--	--	12	B	--	--	17	C
		PM	--	--	12	B	--	--	**52**	**F**
24. Laurel Road/Live Oak Avenue	Signal	AM	0.33	A	10	A	0.37	A	13	B
		PM	0.34	A	9	A	0.44	A	13	B
25. Laurel Road/Empire Avenue	Signal	AM	0.52	A	23	C	0.53	A	24	C
		PM	0.65	B	33	C	0.70	B	36	D
26. Bridgehead Road/Project Driveway	N/A/ Signal	AM	--	--	--	--	0.37	A	10	A
		PM	--	--	--	--	0.36	A	11	B
27. Main Street/Project Driveway Center	N/A/ Signal	AM	--	--	--	--	0.48	A	4	A
		PM	--	--	--	--	0.67	B	11	B
28. Main Street/Project Driveway East	N/A/ Signal	AM	--	--	--	--	0.46	A	10	A
		PM	--	--	--	--	0.78	C	30	C

Bold indicates intersection operating at deficient level of service.

1. Signal = Signalized intersection, SSSC = Side-street stop-controlled intersection, AWSC = All-way stop-controlled intersection
2. Volume-to-capacity ratio (V/C) determined for all signalized intersections using the CCTALOS methodology.
3. Average intersection delay is calculated for all signalized and unsignalized intersections using the 2000 *Highway Capacity Manual* (HCM) methods. For side-street stop-controlled intersections, average intersection delay (in seconds per vehicle) is presented. Delay for worst approach is shown in brackets.
4. Intersection is side-street stop-controlled under Near Term No Project conditions, but will be signalized under Near Term with Project conditions.

Source: Fehr & Peers, 2008.

The additional traffic generated by these two projects would result in additional congestion at the study intersections. However, similar to the analysis presented in the Draft EIR, the proposed project would continue to cause a significant impact at only the following three intersections:

- Impact CT-1 Main Street/Bridgehead Road/Neroly Road
- Impact CT-2 Oakley Road/Live Oak Avenue
- Impact CT-3 Neroly Road/Live Oak Avenue

Mitigation Measures CT-2 and CT-3 as identified in the Draft EIR would continue to be adequate to mitigate the project impacts at the Oakley Road/Live Oak Avenue and Neroly Road/Live Oak Avenue intersections. However, as stated above, Mitigation Measure CT-1 would not, by itself, be adequate to mitigate the project impact at the Main Street/Bridgehead Road/Neroly Road intersection. However, with an adjustment in the timing of its implementation, Mitigation Measure CT-13, which the Draft EIR identified to mitigate project impacts at this intersection under Cumulative (2030) conditions will mitigate the project impacts under the updated Near Term (2010) With Project conditions.

Mitigation Measure CT-1 would require the addition of a second exclusive left-turn lane to the southbound approach of the intersection to provide one exclusive right-turn lane, one through lane, and two left-turn lanes. Mitigation Measure CT-13 would convert the second exclusive left-turn lane on the northbound approach to a share left-turn/through lane. Mitigation Measure CT-1 is included in the City's Capital Improvement Plans and Traffic Infrastructure Fee program; however, the improvements identified in Mitigation Measure CT-13 are currently included in the City's Traffic Infrastructure Fee Program, but not in the Capital Improvement Plans.

To reflect the changes in the time frame of the impacts discussed above, the title of Impact CT-13, on page 3.2-34 of the Draft EIR is hereby amended as follows:

Impact CT-13 - ~~Cumulative Plus 15 Project (2030)~~ Near Term (Existing + Project) Impacts to Main Street / Neroly Road / Bridgehead Road

To address the above-identified issues regarding the timing of mitigation CT-13 and to ensure that the required improvements are implemented in the near-term scenario through the City's Five Year Capital Improvement Plan, Mitigation Measure CT-13 on page 3.2-35 of the Draft EIR is hereby amended as follows:

> *CT-13* *Should the connector ramps not be funded prior to the issuance of building permits, mitigation of the unacceptable conditions at Main Street / Neroly Road / Bridgehead Road intersection will be achieved by converting the second exclusive left-turn lane to a share left-turn/through lane on the northbound approach. The above improvement to the Main Street / Neroly Road / Bridgehead Road intersection is included in the City's Transportation Impact Fee Program, but is not currently included in the City's Five Year CIP. If the improvement is included in the City's Five*

Year CIP upon issuance of the first building permit then the Project shall contribute to the mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit. In the event the improvement has not been added to the City's Five Year CIP upon issuance of the first building permit then the Project shall install the improvement and be eligible for reimbursement from the Transportation Impact Fee Program. ~~*included in the City's Transportation Impact Fee Program. The Project shall contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit.*~~

The above analysis does not identify any new significant impacts, nor does it require the addition of a new mitigation measure. Accordingly, the information presented in this response is not "significant new information," as defined in CEQA Guidelines Section 15088.5, but rather is information that clarifies and amplifies the Draft EIR's analysis of potential traffic and circulation impacts. Given this, recirculation of the Draft EIR is not required.

As shown in Table 3-2, implementation of both Mitigation Measures CT-1 and CT-13 at the Main Street/Bridgehead Road/Neroly Road intersection would mitigate project impacts to a less-than-significant level.

TABLE 3-2
MITIGATED NEAR TERM (2010) WITH PROJECT CONDITIONS
INTERSECTION PEAK HOUR LOS SUMMARY

Study Intersection	Control[1]	Peak Hour	NEAR TERM WITH PROJECT				NEAR TERM WITH PROJECT MITIGATED			
			CCTALOS		HCM		CCTALOS		HCM	
			V/C Ratio[2]	LOS	Delay[3]	LOS	V/C Ratio[2]	LOS	Delay[3]	LOS
11. Main Street/ Bridgehead Road/Neroly Road	Signal	AM	0.48	A	20	C	0.43	A	17	B
		PM	**0.96**	**E**	**71**	**E**	0.87	D	47	D
16. Oakley Road/Live Oak Avenue	AWSC/ Signal	AM	--	--	12	B	0.28	A	13	B
		PM	--	--	**>60**	**F**	0.44	A	16	B
23. Neroly Road/Live Oak Avenue	AWSC/ Signal	AM	--	--	17	C	0.43	A	24	C
		PM	--	--	**52**	**F**	0.51	A	25	C

Bold indicates intersection operating at deficient level of service.

1. Signal = Signalized intersection, SSSC = Side-street stop-controlled intersection, AWSC = All-way stop-controlled intersection
2. Volume-to-capacity ratio (V/C) determined for all signalized intersections using the CCTALOS methodology.
3. Average intersection delay is calculated for all signalized and unsignalized intersections using the 2000 *Highway Capacity Manual* (HCM) methods. For side-street stop-controlled intersections, average intersection delay (in seconds per vehicle) is presented. Delay for worst approach is shown in brackets.

Source: Fehr & Peers, 2008.

B. Consistency with Cumulative (2030) Conditions Analysis

The Cumulative (2030) conditions analysis completed for the River Oaks Crossing Specific Plan Draft EIR included the buildout of the City of Oakley General Plan. Because the Oakley Station project is consistent with the City's General Plan, it would also be consistent with the Cumulative (2030) conditions analysis presented in the Draft EIR. However, the Carol Lane project was designated "Light Industrial" at the time of the Cumulative conditions analysis. Based on the latest information provided by City of Oakley staff, the proposed Carol Lane project would consist of 450 multi-family dwelling units with 216 dwelling units designated for seniors only.

Table 3-3 presents the estimated trip generation for the proposed Carol Lane project and compares it to the trip generation under previous "Light Industrial" designation. As shown in Table 3-3, the proposed project would generate 68 fewer trips during the AM peak hour and 21 fewer trips during the PM peak hour. Thus, the Cumulative (2030) conditions analysis completed for the River Oaks Crossing Specific Plan Draft EIR presents a more conservative analysis and continues to be valid.

TABLE 3-3
CAROL LANE PROJECT
TRIP GENERATION COMPARISON

Land Use	ITE Code	Amount	AM Peak Hour	PM Peak Hour
Proposed Project				
Multi-Family Residential[1]	220	234 DU	118	146
Senior Attached Residential[2]	252	216 DU	17	24
Total Proposed Project			***135***	***170***
General Plan Designation				
Light Industrial[3]	110	248 KSF	203	191
Total General Plan Designation			***203***	***191***
Difference			***-68***	***-21***

Notes: du = dwelling unit; ksf = 1,000 square feet.

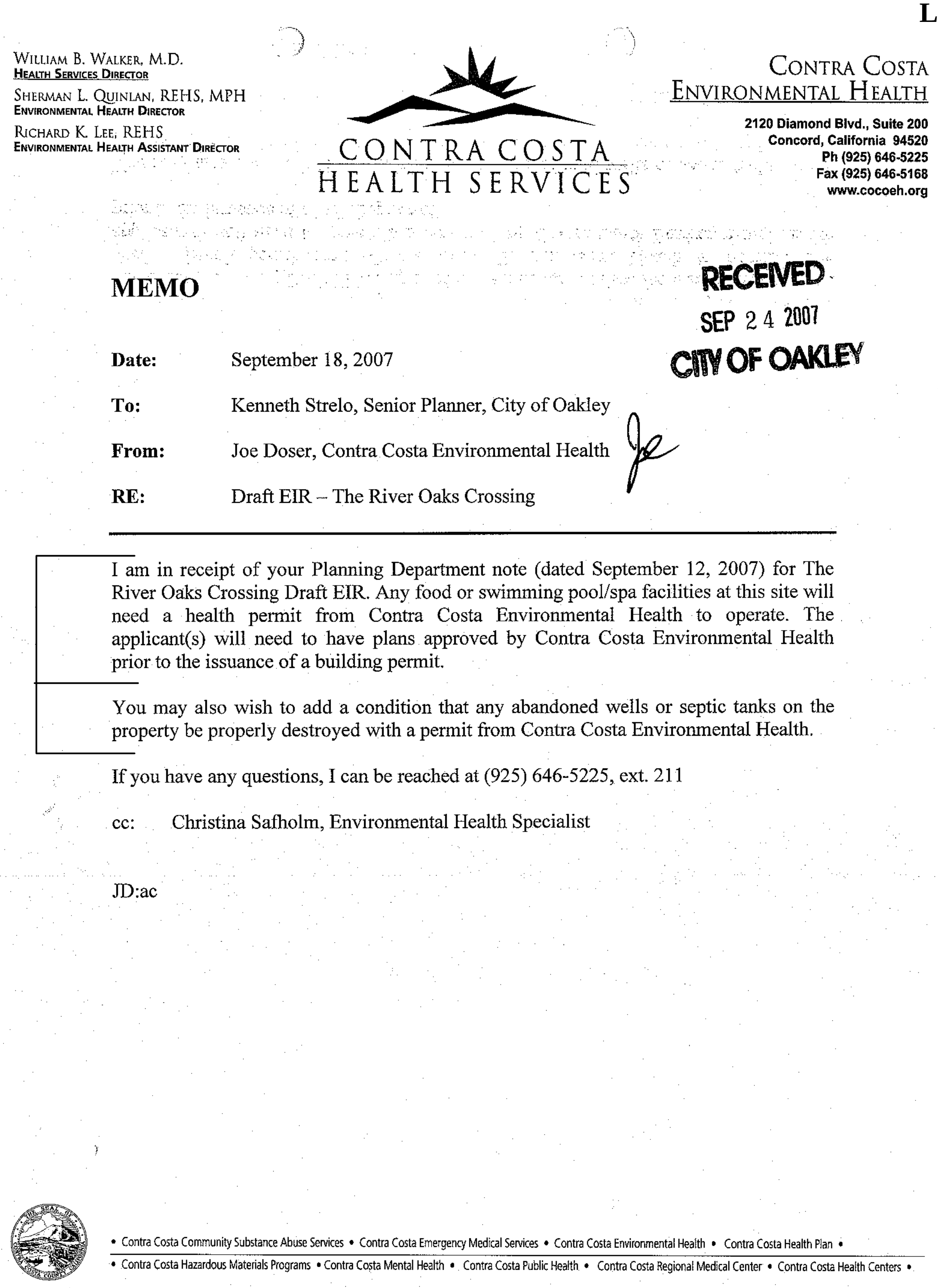
[1] Trip generation based on the regression equations for Apartment (Land Use 230) in the Institute of Transportation Engineers' (ITE) *Trip Generation* (7th Edition), as presented below.
AM Equation: T = 0.49 (X) + 3.73
PM Equation: T = 0.55 (X) + 17.65
Where: T = trip ends and X = number of dwelling units

[2] Trip generation based on the aver rates for Senior Adult Housing – Attached (Land Use 252) in the Institute of Transportation Engineers' (ITE) *Trip Generation* (7th Edition), as presented below.
AM Rate: (T) = .08 (X)
PM Rate: (T) = 0.11 (X)
Where: T = trip ends and X = number of dwelling units

[3] Trip generation based on the regression equations for Light Industrial (Land Use 110) in the Institute of Transportation Engineers' (ITE) *Trip Generation* (7th Edition), as presented below.
AM Equation: T = 1.18 (X) – 89.28
PM Equation: T = 1.43 (X) – 163.42
Where: T = trip ends and X = number of dwelling units

Source: Fehr & Peers, 2008.

Letter 1



William B. Walker, M.D.
Health Services Director
Sherman L. Quinlan, REHS, MPH
Environmental Health Director
Richard K. Lee, REHS
Environmental Health Assistant Director

CONTRA COSTA
HEALTH SERVICES

Contra Costa
Environmental Health
2120 Diamond Blvd., Suite 200
Concord, California 94520
Ph (925) 646-5225
Fax (925) 646-5168
www.cocoeh.org

MEMO

RECEIVED
SEP 24 2007
CITY OF OAKLEY

Date: September 18, 2007

To: Kenneth Strelo, Senior Planner, City of Oakley

From: Joe Doser, Contra Costa Environmental Health

RE: Draft EIR – The River Oaks Crossing

1-1 I am in receipt of your Planning Department note (dated September 12, 2007) for The River Oaks Crossing Draft EIR. Any food or swimming pool/spa facilities at this site will need a health permit from Contra Costa Environmental Health to operate. The applicant(s) will need to have plans approved by Contra Costa Environmental Health prior to the issuance of a building permit.

1-2 You may also wish to add a condition that any abandoned wells or septic tanks on the property be properly destroyed with a permit from Contra Costa Environmental Health.

If you have any questions, I can be reached at (925) 646-5225, ext. 211

cc: Christina Safholm, Environmental Health Specialist

JD:ac

• Contra Costa Community Substance Abuse Services • Contra Costa Emergency Medical Services • Contra Costa Environmental Health • Contra Costa Health Plan •
• Contra Costa Hazardous Materials Programs • Contra Costa Mental Health • Contra Costa Public Health • Contra Costa Regional Medical Center • Contra Costa Health Centers •

LETTER 1: JOE DOSER, CONTRA COSTA COUNTY ENVIRONMENTAL HEALTH

Response to Comment 1-1

This comment serves as an introductory comment, specifying that the applicant would be required to obtain a health permit from Contra Costa Environmental Health and that site plans would be required to be reviewed prior to the issuance of building permits. This comment is noted and applicants for building permits within the Specific Plan area shall comply with all required regulatory actions related to the construction of any pool or food facilities on site.

Response to Comment 1-2

Impacts HHM-4 and HHM-5 in the Hazards and Hazardous Materials chapter of the Draft EIR, identify that the Proposed Project could result in a potentially significant environmental impact should the on-site wells not be properly abandoned. Mitigation Measures HHM-4 and HHM-5 specify that, prior to obtaining clearance to grade the site or conduct any earthwork activities, developments within the Specific Plan must abandon the on-site wells in accordance with current Oakley and Contra Costa County standards, including the attainment of necessary permits.

Letter 2

THE CITY OF
BRENTWOOD
HERITAGE • VISION • OPPORTUNITY

MAILING ADDRESS:
City Hall
708 Third Street
Brentwood, CA 94513
Phone: 925-516-5400
Fax: 925-516-5401
www.ci.brentwood.ca.us

CITY ADMINISTRATION
708 Third Street
Phone: 925-516-5440
Fax: 925-516-5441

COMMUNITY DEVELOPMENT
104 Oak Street
Phone: 925-516-5405
Fax: 925-516-5407

FINANCE & INFORMATION SYSTEMS
708 Third Street
Phone: 925-516-5460
Fax: 925-516-5401

PARKS AND RECREATION
730 Third Street
Phone: 925-516-5444
Fax: 925-516-5445

POLICE
9100 Brentwood Boulevard
Phone: 925-634-6911
24 Hr. Dispatch: 925-778-2441
Fax: 925-809-7799

PUBLIC WORKS

Operations Division
2201 Elkins Way
Phone: 925-516-6000
Fax: 925-516-6001

Engineering Division
120 Oak Street
Phone: 925-516-5420
Fax: 925-516-5421

October 4, 2007

Kenneth W. Strelo
Senior Planner
City of Oakley
3231 Main Street
Oakley, CA 94561

RECEIVED
OCT 09 2007
CITY OF OAKLEY

Dear Mr. Strelo,

I am writing in regards to a recommended mitigation measure included in the Rivers Oaks Crossing Draft Environmental Impact Report relating to agriculture.

2-1 I oversee and manage the City of Brentwood's Agricultural Preservation Program. Recently, the City purchased a seven-acre parcel at 3900 Sellers Road, just south of Sunset Road, located in Knightsen. This property sits adjacent to the East Contra Costa Historical Society (ECCHS), the non-profit and volunteer group dedicated to the history of our region. We purchased this property with the intent on developing this site into an agricultural park and history center in conjunction with the operations of the Historical Society and Museum.

Currently, there's a community visioning process underway to determine what type of site and programming should be developed. We'd invite the City of Oakley and its community members to participate in this process. We would also encourage your financial participation as well.

2-2 Your Draft EIR recommends a $50,000 contribution to the City of Oakley to provide program funding at a future Agricultural Museum in the city. I would recommend that the Oakley consider participating with the City of Brentwood and the ECCHS to create a regional resource that celebrates our agricultural heritage.

If you have any questions, please don't hesitate to call at (925) 516-5139.

Sincerely,

Linda Maurer

Linda Maurer
Economic Development Manager

CC: Donna Landeros, City Manager
Howard Sword, Community Development Director

LETTER 2: LINDA MAURER, CITY OF BRENTWOOD ECONOMIC DEVELOPMENT

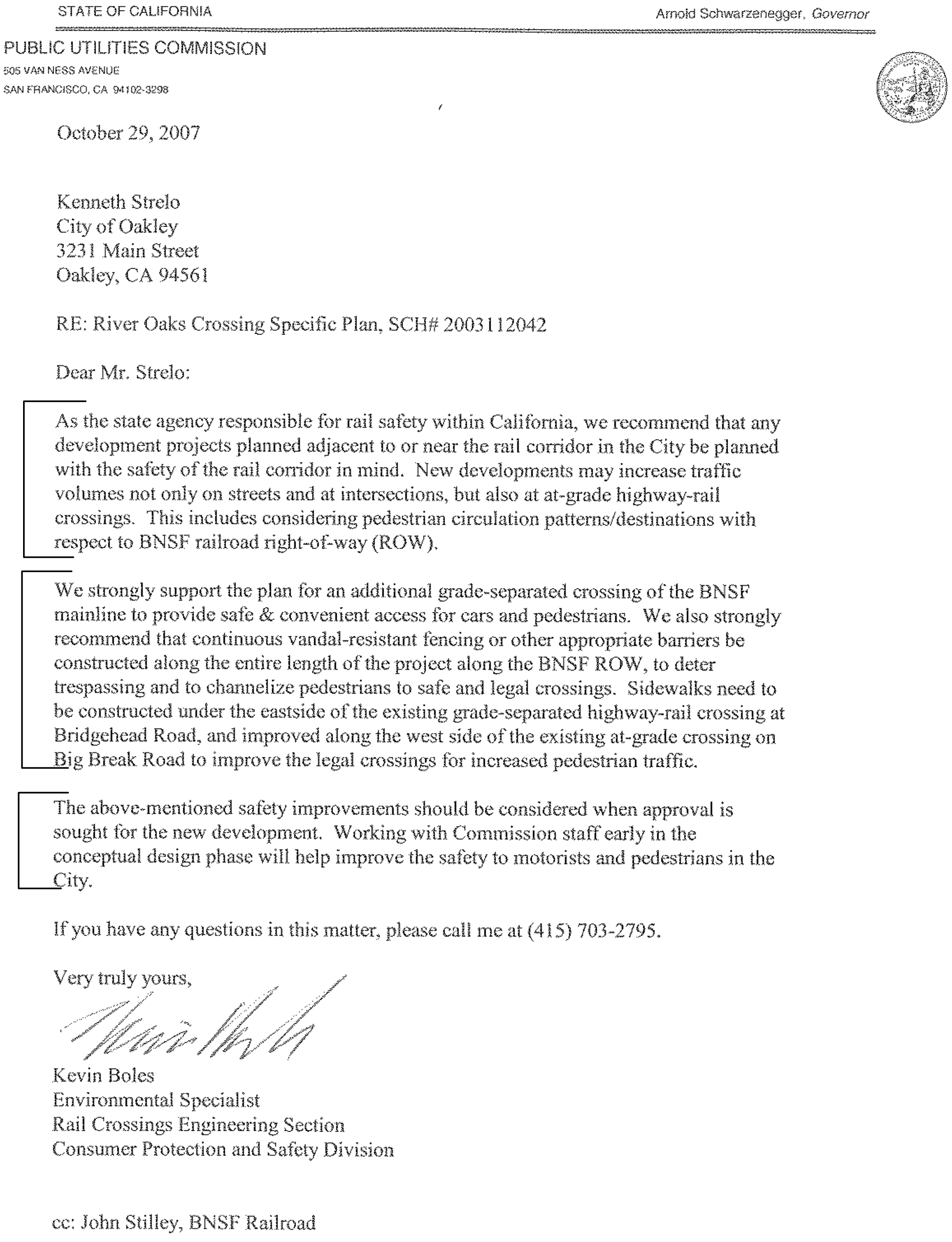
Response to Comment 2-1

The comment is an introduction to comment 2-2 and does not address the adequacy of the Draft EIR.

Response to Comment 2-2

This comment addresses a general policy issue regarding the funding of an Oakley Agricultural Museum and does not address the adequacy of the Draft EIR. This comment will be forwarded to the decision-making bodies for consideration.

Letter 3



STATE OF CALIFORNIA
Arnold Schwarzenegger, *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

October 29, 2007

Kenneth Strelo
City of Oakley
3231 Main Street
Oakley, CA 94561

RE: River Oaks Crossing Specific Plan, SCH# 2003112042

Dear Mr. Strelo:

3-1 As the state agency responsible for rail safety within California, we recommend that any development projects planned adjacent to or near the rail corridor in the City be planned with the safety of the rail corridor in mind. New developments may increase traffic volumes not only on streets and at intersections, but also at at-grade highway-rail crossings. This includes considering pedestrian circulation patterns/destinations with respect to BNSF railroad right-of-way (ROW).

3-2 We strongly support the plan for an additional grade-separated crossing of the BNSF mainline to provide safe & convenient access for cars and pedestrians. We also strongly recommend that continuous vandal-resistant fencing or other appropriate barriers be constructed along the entire length of the project along the BNSF ROW, to deter trespassing and to channelize pedestrians to safe and legal crossings. Sidewalks need to be constructed under the eastside of the existing grade-separated highway-rail crossing at Bridgehead Road, and improved along the west side of the existing at-grade crossing on Big Break Road to improve the legal crossings for increased pedestrian traffic.

3-3 The above-mentioned safety improvements should be considered when approval is sought for the new development. Working with Commission staff early in the conceptual design phase will help improve the safety to motorists and pedestrians in the City.

If you have any questions in this matter, please call me at (415) 703-2795.

Very truly yours,

Kevin Boles
Environmental Specialist
Rail Crossings Engineering Section
Consumer Protection and Safety Division

cc: John Stilley, BNSF Railroad

LETTER 3: KEVIN BOLES, PUBLIC UTILITIES COMMISSION

Response to Comment 3-1

The Traffic and Circulation analysis conducted for the River Oaks Crossing Specific Plan EIR included an analysis of potential impacts associated with local circulation, including the at-grade intersections crossing the BNSF rail line in the near term and long-term cumulative scenarios. In addition, on pages 3.2-6 and 3.2-7, the Draft EIR discusses that a series of local multi-use trails are proposed along the northern boundary of the Proposed Project adjacent to the existing BNSF railroad lines. As noted on page 7-30 of the City of Oakley General Plan and show in Figure T-1 of the General Plan, the Class I local multi-use trails would be located along the northern side of the BNSF railroad right-of-way, to the north of the Project site (see page 7-30 of the Oakley General Plan) and along Neroly Road / Bridgehead Road and Live Oak Avenue. The General Plan proposes a network of regional trails in the vicinity of Big Break Road, which would be maintained by the East Bay Regional Parks District, and along the water frontage.

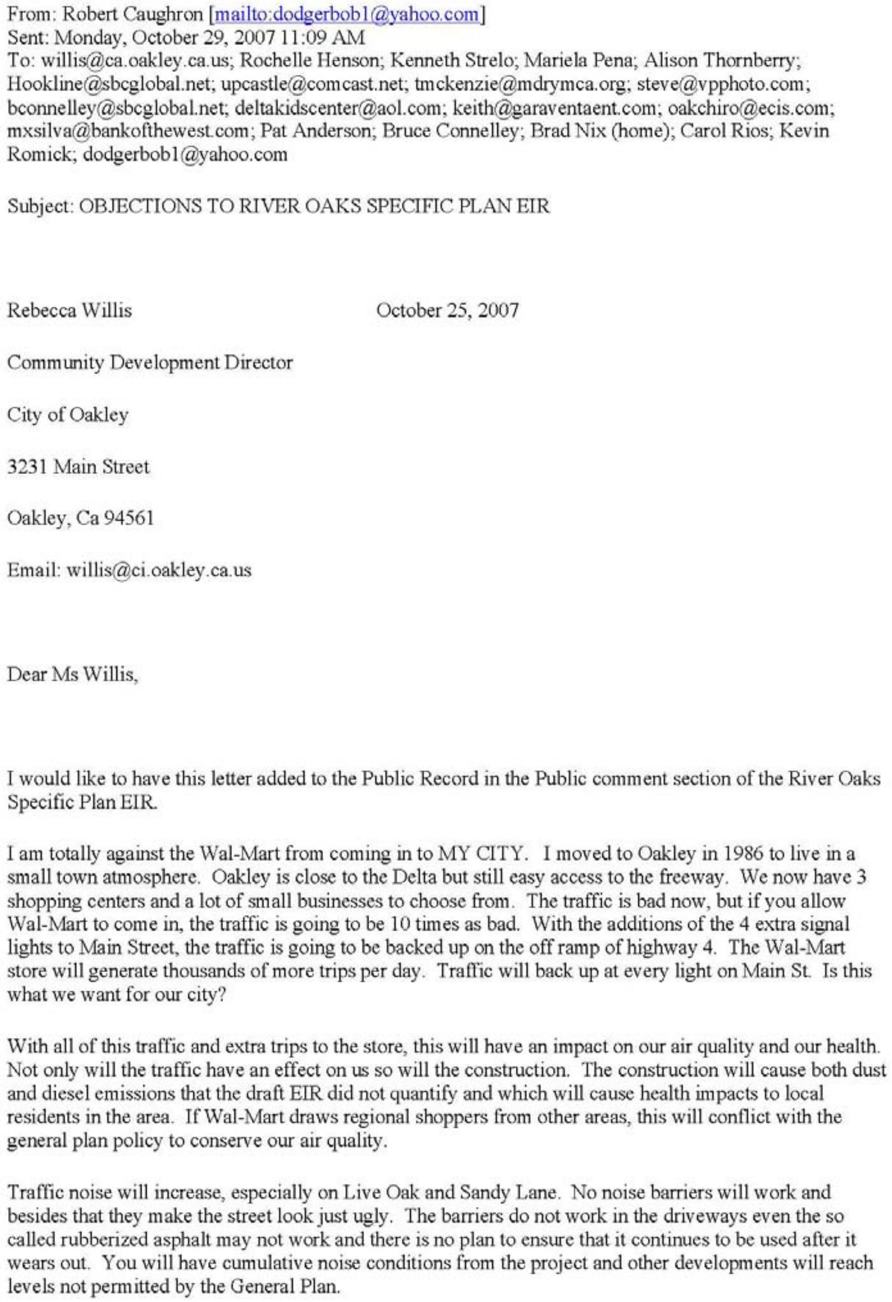
Response to Comment 3-2

The additional grade separated crossing noted by the commenter is an improvement included in the City of Oakley General Plan but not a component of the Proposed Project. The City will consider the construction of additional sidewalks when the grade separated crossing is constructed.

Response to Comment 3-3

This comment does not address the adequacy of the Draft EIR. The City thanks the PUC for their continued interaction in the environmental review process and looks forward to working with the PUC to ensure the safety of the citizens of Oakley.

Letter 4



From: Robert Caughron [mailto:dodgerbob1@yahoo.com]
Sent: Monday, October 29, 2007 11:09 AM
To: willis@ca.oakley.ca.us; Rochelle Henson; Kenneth Strelo; Mariela Pena; Alison Thornberry; Hookline@sbcglobal.net; upcastle@comcast.net; tmckenzie@mdrymca.org; steve@vpphoto.com; bconnelley@sbcglobal.net; deltakidscenter@aol.com; keith@garaventaent.com; oakchiro@ecis.com; mxsilva@bankofthewest.com; Pat Anderson; Bruce Connelley; Brad Nix (home); Carol Rios; Kevin Romick; dodgerbob1@yahoo.com

Subject: OBJECTIONS TO RIVER OAKS SPECIFIC PLAN EIR

Rebecca Willis October 25, 2007

Community Development Director

City of Oakley

3231 Main Street

Oakley, Ca 94561

Email: willis@ci.oakley.ca.us

Dear Ms Willis,

I would like to have this letter added to the Public Record in the Public comment section of the River Oaks Specific Plan EIR.

4-1 I am totally against the Wal-Mart from coming in to MY CITY. I moved to Oakley in 1986 to live in a small town atmosphere. Oakley is close to the Delta but still easy access to the freeway. We now have 3 shopping centers and a lot of small businesses to choose from. The traffic is bad now, but if you allow Wal-Mart to come in, the traffic is going to be 10 times as bad. With the additions of the 4 extra signal lights to Main Street, the traffic is going to be backed up on the off ramp of highway 4. The Wal-Mart store will generate thousands of more trips per day. Traffic will back up at every light on Main St. Is this what we want for our city?

4-2 With all of this traffic and extra trips to the store, this will have an impact on our air quality and our health. Not only will the traffic have an effect on us so will the construction. The construction will cause both dust and diesel emissions that the draft EIR did not quantify and which will cause health impacts to local residents in the area. If Wal-Mart draws regional shoppers from other areas, this will conflict with the general plan policy to conserve our air quality.

4-3 Traffic noise will increase, especially on Live Oak and Sandy Lane. No noise barriers will work and besides that they make the street look just ugly. The barriers do not work in the driveways even the so called rubberized asphalt may not work and there is no plan to ensure that it continues to be used after it wears out. You will have cumulative noise conditions from the project and other developments will reach levels not permitted by the General Plan.

**Letter 4
cont'd.**

With all the retail businesses in a small area you have destroyed the small town community character that the General Plan said would be preserved. The General Plan EIR says that Oakley should "provide neighborhood scaled commercial centers-to reduce dependency on regional shopping centers and distribute small commercial centers in neighborhoods throughout out city."

4-4 How do you expect the downtown to compete with a 770,000 square foot retail center. The downtown can not, there will be empty buildings which will cause urban blight. We already have too many empty buildings downtown.

The project will kill the Raley's store and all of the small businesses in the shopping center. Wal-Mart may close Lucky and the Oakley Town Center, for sure all the small shops in the center. Centro Mart, a long time store and an icon of Oakley, will close causing the collapse of the entire shopping center. Even in Antioch, the Kmart will close because they can not compete. With all the closures there are going to be hundreds of people going on unemployment and welfare. Even with Wal-Mart hiring 150 to 200 people, the ones out of a job out number the ones with a job. So the people of Oakley will subsidize the people not working and Wal-Mart workers.

4-5 This project will destroy the last remaining old-growth vineyards and eliminate 76 acres of agricultural land. Why can't we consider a small project that would keep us a small town with less impact on our air quality, traffic, land use, and even our urban blight.

Thank You for your time and for putting this letter into the Public Comment record.

SAVE OAKLEY NOW

Robert W. Caughron

1878 Babbe St.

Oakley, Ca 94561

LETTER 4: ROBERT W. CAUGHRON, RESIDENT

Response to Comment 4-1

The City has performed a thorough traffic study to analyze the impacts associated with the development of the Proposed Project, the findings of which are included in the Draft EIR. As noted in the Traffic and Circulation chapter of the Draft EIR (See Chapter 3.2) the Proposed Project would be expected to result in several potentially significant impacts to traffic and circulation, which would be mitigated to acceptable levels with the implementation of suggested mitigation measures. The Traffic and Circulation chapter of the Draft EIR also concluded that the Proposed Project would result in a significant and unavoidable impact to Wilbur Avenue's north and south on-ramps to SR 160. The commenter does not provide any substantive evidence to support their claims regarding the traffic impacts of the Proposed Project that can be evaluated by the City. The commenter is referred to the analysis included in the Traffic and Circulation chapter of the Draft EIR for the full discussion of the potential traffic impacts of the Proposed Project. The commenter's policy concerns regarding traffic are noted and will be forwarded to the appropriate decision-making bodies.

Response to Comment 4-2

Construction air quality impacts are addressed in Impacts AQ-1 and AQ-2 in the Draft EIR. As noted by the commenter, the Draft EIR found that the Proposed Project would result in potentially significant short-term air quality impacts. The BAAQMD CEQA Guidelines state that emissions precursors, such as ROG, $NO_{X,}$ and carbon monoxide, which can result from construction, are already included in the emissions inventory that is the basis of the regional air quality management plans and so do not need to be separately quantified. Therefore, though the Proposed Project would result in a short-term increase in emissions as a result of construction activities, the Draft EIR includes mitigation measures AQ-1(a) and AQ-1(b), which are based upon the BAAQMD standards to reduce construction emissions to acceptable levels, as recommended by the BAAQMD CEQA Guidelines.

The health risks associated with air quality are addressed in Impact AQ-2. In addition, Table 3.6-2 of the EIR summarizes the potential health risks associated with each criteria pollutant. Further quantification is not required under CEQA. CEQA requires that the EIR include a discussion of the health and safety problems caused by the environmental impacts of the Proposed Project. CEQA does not require a statistical analysis of the health impacts of each component of project-related emissions. This approach is further supported by the unpublished appellate court decision in *Hanford No on Wal-Mart Supercenter et al. v. City of Hanford et al*, No. F048303, (Sup. Ct. No. 04-C-0273) (June 26, 2006), which concluded that an EIR is not required to include a quantified discussion of health effects related to air quality emissions, and is only required to correlate the air quality emissions of a project with the health effects of those emissions. *Hanford No On Wal-Mart Supercenter* concludes that an EIR analysis that includes a discussion of the expected human physiological responses to the pollutant and correlates the expected response to human health consequences is an adequate EIR. Table 3.6-2 of the Draft EIR provides this correlation.

As also stated in the Draft EIR, the project would contribute to the cumulative regional air quality impacts, resulting in a significant and unavoidable impact. The finding is consistent with the General Plan EIR, for which a Statement of Overriding Considerations was adopted.

Response to Comment 4-3

As discussed in Impact N-1 of the Draft EIR, the Proposed Project would be expected to increase traffic noise along Sandy Lane and Live Oak Avenue, south of Main Street/State Route 4. The Draft EIR notes that residential land uses do exist on Live Oak Avenue between Oakley Road and Laurel Road. However, expected noise levels from the Proposed Project would only reach 59.7 dB. As noted in the Thresholds of Significance listed in the Noise Chapter, the outdoor threshold for residential uses is 60 dB with an indoor threshold of 45 dB. The indoor noise threshold for commercial areas is 70 dB. As shown in Table 3.3-6, the maximum noise levels expected for Sandy Lane and Live Oak Avenue south of Main Street under any of the scenarios would be 63.3 Ldn dB in the Cumulative No Ramps Plus Project scenario. The remaining scenarios would all result in noise levels lower than 63.3 Ldn dB along this roadway segment. 63.3 Ldn dB is well below the General Plan commercial threshold of 70 dB for indoor noise. Therefore, the Proposed Project would have a less-than-significant project-level impact to noise levels along this roadway segment. The Draft EIR concludes that a less-than-significant impact would occur and, therefore, does not include a recommendation for mitigation, such as soundwalls. No soundwalls are necessary where project-specific noise impacts are less-than-significant.

The commenter is correct that cumulative noise conditions may reach levels that exceed thresholds, including cumulative plus Project noise levels in excess of 70 dB along Main Street from Neroly Road to Vintage Parkway. The Draft EIR concludes that the cumulative noise impacts on Main Street would be significant and unavoidable because potential mitigation measures for the impacts, such as the construction of soundwalls around existing developments, were found to be infeasible.

The construction of soundwalls would be not be feasible mitigation because soundwalls would have to be constructed around existing residential developments, which include features such as driveways that would be blocked by the soundwalls. If soundwalls were to be built along the frontages of these residential areas, the frequent breaks in the soundwall that would be required to provide access to existing driveways would greatly decrease the effectiveness of the soundwalls to the point where the noise mitigation could not be achieved.

The existing soundwalls along Main Street were designed to mitigate the noise generated by Main Street to the maximum extent possible. Raising the existing sound walls along the effected segment of Main Street would not provide any significant decrease in noise levels and would not be considered to be an effective mitigation measure.

In addition, it should be noted that Main Street a principal roadway within in the City of Oakley. High traffic levels along Main Street currently produce a substantial amount of traffic-related noise. The cumulative development of the frontages around and near Main Street would be expected to contribute further to the existing significant noise levels in the cumulative setting. As discussed above, large scale mitigation, such as the construction of large soundwalls along a large portion of Main Street would not provide adequate mitigation from traffic noise levels and would result in conflicts with the General Plan, as it would result in aesthetic impacts that would have a negative impact on the visual character of the center of the City of Oakley along Main Street. Therefore, because this impact would be significant and unavoidable with no feasible mitigation, in order to approve the Proposed Project the City would be required to adopt a Statement of Overriding Considerations regarding the significant and unavoidable cumulative noise impact.

Response to Comment 4-4

The comment states that the Project is destroying the small town community character that the General Plan intends to preserve by providing neighborhood scaled commercial centers to reduce dependency on regional shopping centers. The Draft EIR addresses General Plan consistency in Impact LU-2 at page 3.1-7. The Draft EIR concludes that the Proposed Project is consistent with the goals and policies of the General Plan, including creating a balanced and desirable community and promoting the placement of the most intensive non-residential land use in the Northwest Planning Area. The type and intensity of use is consistent with the General Plan land use designation for the project site, as well as with the City of Oakley's Redevelopment Plan for the site. The development of the Proposed Project would ensure that local residents reduce their dependency on regional shopping centers located outside of the City of Oakley. It should be noted, however, that the ultimate determination of General Plan consistency rests with the City of Oakley City Council and the commenter's opinion regarding General Plan consistency will be forwarded to the Council.

The comment also expresses concerns regarding the Project's potential to result in store closures and job loss. Please see the Master Response "Urban Decay Analysis" contained at the beginning of this section.

Response to Comment 4-5

The commenter is correct in that the Proposed Project would result in the removal of a portion of one of the last remaining old-growth vineyards in the City of Oakley. This impact was found to be significant and unavoidable, even after the implementation of suggested mitigation measures in the Draft EIR (See Impact AR-2). Full mitigation of the loss of vineyards is not possible because many of the vines on the Project site are considered historic and, much like a historic building, once the historic vines are lost they cannot be replaced. The Draft EIR includes a discussion of several project alternatives, including the Reduced Intensity Alternative, the Partial Site Development Alternative, and the No Project Alternative, which are aimed at reducing this impact. Of the alternatives analyzed in the Draft EIR, the Partial Site Development Alternative was found to be the environmentally superior alternative because it would preserve some of the historic vineyards.

Letter 5

m|r|wolfe
& associates, p.c.
attorneys-at-law

m|r|wolfe
& associates p.c.
attorneys-at-law

October 26, 2007

By Fax

RECEIVED
OCT 29 2007
CITY OF OAKLEY
COMMUNITY DEVELOPMENT DEPT

Mr. Kenneth W. Strelo, Senior Planner
City of Oakley
3231 Main Street
Oakley, CA 94561
Fax: (925) 625-9194

Re: Draft EIR, River Oaks Crossing Specific Plan (SCH# 2003112042)

Dear Mr. Strelo:

5-1 The following comments are submitted on behalf of our client, the California Healthy Communities Network ("HCN"), and its members who live and/or work in Oakley. HCN is a coalition of environmental, smart growth, and labor organizations dedicated to promoting sustainable urban and economic development throughout Northern California, including Contra Costa County and the Delta region.

We have reviewed the Draft EIR ("DEIR") for the River Oaks Crossing Specific Plan ("Project") and offer the following comments.

Traffic Improvements Assumed Without Evidence

5-2 The DEIR assumes that near term traffic improvements will be available by 2010 and assumes a number of post-2010 improvement will be available by 2030. DEIR, pp. 3.2-11 and 12. There is no information in the DEIR to demonstrate that each one of these critical improvements is in fact planned, funded, and scheduled for timely completion before it is required to support Project and cumulative traffic at acceptable service levels. There is no information indicating what agency has jurisdiction and responsibility to complete each of these improvements. The DEIR must be revised to provide this information so the public can determine whether the traffic circulation assumptions are valid.

2010 Traffic Volumes Unaccountably Lower Than Existing Conditions

5-3 Existing volumes at some intersections, *e.g.*, Wilbur/SR160, are projected to be lower in 2010 than they are in the existing conditions baseline. Compare DEIR, Figures 8a and 3a (453 trips vs. 330 for Wilbur/SR160). These reductions are not apparently due to planned street improvements and suggest that the traffic model understates traffic congestion. The DEIR must be revised to explain or correct this anomaly.

49 Geary Street | Suite 200 | San Francisco, CA 94108 | Tel 415.369.9400 | Fax 415.369.9405 | www.mrwolfeassociates.com

**Letter 5
cont'd.**

The DEIR's Traffic Analysis And Mitigation Is Apparently Incomplete

5-4 The headings for impacts CT10 and CT11 (2030 impacts to SR160/Wilbur) both state "Awaiting Revisions." DEIR, pp. 3.2-26, 3.2-30. The DEIR is apparently not complete.

Air Quality And Energy Analyses Incomplete

5-5 The DEIR failed to quantify construction emissions or provide a health risk assessment of excess cancers caused by construction emissions. Without these analyses, there is no substantial evidence to support findings that impacts will not be significant.

Urban Decay Conclusions Unsupportable

5-6 The contention that 770,000 square feet of new retail will not result in store closures and urban decay is simply not credible. Urban decay is inevitable in locations such as the Oakley Shopping Center anchored by the Centro Mart and the Antioch Kmart.

Drainage Impacts Not Evaluated Or Mitigated

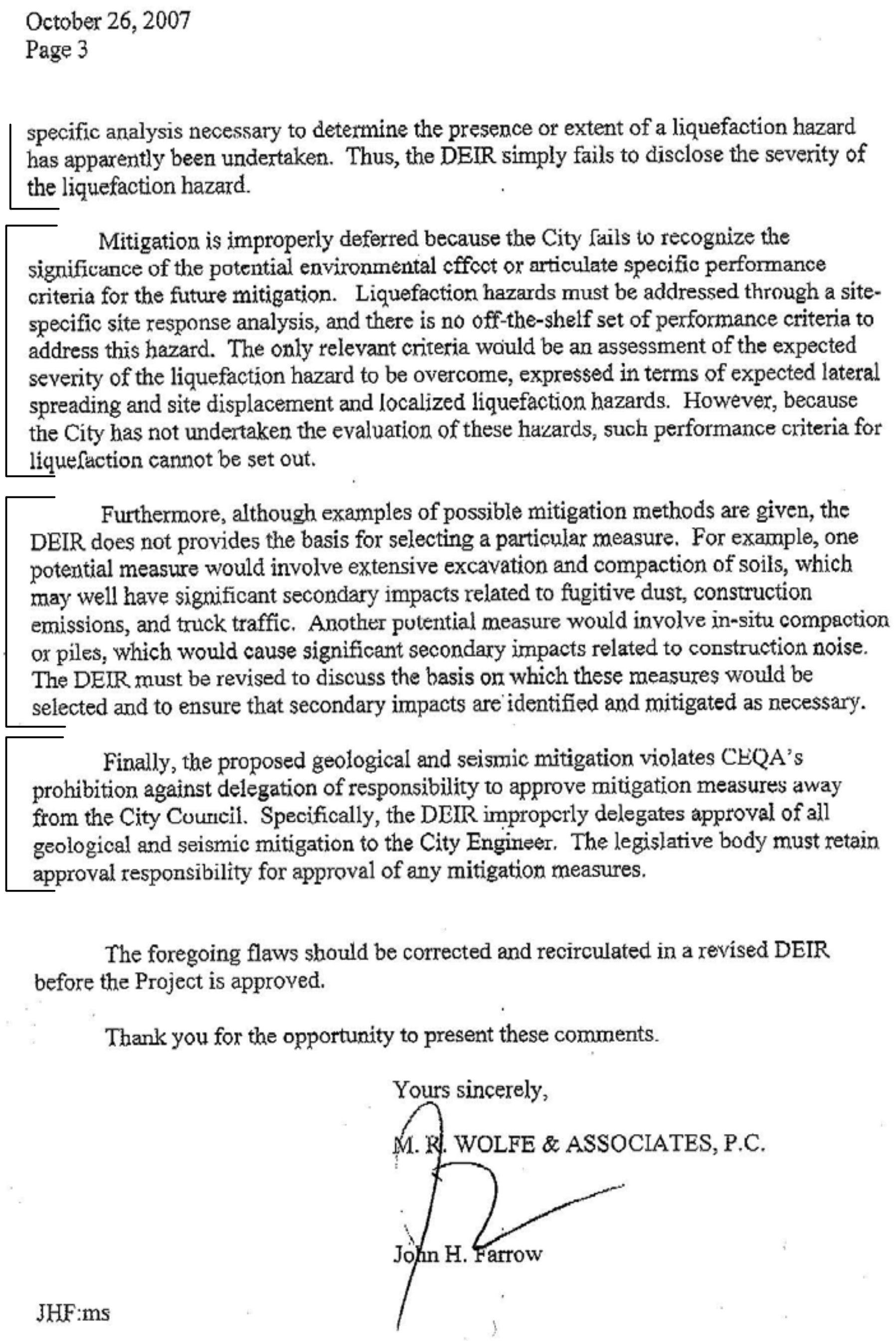
5-7 The DEIR fails to provide any analysis of the downstream drainage impacts of new impervious surfaces, which are potentially significant and/or cumulatively considerable and require mitigation. The DEIR erroneously concludes that just because the Project may not have individually significant drainage impacts it will not have cumulatively considerable impacts. DEIR, p. 3.11-13. Mitigation for this impact is improperly deferred and delegated away from the City Council.

Liquefaction And Other Seismic Hazards Not Evaluated Or Mitigated

Instead of providing the customary preliminary geotechnical investigation to determine the presence and severity of seismic and liquefaction hazards, the DEIR impermissibly defers the analysis of these impacts to a later study to be undertaken after the Project is approved. While CEQA may permit the deferral of the formulation of mitigation under limited circumstances, it does not permit the deferral of the determination of the existence and severity of impacts.

5-8 For example, the determination of how severe the liquefaction hazard may be requires a site-specific hazard assessment using "considerable engineering judgment." California Geological Survey, Guidelines for Evaluating and Mitigating Seismic Hazards in California, March 13, 1997, p. 45. The public is entitled to review and comment on this engineering judgment because it is ultimately the judgment as to whether there is a significant impact under CEQA. The assessment must consider both lateral spreading and site displacement and localized liquefaction hazards. *Id.* at 46-48. It is from these analyses that the scope of required mitigation is determined. However, none of the site-

Letter 5 cont'd.



October 26, 2007
Page 3

5-8 cont'd. specific analysis necessary to determine the presence or extent of a liquefaction hazard has apparently been undertaken. Thus, the DEIR simply fails to disclose the severity of the liquefaction hazard.

5-9 Mitigation is improperly deferred because the City fails to recognize the significance of the potential environmental effect or articulate specific performance criteria for the future mitigation. Liquefaction hazards must be addressed through a site-specific site response analysis, and there is no off-the-shelf set of performance criteria to address this hazard. The only relevant criteria would be an assessment of the expected severity of the liquefaction hazard to be overcome, expressed in terms of expected lateral spreading and site displacement and localized liquefaction hazards. However, because the City has not undertaken the evaluation of these hazards, such performance criteria for liquefaction cannot be set out.

5-10 Furthermore, although examples of possible mitigation methods are given, the DEIR does not provides the basis for selecting a particular measure. For example, one potential measure would involve extensive excavation and compaction of soils, which may well have significant secondary impacts related to fugitive dust, construction emissions, and truck traffic. Another potential measure would involve in-situ compaction or piles, which would cause significant secondary impacts related to construction noise. The DEIR must be revised to discuss the basis on which these measures would be selected and to ensure that secondary impacts are identified and mitigated as necessary.

5-11 Finally, the proposed geological and seismic mitigation violates CEQA's prohibition against delegation of responsibility to approve mitigation measures away from the City Council. Specifically, the DEIR improperly delegates approval of all geological and seismic mitigation to the City Engineer. The legislative body must retain approval responsibility for approval of any mitigation measures.

The foregoing flaws should be corrected and recirculated in a revised DEIR before the Project is approved.

Thank you for the opportunity to present these comments.

Yours sincerely,

M. R. WOLFE & ASSOCIATES, P.C.

John H. Farrow

JHF:ms

LETTER 5: M.R. WOLFE AND ASSOCIATES

Response to Comment 5-1

This is an introductory comment and does not address the adequacy of the Draft EIR.

Response to Comment 5-2

The comment requests information regarding the certainty of traffic improvements assumed in the Draft EIR. Funding for the near term (2010) improvements are already secured through the City of Oakley Capital Improvement Program, and through the City of Antioch's Capital Improvement Program. The improvements associated with the long-term (2030) condition are included in the CCTA Countywide Transportation Plan and the City of Oakley General Plan. The improvements assumed to be completed are listed below.

Improvements assumed to be completed in the near-term (2010) conditions:

- Completion of segment one of the SR 4 Bypass as a four-lane freeway between the current SR 4 freeway and Lone Tree Way with full interchanges at Laurel Road and Lone Tree Way, and a partial interchange at the existing SR 4 freeway with no connector ramps between SR 160 and the SR 4 Bypass – Project is currently under construction and expected to be open in Winter 2008.
- Extension of Laurel Road westbound between Empire Avenue into the City of Antioch and reconfiguration of Neroly Road / Live Oak Avenue, Laurel Road / Live Oak Avenue, and Laurel Road / Empire Avenue intersections – Project is currently under construction and expected to be open in Winter 2008.
- Widening of the East Cypress Road / Main Street intersection – Project has already been completed.
- Signalization of the Main Street / Live Oak Avenue intersection – Project has already been completed.
- Widening of East 18th Street to four lanes between Willow Avenue and SR 4 - Project is included in the City of Antioch's Capital Improvement Program.
- Addition of a northern leg and signalization of the East 18th Street/Phillips Lane intersection – Project is included in the East 18th Street Specific Plan in the City of Antioch.
- Signalization of the Wilbur Avenue/Minaker Drive intersection – Project has already been completed.
- Addition of a second left turn lane on northbound Neroly Road at the Main Street/Bridgehead Road/Neroly Road intersection – Project is included in the City of Oakley's Capital Improvement Program.

Improvements assumed to be completed in the long-term (2030) conditions:

- Completion of segment 2 of the SR 4 Bypass as a four-lane freeway between Lone Tree Way and Balfour Road with full interchanges at Sand Creek Road and Balfour Road – Project is included as a Track 1 project in the CCTA Countywide Transportation Plan.
- Completion of segment 3 of the SR 4 Bypass between Balfour Road and Vasco Road a two-lane expressway with intersections at Marsh Creek Road and Walnut Avenue – Project is currently under construction and is included as a Track 1 project in the CCTA Countywide Transportation Plan.
- Widening of SR 4 freeway to provide three mixed-flow lanes and one high-occupancy vehicle (HOV) lane in each direction west of Hillcrest Avenue - Project is included as a Track 1 project in the CCTA Countywide Transportation Plan.
- Widening of Main Street to a six lane arterial between Big Break Road and SR 160 – Project is included in the City of Oakley's Capital Improvement Program.
- Completion of the Main Street Bypass in downtown Oakley – Project is included in the City of Oakley's Capital Improvement Program.
- Widening of Laurel Road to a four-lane arterial between Empire Avenue and Main Street – Project is included in the City of Oakley's Capital Improvement Program.
- Extension of Live Oak Avenue from Main Street to Wilbur Avenue – Project is included in the River Oaks Crossing Specific Plan.

Response to Comment 5-3

As stated in the comment, certain forecasted 2010 traffic movements on Wilbur Avenue are lower than the existing volumes. Based on the results of the CCTA Countywide Travel Demand Model, and verified by observations of current traffic patterns made during the traffic study for the Proposed Project, the Main Street-Bridgehead Road-Wilbur Avenue corridor is currently used by vehicles traveling between Oakley/Brentwood, SR 160, and SR 4. With the completion of the SR 4 Bypass assumed in the 2010 scenario, some of these vehicles are expected to shift to SR 4 and SR 4 Bypass.

Response to Comment 5-4

The copy of the Draft EIR viewed by the commenter through the City's website was not the final version of the Draft EIR because a draft of the Traffic and Circulation chapter of the Draft EIR was posted in error. The official and correct copy of the Draft EIR was on file at the City, in accordance with CEQA standards. This correct version was also the version distributed to any member of the public who requested it. CEQA does not require that the Draft EIR be posted online. It should also be noted that the final version of Draft EIR's Traffic and Circulation chapter contained the same conclusions as the version posted online. The official Draft EIR simply included more specific information regarding the Proposed Project's contribution to the significant and unavoidable impacts to the Wilbur Avenue northbound and southbound ramps onto SR-160 than was included in the earlier draft chapter that was accidentally posted on the City's website. The City regrets this non-substantive error, which has since been corrected.

Response to Comment 5-5

See Response to Comment 4-2 related to air quality and health risk. It should be noted that the header to this comment was entitled “Air Quality and Energy Analyses Incomplete;” however, the comment does not refer to the Draft EIR’s energy analysis, which is contained in Chapter 3.7 of the Draft EIR.

Response to Comment 5-6

See Master Response “Urban Decay Analysis.” The City further notes that the commenter does not provide any evidence to support the claims contained in this comment.

Response to Comment 5-7

The Proposed Project’s impacts to downstream drainage and the creation of new impervious surfaces are addressed in Impact HWQ-2 at page 3-11.11 of the Draft EIR. As stated in Impact HWQ-2, the Proposed Project would be expected to have a potentially significant impact with regard to downstream drainage issues. The Draft EIR includes Mitigation Measure HWQ-2 which requires that the developers within the Specific Plan area obtain necessary NPDES construction permits and pay associated State Water Resource Control Board (SWRCB) fees as well as prepare a Storm Water Pollution Prevention Plan (SWPPP) that would be consistent with the Stormwater Control Plan, submitted to the City Engineer for review. The commenter’s contention that this mitigation improperly delegates responsibility away from the City Council is incorrect. Consistent with the requirements of CEQA and CEQA case law, the mitigation measures appropriately require the Proposed Project to comply with specific performance standards; particularly, compliance with the Central Valley Regional Water Quality Control Board’s recent requirement that all municipalities within the County develop drainage plans consistent with detailed “C.3” Standards. The “C.3” provisions in the joint municipal NPDES permit include performance standards for quality and quantity of stormwater. Implementation of Mitigation Measure HWQ-2 requires that developers within the Specific Plan area comply by the above-cited standards to ensure that any impacts associated with the drainage on the Proposed Project site would be mitigated to levels consistent with or less than those currently experienced on the project site, thereby mitigating any potential impacts to a less-than-significant level. As discussed in the Draft EIR at pages 3.11-12 and 3.11-13, by mitigating any project-level impacts to a less-than-significant level, these measures also ensure that the Project will not result in any cumulative impacts to drainage issues in Oakley.

Response to Comment 5-8

A geotechnical investigation for the Proposed Project site was prepared in November 2005 by Kleinfelder Inc., and is included in this Final EIR as Appendix A. The geotechnical report confirms the conclusions in the Draft EIR. The report concludes that, while the possibility exists that the project site could be subject to an earthquake of the necessary intensity and duration to possibly result in liquefaction conditions, the subsurface soil conditions on the project site were found to be dense or substantially clayey and would not be subject to liquefaction. Though the geotechnical report notes that a layer of loose to medium density silty sand was encountered in boring RB-5 between the depth of 9 and 15.5 feet below the existing site grade, this layer appeared to be discontinuous with surrounding soils and was overlain with very stiff, silty clays and sandy silts, which would cause a bridging effect, thwarting potential liquefaction risks.

Response to Comment 5-9

See Response to Comment 5-8. A recent geotechnical report for the Proposed Project site shows that the potential for liquefaction on the Proposed Project site would not be expected to result in a significant impact. This geotechnical report is included as Appendix A of this Final EIR for review and confirms the conclusions in the Draft EIR.

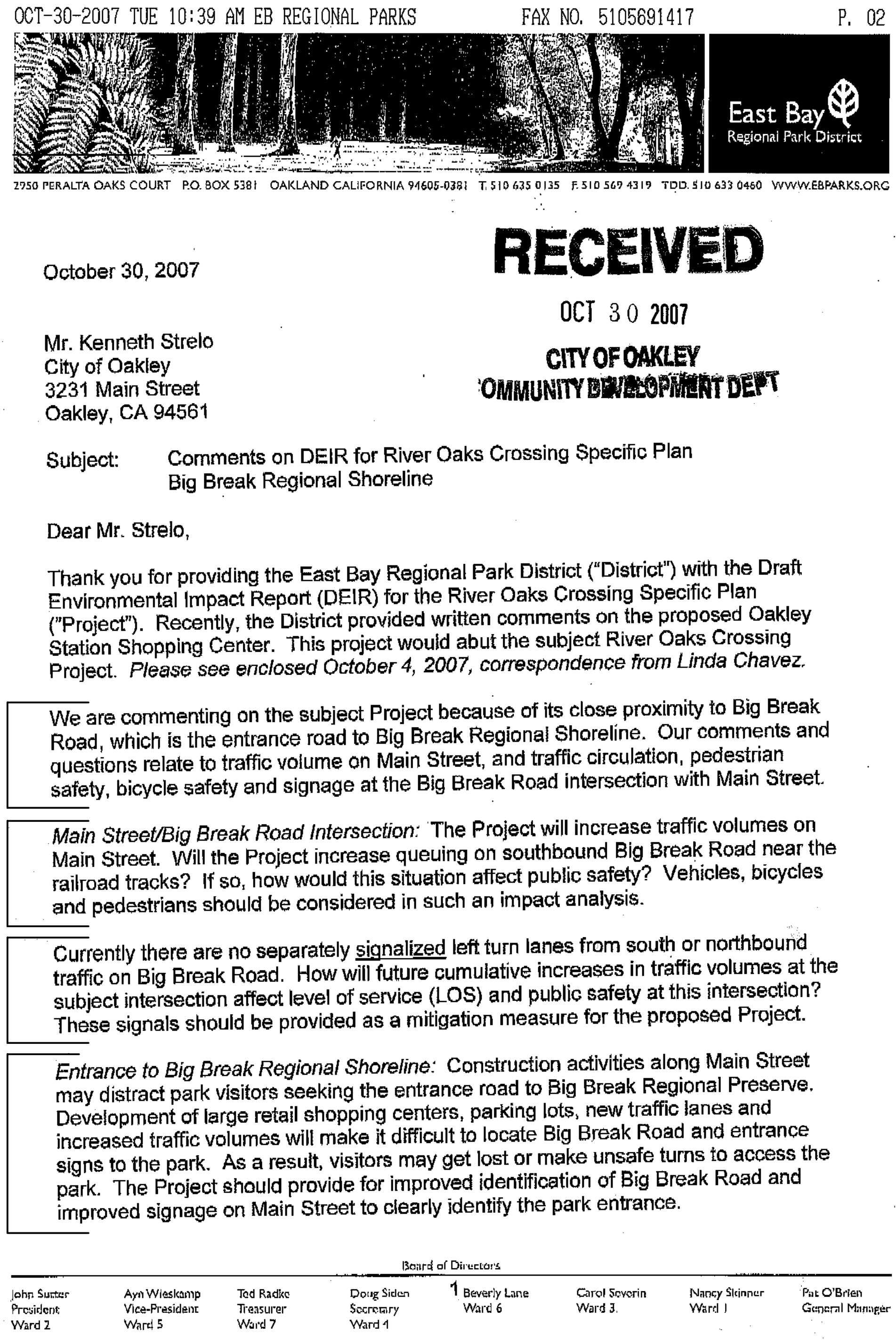
Response to Comment 5-10

As noted in Response to Comment 5-8, a recent geotechnical investigation of the Proposed Project site determined that the potential for liquefaction on the Proposed Project site is less-than-significant. However, as noted in Impact GS-2 of the Draft EIR, an additional design-level geotechnical investigation of the Project site would be required in order to determine the level of potential impacts to future site buildings and building foundations based on the proposed type of construction. The commenter asks on what basis mitigation methods will be selected to ensure that any risks of liquefaction are mitigated. As provided in Mitigation Measure GS-2, the developers within the Specific Plan area would be required to incorporate those recommendations contained in a design-level geotechnical report analyzing the improvement plans. The required mitigation methods will likely include those methods listed on page 3.10-8 of the Draft EIR. Secondary impacts associated with the potential mitigation of any potential liquefaction impacts, which may be determined by the design-level geotechnical analysis, would also be subject to the City's Noise Ordinance, as well as the provisions included within Mitigation Measures AQ-1(a) which will ensure that any potential noise or air quality impacts are mitigated to acceptable levels.

Response to Comment 5-11

The commenter incorrectly suggests that the imposition of mitigation measures, governed by detailed and specific performance standards to be implemented by the City Engineer, is an improper delegation of the City Council's "approval responsibility." The implementation of any mitigation measure imposed by the City Council as a condition of project approval and adopted as part of a Mitigation Monitoring and Reporting Plan (which specifies each party who will be responsible for ensuring that a mitigation measure is implemented), is ensured by the administration of City staff and officials. The City Council does not possess the expertise to review improvement plans for the Specific Plan area to ensure that they comply with exacting geo-technical standards and appropriately delegates that responsibility to City staff and to other officials within the City's executive branch, such as the City Engineer, who, by law, possess that expertise.

Letter 6



East Bay
Regional Park District

2950 PERALTA OAKS COURT P.O. BOX 5381 OAKLAND CALIFORNIA 94605-0381 T. 510 635 0135 F. 510 569 4319 TDD. 510 633 0460 WWW.EBPARKS.ORG

October 30, 2007

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CITY OF OAKLEY
'OMMUNITY DEVELOPMENT DEPT

Mr. Kenneth Strelo
City of Oakley
3231 Main Street
Oakley, CA 94561

Subject: Comments on DEIR for River Oaks Crossing Specific Plan
Big Break Regional Shoreline

Dear Mr. Strelo,

Thank you for providing the East Bay Regional Park District ("District") with the Draft Environmental Impact Report (DEIR) for the River Oaks Crossing Specific Plan ("Project"). Recently, the District provided written comments on the proposed Oakley Station Shopping Center. This project would abut the subject River Oaks Crossing Project. *Please see enclosed October 4, 2007, correspondence from Linda Chavez.*

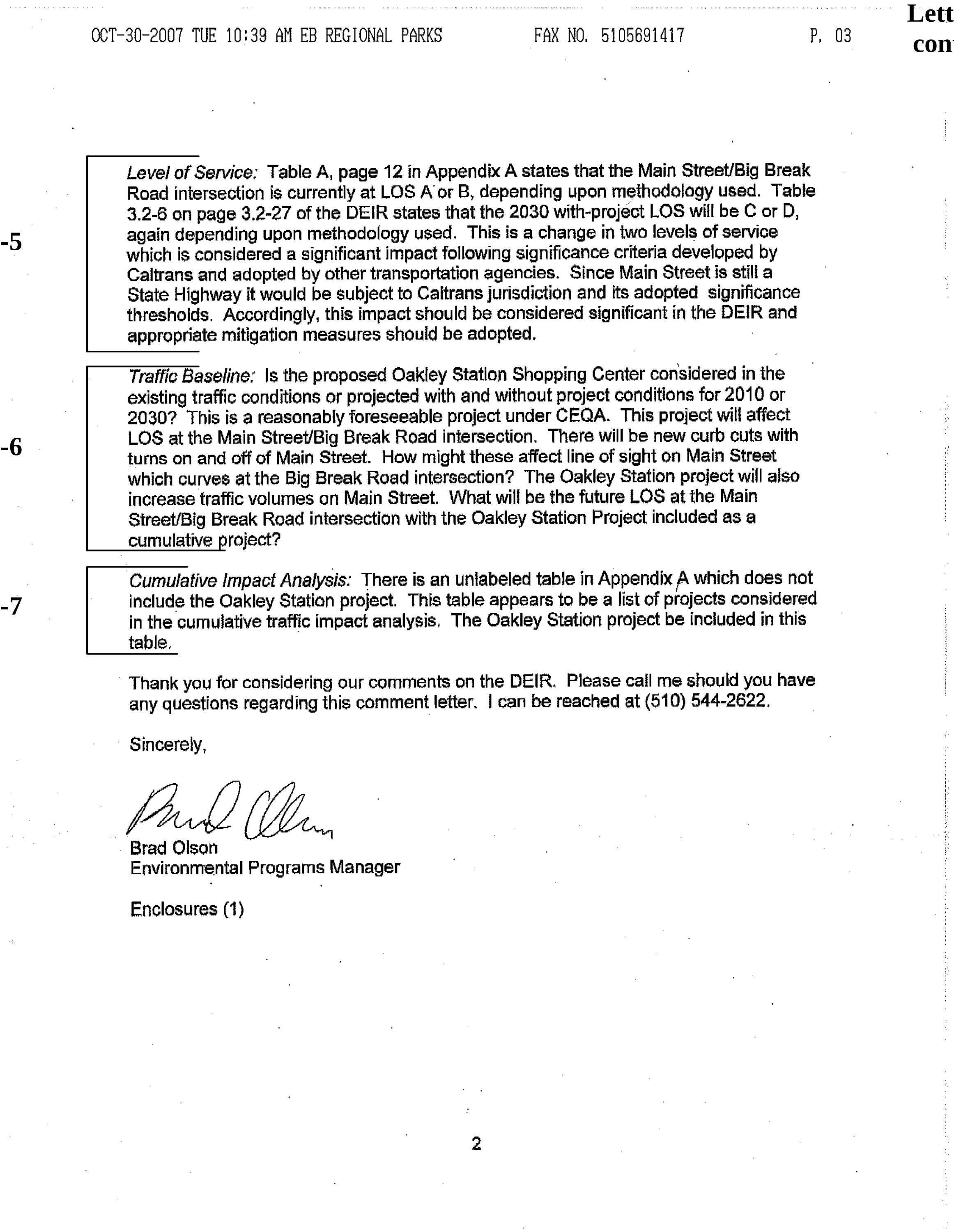
6-1 We are commenting on the subject Project because of its close proximity to Big Break Road, which is the entrance road to Big Break Regional Shoreline. Our comments and questions relate to traffic volume on Main Street, and traffic circulation, pedestrian safety, bicycle safety and signage at the Big Break Road intersection with Main Street.

6-2 *Main Street/Big Break Road Intersection:* The Project will increase traffic volumes on Main Street. Will the Project increase queuing on southbound Big Break Road near the railroad tracks? If so, how would this situation affect public safety? Vehicles, bicycles and pedestrians should be considered in such an impact analysis.

6-3 Currently there are no separately signalized left turn lanes from south or northbound traffic on Big Break Road. How will future cumulative increases in traffic volumes at the subject intersection affect level of service (LOS) and public safety at this intersection? These signals should be provided as a mitigation measure for the proposed Project.

6-4 *Entrance to Big Break Regional Shoreline:* Construction activities along Main Street may distract park visitors seeking the entrance road to Big Break Regional Preserve. Development of large retail shopping centers, parking lots, new traffic lanes and increased traffic volumes will make it difficult to locate Big Break Road and entrance signs to the park. As a result, visitors may get lost or make unsafe turns to access the park. The Project should provide for improved identification of Big Break Road and improved signage on Main Street to clearly identify the park entrance.

Letter 6 cont'd.



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6-5 *Level of Service:* Table A, page 12 in Appendix A states that the Main Street/Big Break Road intersection is currently at LOS A or B, depending upon methodology used. Table 3.2-6 on page 3.2-27 of the DEIR states that the 2030 with-project LOS will be C or D, again depending upon methodology used. This is a change in two levels of service which is considered a significant impact following significance criteria developed by Caltrans and adopted by other transportation agencies. Since Main Street is still a State Highway it would be subject to Caltrans jurisdiction and its adopted significance thresholds. Accordingly, this impact should be considered significant in the DEIR and appropriate mitigation measures should be adopted.

6-6 *Traffic Baseline:* Is the proposed Oakley Station Shopping Center considered in the existing traffic conditions or projected with and without project conditions for 2010 or 2030? This is a reasonably foreseeable project under CEQA. This project will affect LOS at the Main Street/Big Break Road intersection. There will be new curb cuts with turns on and off of Main Street. How might these affect line of sight on Main Street which curves at the Big Break Road intersection? The Oakley Station project will also increase traffic volumes on Main Street. What will be the future LOS at the Main Street/Big Break Road intersection with the Oakley Station Project included as a cumulative project?

6-7 *Cumulative Impact Analysis:* There is an unlabeled table in Appendix A which does not include the Oakley Station project. This table appears to be a list of projects considered in the cumulative traffic impact analysis. The Oakley Station project be included in this table.

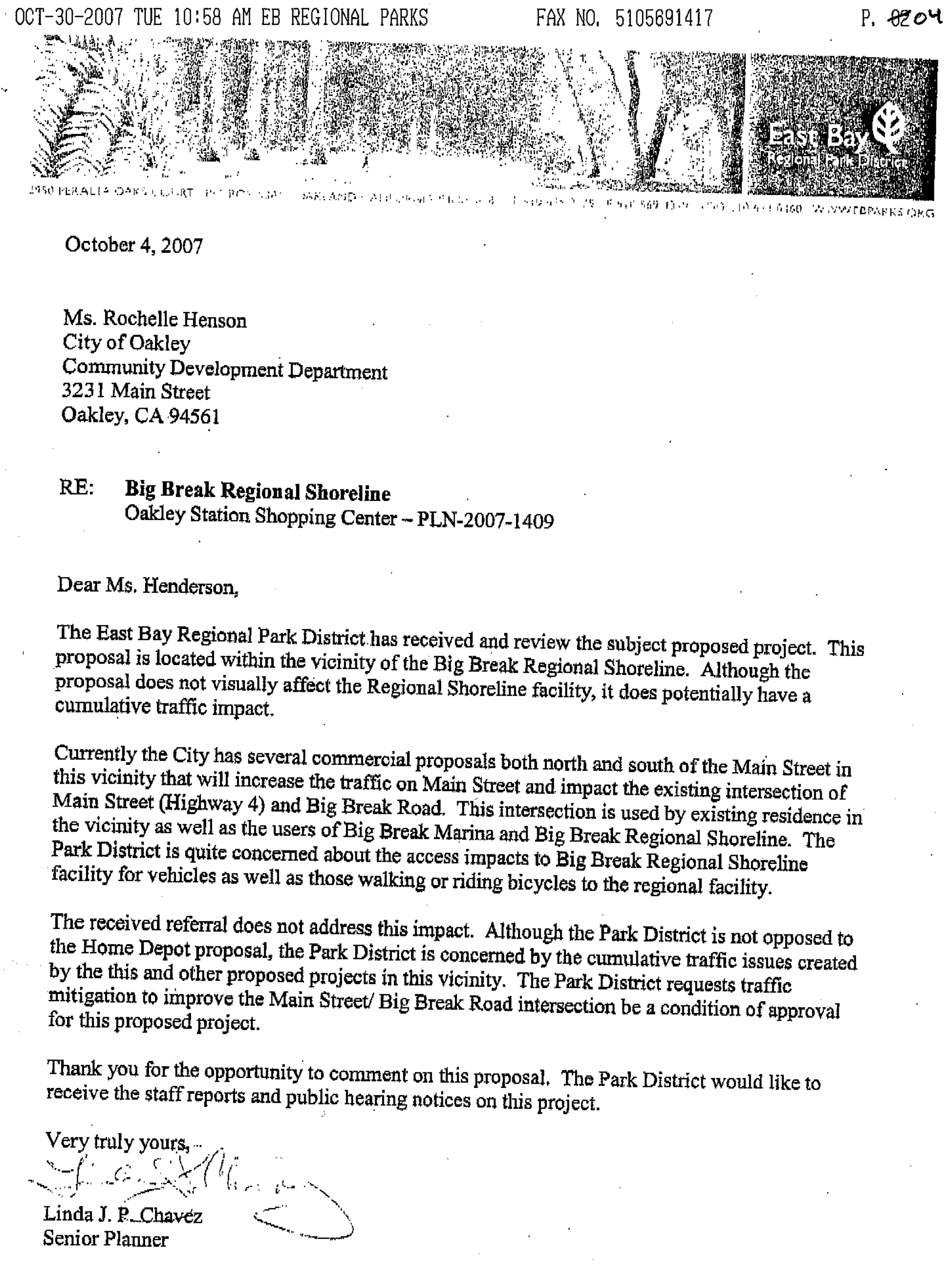
Thank you for considering our comments on the DEIR. Please call me should you have any questions regarding this comment letter. I can be reached at (510) 544-2622.

Sincerely,

Brad Olson
Brad Olson
Environmental Programs Manager

Enclosures (1)

Letter 6 cont'd.



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East Bay Regional Park District

October 4, 2007

Ms. Rochelle Henson
City of Oakley
Community Development Department
3231 Main Street
Oakley, CA 94561

RE: **Big Break Regional Shoreline**
Oakley Station Shopping Center – PLN-2007-1409

Dear Ms. Henderson,

The East Bay Regional Park District has received and review the subject proposed project. This proposal is located within the vicinity of the Big Break Regional Shoreline. Although the proposal does not visually affect the Regional Shoreline facility, it does potentially have a cumulative traffic impact.

Currently the City has several commercial proposals both north and south of the Main Street in this vicinity that will increase the traffic on Main Street and impact the existing intersection of Main Street (Highway 4) and Big Break Road. This intersection is used by existing residence in the vicinity as well as the users of Big Break Marina and Big Break Regional Shoreline. The Park District is quite concerned about the access impacts to Big Break Regional Shoreline facility for vehicles as well as those walking or riding bicycles to the regional facility.

The received referral does not address this impact. Although the Park District is not opposed to the Home Depot proposal, the Park District is concerned by the cumulative traffic issues created by the this and other proposed projects in this vicinity. The Park District requests traffic mitigation to improve the Main Street/ Big Break Road intersection be a condition of approval for this proposed project.

Thank you for the opportunity to comment on this proposal. The Park District would like to receive the staff reports and public hearing notices on this project.

Very truly yours,

Linda J. P. Chavez
Senior Planner

LETTER 6: BRAD OLSON, EAST BAY REGIONAL PARK DISTRICT

Response to Comment 6-1

This comment serves as an introductory comment, specifying that the commenter’s concerns are related to traffic volume on Main Street, traffic circulation, pedestrian and bicycle safety, and signage at the intersection of Big Break Road and Main Street.

Response to Comment 6-2

According to Fehr & Peers, the consulting traffic engineers for the City of Oakley for the proposed Specific Plan, the southbound Big Break Road queue is expected to clear the intersection at the end of each signal cycle as the intersection would operate at LOS D or better under Cumulative Plus Project conditions. The intersection would operate similarly to other intersections adjacent to at-grade railroad crossing in terms of pedestrian and bicycle movements.

Response to Comment 6-3

As stated in the comment, the northbound and southbound approaches of the Main Street/Big Break Road intersection do not provide separate left-turn lanes. As shown on Table 3.2-6 on page 3.2-26 of the Draft EIR, the intersection would operate at LOS D during the PM peak hour under Cumulative with Project conditions. Because the Project would not cause a significant impact at this intersection, additional improvements are not required.

Response to Comment 6-4

According to Fehr & Peers, the consulting traffic engineers for the City of Oakley for the proposed Specific Plan, the construction activities associated with this Project will not impact the entrance to the park because construction vehicles will use freeway and non-freeway portions of SR 4 and other freeways and major arterials designed to carry construction traffic. Construction trucks are not expected to use Big Bread Road which provides the main access to the park. If the East Bay Regional Parks District is interested in obtaining way-finding signage to improve the visibility of the park area, they are directed to contact the City regarding the installation of way-finding signage. Because the Proposed Project would not impact the entrance to the park, no mitigation measures concerning the park entrance are required.

Response to Comment 6-5

The source for the Caltrans significance criteria referenced in the comment is not clear. However, based on the *Guide for Preparation of Traffic Impact Studies* published by Caltrans (www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tisguide.pdf), a change in intersection LOS by two or more grades is not considered a significant impact. The document recommends that impact thresholds be established by the lead agency in consultation with Caltrans. As shown in Table 3 of the Transportation Impact Study, the LOS threshold for signalized intersections along Main Street is LOS D as established in the East County Action Plan for Routes of Regional Significance.

In addition, the comment compares the intersection LOS under Cumulative with Project conditions to Existing Conditions, which is not appropriate. Project impact should be considered by comparing intersection LOS under Near-Term With Project to Near-Term No Project conditions, or Cumulative With Project to Cumulative No Project conditions. The Proposed Project would cause the Main Street/Big Break Road intersection to degrade from LOS C to LOS D during the PM peak hour under Cumulative Conditions. Thus, the Proposed Project would not cause an impact at the Main Street/Big Break Road intersection.

Response to Comment 6-6

The Draft EIR did not include an analysis of impacts related to the development of the currently proposed Oakley Station Shopping Center project because the project was not yet proposed when the analysis for the River Oaks Crossing Specific Plan Draft EIR was completed.

The Oakley Station Shopping Center would include the development of a retail shopping area, centered on a large home improvement retailer and including several smaller retail establishments. The Oakley Station Shopping Center is proposed to be located on the south side of Main Street/SR 4 across from the River Oaks Crossing project and west of (behind) the Cypress Square/Raley's Shopping Center. Because the development of the Oakley Station Shopping Center is required to undergo site-specific environmental analysis consistent with CEQA standards as well as being subject to all required mitigation measures and compliance with local, state and federal laws, site-specific issues related to the development of the Oakley Station Shopping Center would not be expected to result in cumulative impacts in conjunction with the Proposed Project that were not previously discussed in the Draft EIR. These areas include the following: land use, biological resources, cultural resources, energy conservation, agricultural resources, hydrology and water quality, public services, utilities and service systems, or hazards and hazardous materials. The remaining topic areas, including Circulation and Transportation, Noise, Air Quality, Aesthetics and Retail Market Effects and the Potential for Urban Decay are discussed below.

Further, as described in detail below, with the inclusion of the Oakley Station Shopping Center as a reasonably foreseeable project, none of the Draft EIR's conclusions with regards to potentially significant impacts of the Proposed Project on either a project or cumulative level are altered. Accordingly, the information presented here regarding the Oakley Station Shopping Center is not "significant new information," as defined in CEQA Guidelines Section 15088.5, but rather is information that clarifies and amplifies the Draft EIR's analysis. Given this, recirculation of the Draft EIR is not required.

Traffic and Circulation

Traffic generated by the proposed Oakley Station Shopping Center was not included in the Existing or Near-Term (2010) analyses because the project was not proposed when the traffic analysis for the River Oaks Crossing EIR was completed. Please see the Master Response

"Traffic and Circulation Comments Related to the Oakley Station and Carol Lane Projects" above for further discussion of traffic and circulation impacts associated with the Oakley Station project.

Noise and Air Quality

The site for the proposed Oakley Station Shopping Center is currently designated for commercial development. The Oakley 2020 General Plan allows for a maximum FAR (floor area ratio) of 1.0 for sites designated as Commercial, such as the Oakley Station site. Based on the application received for the Oakley Station project, the project would have an FAR of 0.24. The project's proposed FAR results in approximately one-fourth of the maximum allowable FAR for the site, which is consistent with the current General Plan Commercial land use designation for the proposed project site. Because the noise and air quality analysis in the Draft EIR assumed the buildout of the General Plan in its cumulative analysis of project-related impacts, the Draft EIR did take into account the potential noise and air quality impacts of the Oakley Station Shopping Center project.

Aesthetics

The Oakley Station Shopping Center would be located adjacent to the Proposed Project site and would consist of retail development similar to the Proposed Project. Because the Oakley Station Shopping Center would be subject to the same City standards regarding the placement of lighting, signage and construction as the Proposed Project, as well as the relative location of the two project sites, new impacts with regard to the obstruction of views to Mount Diablo would not be expected. In addition, neither the Proposed Project site nor the proposed Oakley Station Shopping Center would be considered to be sensitive receptors for impacts related to light and glare. Therefore, aesthetic issues associated with the development of the Proposed Project would not be expected to be impacted by the development proposed Oakley Station Shopping Center.

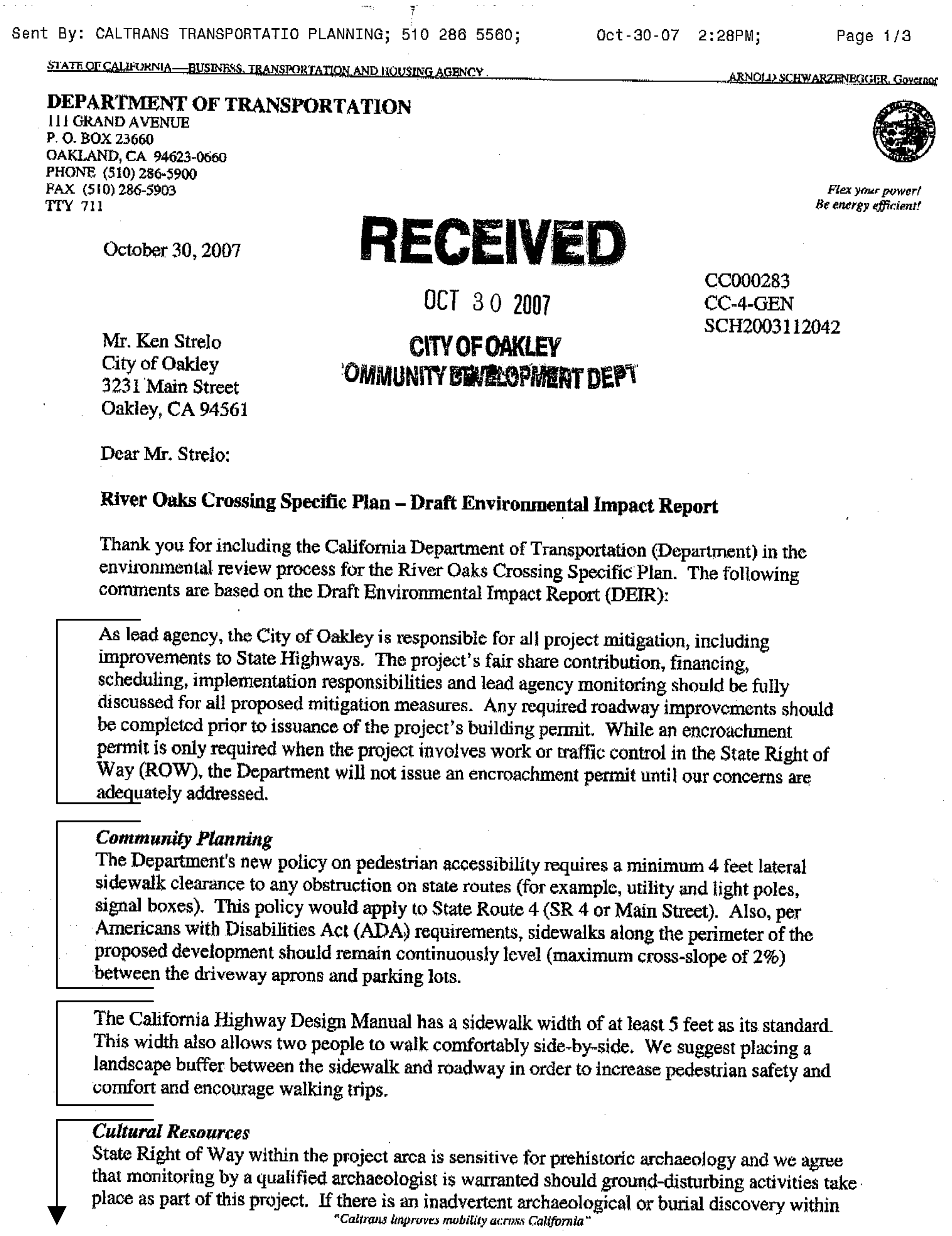
Retail Market Effects and Potential for Urban Decay

Please see Master Response "Urban Decay Analysis."

Response to Comment 6-7

Please see Response to Comment 6-6.

Letter 7



Sent By: CALTRANS TRANSPORTATIO PLANNING; 510 286 5560; Oct-30-07 2:28PM; Page 1/3

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-5900
FAX (510) 286-5903
TTY 711

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COMMUNITY DEVELOPMENT DEPT

October 30, 2007

CC000283
CC-4-GEN
SCH2003112042

Mr. Ken Strelo
City of Oakley
3231 Main Street
Oakley, CA 94561

Dear Mr. Strelo:

River Oaks Crossing Specific Plan – Draft Environmental Impact Report

Thank you for including the California Department of Transportation (Department) in the environmental review process for the River Oaks Crossing Specific Plan. The following comments are based on the Draft Environmental Impact Report (DEIR):

7-1 As lead agency, the City of Oakley is responsible for all project mitigation, including improvements to State Highways. The project's fair share contribution, financing, scheduling, implementation responsibilities and lead agency monitoring should be fully discussed for all proposed mitigation measures. Any required roadway improvements should be completed prior to issuance of the project's building permit. While an encroachment permit is only required when the project involves work or traffic control in the State Right of Way (ROW), the Department will not issue an encroachment permit until our concerns are adequately addressed.

Community Planning

7-2 The Department's new policy on pedestrian accessibility requires a minimum 4 feet lateral sidewalk clearance to any obstruction on state routes (for example, utility and light poles, signal boxes). This policy would apply to State Route 4 (SR 4 or Main Street). Also, per Americans with Disabilities Act (ADA) requirements, sidewalks along the perimeter of the proposed development should remain continuously level (maximum cross-slope of 2%) between the driveway aprons and parking lots.

7-3 The California Highway Design Manual has a sidewalk width of at least 5 feet as its standard. This width also allows two people to walk comfortably side-by-side. We suggest placing a landscape buffer between the sidewalk and roadway in order to increase pedestrian safety and comfort and encourage walking trips.

Cultural Resources

7-4 State Right of Way within the project area is sensitive for prehistoric archaeology and we agree that monitoring by a qualified archaeologist is warranted should ground-disturbing activities take place as part of this project. If there is an inadvertent archaeological or burial discovery within

"Caltrans improves mobility across California"

Letter 7 cont'd.

7-4 cont'd.

State Right of Way, in compliance with CEQA, PRC 5024.5, and Caltrans Standard Environmental Reference (SER) Chapter 2 (at http://ser.dot.ca.gov), all construction within 50 feet of the find shall cease. The Department's Cultural Resource Studies Office, District 4, shall be immediately contacted at (510) 286-5618.

7-5

Encroachment Permit

Please be advised that work that encroaches onto the State ROW requires an encroachment permit that is issued by the Department. To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans, clearly indicating State ROW, must be submitted to the address below. Traffic-related mitigation measures will be incorporated into the construction plans during the encroachment permit process. See the following website link for more information: http://www.dot.ca.gov/hq/traffops/developserv/permits/

Michael Condie, Office of Permits
California DOT, District 4
P.O. Box 23660
Oakland, CA 94623-0660

7-6

Traffic Forecasting

Figure 6A, Project Trip Assignment, shows three major driveways to the project site that include intersections 11, 12, and 13. The Department calculated the traffic for the AM (PM) inbound, outbound, and total traffic for the three project driveways as 468, 387, and 855 (968, 974, and 1942) vehicles per hour (vph). Table 3.2-4, Project Trip Generation, includes a pass-by reduction showing AM (PM) inbound, outbound, and total traffic as 660, 539, and 1199 (1356, 1369, and 2725) vph, which is higher than the traffic in Figure 6A. Full generated trips without pass-by reduction were calculated for Table 3.2-4, showing AM (PM) inbound, outbound, and total traffic as 660, 539, and 1199 (2052, 2065, and 4117) vph, which is higher than the traffic in Figure 6A. The assigned project trips in Figure 6A are underestimated for the total AM (PM) assigned traffic of 855 (1942) vph compared to Table 3.2-4 "Project Trip Generation," which shows AM (PM) generated traffic with pass-by reduction of 1199 (2725) vph, and without pass-by reduction of 1199 (4117) vph.

7-7

In addition, the traffic study shows that significant traffic for PM inbound, outbound, and total pass-by reduction as 696, 696, and 1392 vph. The Department recommends that the AM (PM) total generated trips without pass-by of 1199 (4117) vph should be assigned to the three project site driveways. We recommend that the traffic study include pass-by and non-pass-by trips assigned to the three major driveways of the project site at intersections 11, 12, and 13 and be shown in separate traffic diagrams. Please ensure that AM (PM) total generated trips without pass-by reduction as 1199 (4117) vph be assigned among the project site's three driveways.

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Letter 7 cont'd.

Mr. Ken Strelo
October 30, 2007
Page 3

Highway Operations

7-8 Intersection #10 on Main Street (SR 4) and State Route 160 northbound ramps operate at a Level of Service (LOS) closer to "F" due to queues spilling back from the Main Street/Bridgehead Road and Neroly Road intersection. The end result is measured in time delay. What mitigation measure(s) is the City proposing for this location?

7-9 The traffic volumes and LOS for existing and 2030 cumulative conditions for this same project differ between the Fehr and Peers' May 2007 *Cline Specific Plan Transportation Impact Study* and the August 2006 traffic analysis *Main Street Widening Project Final Traffic Analysis Report*. Why are some traffic volumes and the LOS on the existing and 2030 cumulative conditions different? The City is using smaller traffic volumes on most of the intersection movements for the same area. The Department's main concerns are intersections #9, 10, and 11, which are the same intersections as # 1, 2, and 3 from the *Main Street Widening Project Final Traffic Analysis Report*.

Should you have any questions regarding this letter, please call Christian Bushong of my staff at (510) 286 -5606.

Sincerely,

Timothy C. Sable

TIMOTHY C. SABLE
District Branch Chief
IGR/CEQA

c: State Clearinghouse

"Caltrans improves mobility across California"

LETTER 7: TIMOTHY C. SABLE, CALIFORNIA DEPARTMENT OF TRANSPORTATION

Response to Comment 7-1

This comment serves as an introductory comment, specifying that the commenter's concerns are related to mitigation measures found in the Draft EIR, which are associated with State highways, including the project's fair share contribution, financing, scheduling, implementation responsibilities, and lead agency monitoring. Consistent with the comment, the mitigation measures in the Draft EIR include timing and funding specifications to ensure that related improvements are completed pursuant with City policy.

Response to Comment 7-2

This comment regarding sidewalk clearances is noted. The comment does not address the adequacy of the Draft EIR.

Response to Comment 7-3

The comment regarding sidewalk widths does not address the adequacy of the Draft EIR. The River Oaks Crossing Specific Plan shows that landscaping would be included between the roadway and the sidewalks along the edge of the Proposed Project. Please note that the Design Guidelines for the River Oaks Crossing Specific Plan state that the City of Oakley *Commercial and Industrial Design Guidelines* would apply to the Proposed Project. The *Commercial and Industrial Design Guidelines* indicate that commercial and industrial land uses are required to maintain six feet of landscaping and six feet of sidewalk buffer areas. The proposed improvements would comply with Caltrans' standards.

Response to Comment 7-4

The commenter is directed to Impact CR-1 of the Draft EIR, related to disruption of historic and prehistoric artifacts, on page 3.5-17 of the Cultural Resources chapter. Impact CR-1 includes Mitigation Measures CR-1(d), which requires that work must cease in the immediate vicinity of any unanticipated finds uncovered during construction, until an archaeologist is informed and an assessment of the historic or prehistoric resources is conducted. Should Main Street still be identified as a State Highway at the time of the construction, the applicants shall be required to obtain the necessary Caltrans encroachment permits. As a component of those permits, developers within the Specific Plan area would be required to abide by all Caltrans requirements pertaining to construction within the encroachment area.

Response to Comment 7-5

The comment is noted. Prior to construction of the Proposed Project, developers within the Specific Plan area will obtain all required encroachment permits.

Response to Comment 7-6

As stated in the comment, Figures 6A and 6B in the Transportation Impact Study show the project trips at the study intersections. These figures only show the new trips generated by the Proposed Project and do not include pass-by trips. Total trips (i.e., new plus pass-by) generated by the project can be calculated by subtracting Near-Term No Project volumes (Figures 9A and 9B) from Near-Term With Project (Figures 10A and 10B) volumes. As requested, Figure 3-1 shows pass-by trips at the project driveways.

The comment incorrectly identifies the project driveways and incorrectly calculates the total trips generated by the project. Access to and from the site is provided through five driveways identified in Table 2-1. As shown in Table 3.2-4 of the Draft EIR, the Proposed Project would generate 1,199 AM peak hour trips. Because no pass-by discounts were taken in the AM peak hour, the total project trip generation is the same as the net new trips. Also as shown in Table 3.2-4, during the PM peak hour, the Proposed Project would generate 2,725 (1,356 inbound and 1,369 outbound) net new trips and 696 (348 inbound and 348 outbound) pass-by trips, resulting in 3,421 (1,704 inbound and 1,717 outbound) total project trips. Table 3-4 compares the new, pass-by, and total trips at the project driveways with the total project trip generation presented in Table 3.2-4 of the Draft EIR. As shown in the table, the project trip assignment and trip generation are consistent with the figures included in the Draft EIR.

Response to Comment 7-7

See Response to Comment 7-6.

Response to Comment 7-8

As illustrated in Table 3.2-5 in the Traffic and Circulation chapter of the River Oaks Crossing Specific Plan Draft EIR, delays at the Main Street northbound and southbound SR 160 onramps would not exceed thresholds and would not require mitigation. The following queue analysis is included for informational purposes. As requested, Table 3-5 shows 95th percentile and average queues at key locations at the intersections of Main Street with southbound and northbound SR 160 ramps and Bridgehead Road under Near-Term With Project and Cumulative With Project conditions. Queues would exceed the provided storage lengths at several locations, which is consistent with the conclusions of the Main Street Widening Project Final Traffic Analysis Report completed by Fehr & Peers in August 2006. However, as required by local and regional jurisdictions, the impact analysis for the project is based on LOS and delay for intersections, not queues.

Figure 3-1

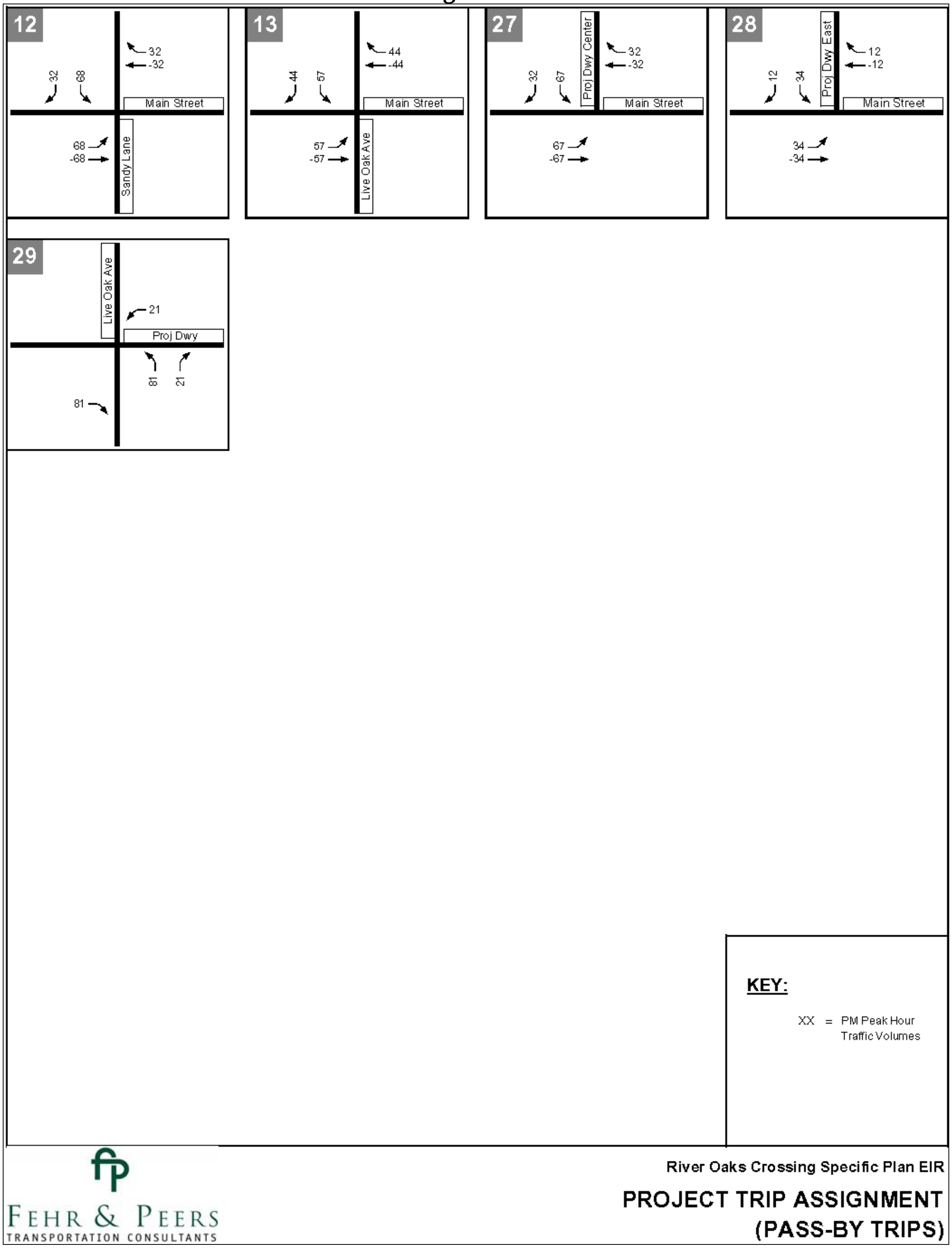

12
32
-32
32
68
Main Street
68
-68
Sandy Lane
13
44
-44
44
57
Main Street
57
-57
Live Oak Ave
27
Proj Dwy Center
32
-32
32
67
Main Street
67
-67
28
Proj Dwy East
12
-12
12
34
Main Street
34
-34
29
Live Oak Ave
21
Proj Dwy
81
21
81
KEY:
XX = PM Peak Hour Traffic Volumes
FEHR & PEERS
TRANSPORTATION CONSULTANTS
River Oaks Crossing Specific Plan EIR
PROJECT TRIP ASSIGNMENT
(PASS-BY TRIPS)

Table 3-4
Project Driveway Traffic and Trip Generation Comparison

	Volume	**AM Peak Hour Trips**			**PM Peak Hour Trips**		
Driveway	**Type**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Main Street/Sandy Lane/Project Driveway West (#12)	Net New	102	89	191	211	226	437
	Pass-by	0	0	0	100	100	200
	Total	102	89	191	311	326	637
Bridgehead Road/Project Driveway (#26)	Net New	125	103	228	256	262	518
	Pass-by	0	0	0	0	0	0
	Total	125	103	228	256	262	518
Main Street/Project Driveway Center (#27)	Net New	87	72	159	179	183	362
	Pass-by	0	0	0	99	99	198
	Total	87	72	159	278	282	560
Main Street/Project Driveway East (#28)	Net New	70	57	127	143	145	288
	Pass-by	0	0	0	46	46	92
	Total	70	57	127	189	191	380
Project Driveway/Live Oak Avenue (#29)	Net New	277	219	496	568	555	1,123
	Pass-by	0	0	0	102	101	203
	Total	277	219	496	670	656	1326
Total	***Net New***	***661***	***540***	***1201***	***1357***	***1371***	***2,728***
	Pass-by	***0***	***0***	***0***	***347***	***346***	***693***
	Total	***661***	***540***	***1201***	***1704***	***1717***	***3421***
Project Trip Generation [1]	***NET NEW***	***660***	***539***	***1,199***	***1,356***	***1,369***	***2,725***
	PASS-BY	***0***	***0***	***0***	***-348***	***-348***	***-696***
	TOTAL	***660***	***539***	***1,199***	***1,704***	***1,717***	***3,421***
Difference	Net New	-1	-1	-2	-1	-2	-3
	Pass-by	0	0	0	1	2	3
	Total	-1	-1	-2	0	0	0

1. Based on project trip generation presented in Table 3.2-4 of the Draft EIR.

Source: Fehr & Peers, 2007.

Table 3-5
Queuing Summary

Intersection	Movement	Storage Length [1]	Near-Term With Project				Cumulative With Project			
			95th Percentile Queue Length [2]		Average Queue Length [2]		95th Percentile Queue Length [2]		Average Queue Length [2]	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Main Street (SR 4)/ SR 160 Southbound Ramps	Westbound Thru	690	20	60	20	30	40	90	20	50
	Westbound Left-Turn	690	260	200	130	120	270	**>690**	150	650
	Off-Ramp Approach	1,200	50	80	20	20	160	100	110	50
Main Street (SR 4)/ SR 160 Northbound Ramps	Westbound Left-Turn	380	100	60	50	40	120	120	20	90
	Off-Ramp Approach	1,300	110	620	60	480	420	**>1,300**	390	1,020
Main Street (SR 4)/ Bridgehead Road and Neroly Road	Eastbound Thru	380	280	**>380**	160	**>380**	300	**>380**	210	**>380**
	Eastbound Left-Turn	380	160	180	70	150	310	**>380**	200	190

Note: **Bold** denotes locations were storage length would not accommodate queue length.

1. Storage length in feet.
2. 95th percentile and average queue lengths in feet as calculated by Synchro.

Source: Fehr & Peers.

Response to Comment 7-9

The *Main Street (SR 4) Widening Project Final Traffic Analysis Report* completed by Fehr & Peers in August 2006 analyzed traffic operations along Main Street between SR 160 and Big Break Road under forecasted 2030 conditions. The year 2030 traffic volumes and results of this analysis at the intersections of Main Street with SR 160 southbound and northbound ramps and Neroly Road/Bridgehead Road are different from the analysis presented in the River Oaks Crossing Specific Plan Draft EIR. These differences are further explained below.

The year 2030 traffic volume forecasts used in the Main Street Widening Report were developed using an earlier version of the Contra Costa Transportation Authority (CCTA) Travel Demand Model which used the emme2 software and was based on Association of Bay Area Governments (ABAG) *Projections 2000* land use data for the year 2025. Year 2030 volume forecasts were developed by manually adding five percent to the year 2025 volumes forecasted by the model.

The year 2030 volume forecasts used in the River Oaks Crossing EIR were developed using the more recent CCTA Travel Demand Model which uses the TransCAD software and ABAG *Projections 2005* land use data for the year 2030. The land use databases in both models were modified to reflect the buildout of the City General Plan within Oakley. Because ABAG had changed the methodology used to develop future land use projections between 2000 and 2005, the forecasted volumes developed by the two models use different land use assumptions in areas outside Oakley. Due to the differences in land use assumptions and software, forecasted year 2030 intersections movements are different in the two analyses. In general, 2030 peak hour volumes along Main Street near the SR 160 interchange in the Main Street Widening project (Figure 5 in the *Main Street (SR 4) Widening Project Final Traffic Analysis Report)* are about ten percent higher than the Cumulative Plus Project volume forecasts used in the River Oaks Crossing analysis (Figure 12 in the Transportation Impact Analysis Report).

In addition to different volume forecasts, the two studies also used different methodologies to analyze traffic operations. The traffic operations analysis for the Main Street Widening project was completed using SimTraffic microsimulation model. In addition to delay and level of service, this study also analyzed queuing, travel time and percent volume served. The River Oaks Crossing analysis was completed using CCTALOS and the 2000 *Highway Capacity Manual* (HCM) methodologies, as required by local and regional jurisdictions, which use intersection volume-to-capacity ratio and average vehicle delay to determine LOS, respectively.

Despite the differences in study assumptions and methodology outlined above, both studies report similar LOSs at the three intersections as shown in Table 3-6.

Table 3-6
Intersection Peak Hour LOS Summary Comparison

Intersection	Peak Hour	Main Street (SR 4) Widening Project 2030 With Project[1]		River Oaks Crossing EIR Cumulative With Project Conditions[2]			
				CCTALOS		HCM	
		Delay[3]	LOS	V/C [4]	LOS	Delay[3]	LOS
9. Main Street/SR 160 SB Ramps	AM	19	B	0.60	A	19	B
	PM	27	C	0.89	D	43	D
10. Main Street/SR 160 NB Ramps	AM	10	A	0.67	B	15	B
	PM	36	D	0.83	D	40	D
11. Main Street/Bridgehead Road/Neroly Road	AM	36	D	0.61	B	24	C
	PM	40	D	0.81	D	28	C

1. Source: Table 3.2-6 on page 3.2-27 in *River Oaks Crossing Specific Plan* Draft EIR.
2. Source: Table 12 on page 32 of *Main Street (SR 4) Widening Project Final Traffic Analysis Report.*
3. Average intersection delay for signalized intersections using the 2000 *Highway Capacity Manual* (HCM) methodology.
4. Volume-to-capacity ratio (V/C) determined for all signalized intersections using the CCTALOS methodology.

Source: Fehr & Peers, 2007.

Page 51 of the River Oaks Crossing Transportation Impact Study confirms the findings of the Main Street Widening Project that queues on SR 160 northbound would spill back onto the freeway during portions of the PM peak hour in the year 2030. However, based on the significance criteria used in the analysis, the queue spill back is not considered a significant impact. Improvement options, such as reconfiguring the interchange or lengthening the off-ramp, may reduce the expected congestion on the SR 160 northbound off-ramp. Although interchange improvements have not yet been identified, as stated on page 51 of the Transportation Impact study and page 37 of the Main Street Widening report, City of Oakley is committed to working with City of Antioch and Caltrans to study options that would address traffic operations issues at the Main Street Interchange.

Letter 8

Richard & Priscilla Ladeira
30 Madeira Court
Oakley, CA 94561

Oakley, CA 94561

Rebecca Willis
Community Development Director
City of Oakley
3231 Main Street
Oakley, CA 94561

October 30, 2007

Re: Letters Opposing Oakley Wal-Mart Project Draft EIR

Traffic

8-1 This EIR was done without the consideration of the opening of the Low-Income Housing that is due to start opening in January. When added to the mix depending on whom you listen to if it is the senior portion we will have 120 units with approximately 120 to over 200 trips added to Carol Lane and Main Street. If the single-family units open it will be 157 to over 300 trips. All are due to open within months of each other. So you must add at least 277 to over 500 trips per day and that is a conservative estimate. Carol Lane is the only way into and out of this complex. I do know from the plans that in the future when Cal Trans rededicates Highway 4 to Main Street the city plans another street out of the complex with a signal but that cannot happen until after the bypass is completely open, which I understand will be sometime the first of 2009.

8-2 The good news is that Oakley is counting on phase 2 of the bypass is to open by January 2008. The Oakley Press stated that the through trucks will be using that bypassing Oakley. Brentwood on the other hand states that is not possible. According to the Brentwood City Manager's office that would dump the traffic onto Lone Tree Way and through Brentwood. Lone Tree Way is already over congested, add to it the through traffic including the trucks and you will have gridlock. I have a call into Dennis Dale who has been making all these statements and to question the statement from the Brentwood City Manager's office, but have yet to receive a call back.

So if you add Wal-Mart to the mix and you have gridlock on Main Street. The citizens of Oakley and Brentwood are going to have one tough mess getting to and from their jobs. I do know that 3 more signals are planned from Neroly to just past Live Oak Avenue. Of course, that cannot happen until after the entire bypass is complete in 2009, with all that traffic, the backup, will be extreme.

Page 2

Letter 8 cont'd.

Air Quality

8-3 When you add all that additional traffic the congestion will add tremendously to carbon emissions and will cause the air quality to be at hazardous levels. The bad air quality will cause more illness and health concerns with all the surrounding neighborhoods and businesses. These same contaminants will be increased not only in our air but will also leach into our water supply through the groundwater.

Noise

8-4 Increased traffic on side streets and traffic that exits Highway 4 to Main Street will cause much more noise including to the most exclusive neighborhood in Oakley. The side streets including the use of Live Oak Avenue, includes a school and children playing on playgrounds will have increased noise and pollutants from that increased traffic will be at hazardous levels.

Land Use

8-5 Wal-Mart uses developers to obtain their property and apply for implementation of their plan. Wal-Mart does not allow businesses in their complex that will directly compete with them. Wal-Marts are built in part with sales taxes that they collect from customers and they retain, a common technique of local economic development. Wal-Mart makes use of tax-exempt bonds and deals with local governments, acquiring the land for Wal-Mart, sometimes through eminent domain, and selling it back at below market rates.

Wal-Mart also pays rents to themselves and claims it on their taxes thus reducing their tax bills. Wal-Mart has challenged 83% of their property tax bills at 400 of their stores. They have saved on average of $40,000 per store on these challenges. Wal-Mart Distribution Centers averaged $289,000. per challenge. Wal-Mart saves $3 million annually from challenged property tax bills versus $1 billion per day revenue. Taxpayers must pick up the slack. Wal-Mart wants excluded from their sales taxes the value of its shelving and other fixtures. Florida spent more than $100,000 fighting Wal-Mart on this issue.

Wal-Mart's predatory practices will eliminate and close all the small businesses directly across from this complex. Ms. Mason stated she would help all the businesses redevelop their business. Some may survive but businesses such as Kmart, Raley, Albertson (Lucky), Centro Mart and many of the businesses and planned new business will fail. This will lead to Urban Blight and increased crime.

Urban Blight

8-6 Most if not all businesses in the area including the cities plan to redevelop downtown will likely fail. Urban blight brings with it more crime to the neighborhoods surrounding it, including the most expensive housing in all Oakley. With increased crime we (the city) do not have the money to add to our police force. Wal-Mart will not provide those funds to increase our police force to accommodate our needs. Currently, according to our police chief we have 3-5 officers on duty at any given time of day for 35,000 people. According to crime statistics, Wal-Mart police incidents are 400% higher than the average rate at Target. Wal-Mart has had 2909 serious or violent crimes at 460 stores. Pittsburg has had 1150 crimes for a cost to taxpayers of $89125, Antioch has had 200 for a cost to taxpayers of $15500. According to UC Berkeley Reports, when Wal-Mart comes to town, crime increases at and around the Wal-Mart.

8-7 At the town meeting to meet the Mayor and the Police Chief, the police chief stated we will never have a manned police department office. Our calls will continue to go to Martinez. I have made calls and one went unanswered, maybe they thought it was not important enough.

Alternatives

Why does the city have such trouble attracting more desirable businesses even when they spend tax dollars trying to attract it? A recent article in the Oakley paper the Brentwood City Manager stated they do nothing, businesses are coming to them.

8-8 With all the development in the Cypress corridor shouldn't the big box stores if we need them be located there. I do not believe that a big box is needed or desired. If a developer comes in and puts in a shopping center with smaller more desirable stores, they will provide the tax base that the city needs. According to the United States Statistical analysis, small business pays a greater tax rate than do big box stores. Wal-Mart comes in and tries to cut their taxes, not only property taxes but sales tax as well. They have also sued cities to be refunded for any infrastructure they put in including their stores, parking lots, streetlights, etc.

Cordially,
Priscilla Ladeira

LETTER 8: PRISCILLA LADEIRA, RESIDENT

Response to Comment 8-1

The comment asks about the EIR's consideration of potential traffic trips impacts related to a recently approved residential development complex on Carol Lane. This development was inadvertently omitted from the Draft EIR's analysis. Please see the Master Response "Traffic and Circulation Comments Related to the Oakley Station and Carol Lane Projects."

Because the Carol Land development is subject to all relevant local, state and federal laws, site-specific issues related to the development would not be expected to result in cumulative impacts in conjunction with the Proposed Project that were not previously discussed in the Draft EIR. These areas include the following: land use, biological resources, cultural resources, energy conservation, agricultural resources, hydrology and water quality, public services, utilities and service systems, or hazards and hazardous materials. The remaining topic areas, including Circulation and Transportation, Noise, Air Quality, Aesthetics and Retail Market Effects and the Potential for Urban Decay are discussed below.

This analysis did not result in the determination of any significant new impacts or in the recommendation of any new mitigation measures. Accordingly, the information presented in this response is not "significant new information," as defined in CEQA Guidelines Section 15088.5, but rather is information that clarifies and amplifies the Draft EIR's analysis of the Proposed Project. Given this, recirculation of the Draft EIR is not required.

Traffic and Circulation

Please see Master Response "Traffic and Circulation Comments Related to the Oakley Station and Carol Lane Projects."

Noise and Air Quality

The original General Plan land use designation for the proposed Carol Lane project site was industrial prior to the approval of the Carol Lane multi-family residential development. As noted in the Master Response for Traffic, the industrial designation was assumed for buildout of the Carol Lane Project site, which results in greater traffic than the multi-family development. Because the noise and air quality analyses are based primarily on the traffic generation, the conclusions of the Draft EIR and the required mitigations would not be altered due to the Carol Lane project.

Aesthetics

The Carol Lane project is located behind the Oakley Station Shopping Center and is not directly adjacent to the Proposed Project. The relative location of the Carol Lane project site would not be expected to result in new impacts with regard to the obstruction of views to Mount Diablo.

Therefore, aesthetic issues associated with the development of the Proposed Project would not be expected to be impacted by the development of the Carol Lane project.

Retail Market Effects and Potential for Urban Decay

The Carol Lane project will result in an increase in population in the project vicinity but would not result in any increased retail competition that might, in combination with the impacts of the Proposed Project result in vacancies that could lead to urban decay.

Response to Comment 8-2

This comment is related to general traffic concerns in Oakley and Brentwood and does not address the adequacy of the Draft EIR. For a detailed analysis of the Proposed Project's potential traffic impacts, the commenter is directed to Chapter 3.2 of the Draft EIR. The commenter's objections to the Proposed Project are noted and will be forwarded to the City Council for consideration.

Response to Comment 8-3

The comment provides no specific information or data supporting the commenter's assertions. The commenter is directed to the discussions of the Proposed Project's impacts to Air Quality (Chapter 3.6) and Hydrology and Water Quality (Chapter 3.11) for discussions of the potential significance of the impacts referenced by the commenter. The Draft EIR concluded that the Proposed Project would have potentially significant impacts related to both Air and Water Quality, and recommends mitigation to reduce these impacts to less-than-significant levels where feasible. However, as discussed in the Draft EIR on page 3.6-15 and 3.6-16, the cumulative impacts to air quality from the Proposed Project and buildout under the General Plan remain significant and unavoidable. See also Response to Comment 4-2 concerning the health effects of air quality emissions related to the Proposed Project.

Response to Comment 8-4

The comment provides no specific information or data supporting the commenter's assertions. Impacts related to an increase in traffic-related noise levels associated with the Proposed Project are discussed in Impact N-1 of the Draft EIR, on page 3.3-11 of the Noise chapter. The Proposed Project would generate increased traffic on existing local area roadways, which would be expected to result in an increase in traffic noise levels. However, the Draft EIR concluded that the project-level increases in noise levels would not exceed the City's thresholds of significance; therefore, impacts would be less-than-significant.

Response to Comment 8-5

The commenter's policy concerns regarding Wal-Mart's business practices are noted and will be forwarded to the City Council for review. Potential urban decay impacts are addressed in the Draft EIR in Chapter 3.16. See also Master Response "Urban Decay Analysis" above. The potential for the Proposed Project to result in any increased crime is addressed below in Response to Comment 8-6.

Response to Comment 8-6

As noted in the Public Services chapter of the Draft EIR starting at page 3.12-1, additional funding for police protection for the Proposed Project will come from a per-parcel fee program which would require developers within the Specific Plan area to contribute to an annual fee program to help provide additional police support for the Proposed Project site. In addition, the Specific Plan itself requires that certain private security measures be provided by major developers within the Specific Plan area.

The comment refers to crime statistics that it states concern increased crime associated with Wal-Mart stores. Although a specific report is not referenced as the source of these statistics, it appears that they are taken from a website entitled walmartcrimereport.com. Neither the appropriateness of the methodology of this report nor the validity of the report's conclusions can be determined based on a review of the report found at this website. The report does not appear to have been commissioned by a law enforcement agency or local government agency, nor does it appear to have evaluated more than an arbitrary selection of Wal-Mart stores. Further, none of the information provided in the comment or in this report suggests that the mitigation measures already included in the Draft EIR will be inadequate to address the Proposed Project's potential impact on the demand for police services.

Without agreeing with the crime statistics provided by the commenter, when consulted regarding the potential impact of the Proposed Project on crime rates, the Oakley Police Chief stated that he does consider it likely there will be an increase of crime in and around the River Oaks Crossing Shopping Center once development occurs and activity on the property increases. This is because, in his experience, there is a potential for an increase in crime associated with any new development of a vacant site. However, the Police Chief also stated that with the special tax assessment to help fund police services, the potential for further funding from a Transient Occupancy Tax with the hotel use, security provided by the major users, and existing police services, this would reduce the Project's potential impact on the demand for police services to a less-than-significant level.

Response to Comment 8-7

This comment does not address the adequacy of the Draft EIR; however, the policy issues raised in this comment are noted and will be forwarded to the City Council for consideration.

Response to Comment 8-8

The comment states that "if a developer comes in and put in a shopping center with smaller more desirable stores, they will provide the tax base that the city needs." Though the comment is noted that the commenter is a proponent of an off-site alternative to the proposed project, this alternative would not achieve the desired project objectives, as identified on page 5-2 of the Alternatives chapter of the Draft EIR. Specifically, development in the Cypress Corridor would not provide a commercial center on a large undeveloped lot in close proximity to existing highways and other existing retail centers. In addition, as discussed on the final bullet of page 5-4 of the Draft EIR, the off-site alternative was considered but dismissed based upon the availability of properties large enough to accommodate the level of development identified in the project objectives.

Letter 9

COMMUNITY DEVELOPMENT ***P.O. Box 5007, Antioch, CA 94531-5007***

November 1, 2007

RECEIVED
NOV 01 2007
CITY OF OAKLEY
COMMUNITY DEVELOPMENT DEPT

City of Oakley
Community Development Department
Mr. Kenneth Strelo
3231 Main Street
Oakley, CA 94561

RE: DEIR River Oaks Crossings Specific Plan DEIR.

Dear Mr. Strelo:

Thank you for the opportunity to allow the City of Antioch to comment on the Draft Environmental Impact Report for the River Oaks Crossing Specific Plan. Please see below for comments from the City of Antioch.

Traffic

9-1
- The EIR does not address impacts to Main Street and Highway 160. A plan should be developed to work with Caltrans to construct six lanes under the freeway bridges. Currently the westbound third lane merges before the ramps. Please furnish a SYNCHRO model that shows queue lengths to verify there is adequate storage.

9-2
- According to the EIR traffic signals need to be installed at the intersections of Wilbur Avenue and northbound and southbound Highway 160, which are Caltrans intersections. The developer or the City of Oakley should provide all funding for these mitigations as the project is causing the LOS to drop to an unacceptable level.

9-3
- CCTA measure C requires a study to include the Traffic Service Objectives (TSO) for a route of regional significance. Main Street/SR4 and 160/East Eighteenth Street are routes of regional significance. What is the delay TSO and how much does the project increase the delay?

9-4
- Will the developer or the City of Oakley widen Main Street west of Neroly Road to six lanes to allow traffic to access the freeway ramps?

9-5
- The City of Antioch has completed the widening of East Eighteenth Street west of SR4/160 except for the area near the intersection of East Eighteenth Street and Viera Road. Does the addition of the third lane need to start west of the freeway ramp intersection to improve LOS to mid "D".

Noise

9-6
- Due to the increase in traffic, noise impacts were studied at intersections in Antioch; however the City of Antioch's General Plan was not taken into consideration to see if the increased noise meets the City's thresholds of significance.

Urban Decay

9-7
- The Retail Market Impact Analysis does not take smaller retailers into consideration, just the major competitors in general merchandise, supermarket, and home improvement center categories and the potential impacts these will have. The report identifies the impacts would be speculative on smaller retailers as tenants have not been identified; however there will still be impacts with the opening of a regional serving supercenter on these smaller retailers. To discount it as speculative and a less than significant impact does not seem to address the issue.

Building Services Phone (925)779-7065 – Fax (925)779-7034
Planning Services Phone (925)779-7035 – Fax (925)779-7034
Capital Improvement Phone (925)779-7050 – Fax (925)779-7003
Neighborhood Improvement Phone (925)779-7042 – Fax (925)779-7034
Land Development/Engineering Phone (925)779-7035 – Fax (925)779-7034

**Letter 9
cont'd.**

9-8
- The EIR indicates that K-Mart in Antioch will be closing and has the potential to be vacant for a long period of time. Even though the City of Antioch does have a Code Enforcement team to address blight and public nuisances, it does not warrant an insignificant effect of a building of K-Mart's size to be sitting vacant for an extended length of time.

Miscellaneous

9-9
- Figure 2-20 does not show the City of Oakley and the City of Antioch boundary. Land within the City of Antioch has been grouped into the City of Oakley with a designation of Heavy Industrial. This can be misleading and the City of Antioch's zoning designation is Planned Business Center.

Thank you for the opportunity to comment on the River Oaks Crossing Specific Plan. If have any questions regarding the comments, please contact me at (925) 779-7035 or cwehrmeister@ci.antioch.ca.us.

Sincerely,

Tina Wehrmeister
Deputy Director of Community Development

cc: Joe Brandt, Director of Community Development
Ron Bernal, Assistant City Engineer

LETTER 9: CITY OF ANTIOCH COMMUNITY DEVELOPMENT DEPARTMENT

Response to Comment 9-1

The Draft EIR does address potential impacts to Main Street and Highway 160. Tables 3.2-5 and 3.2-6 of the Draft EIR summarize intersection operations for intersections along Main Street under Near-Term With Project and Cumulative With Project conditions, respectively. Impacts CT-1, CT-13, CT-14, and CT-17 identify the project's significant impacts on intersections along Main Street. As documented in the Draft EIR, these impacts can be mitigated to less-than-significant levels.

Tables 10 and 14 in the Transportation Impact Study summarize the delay index on SR 160 under Near-Term With Project and Cumulative With Project conditions, respectively, as required by the *East County Action Plan for Routes of Regional Significance*. The traffic study found that the Proposed Project would not have a significant impact on SR 160 and does not consider additional modeling to be necessary. See response to Comment 9-3 regarding delay index on Main Street.

See Response to Comment 7-8 regarding queues on Main Street at the SR 160 interchange.

Response to Comment 9-2

The commenter states that, because the Proposed Project would contribute toward a failing LOS at the intersection of Wilbur Avenue and northbound and the southbound Highway 160 onramps, that the Proposed Project should be responsible for fully funding improvements at these intersections. As discussed in the Draft EIR, the Proposed Project would be a minority contributor of traffic at these intersections contributing 36 percent of trips at the northbound ramp and 28 percent of trips at the southbound ramp. Under the California Constitution, the Mitigation Fee Act, and CEQA, mitigation requirements must be proportional to project impacts. The fair share requirement for funding included in Mitigation Measures CT-10 and CT-11 of the Draft EIR is therefore appropriate. As stated in the mitigation measure, the City of Oakley would collect the fair share funding and would reimburse the appropriate entity at the time of the improvements are initiated in the City of Antioch. The City of Antioch's Capital Improvement Program does not currently include a proposal for signalization at this intersection. Because these improvements are outside the jurisdiction of Oakley and, given the lack of program in place in Antioch to implement them, cannot be guaranteed, the impact is still found to be significant and unavoidable.

Response to Comment 9-3

As requested, Table 3-7 summarizes the delay index for Main Street under various scenarios. Under all scenarios, the delay index would remain below the currently established 2.5 Traffic Service Objective (TSO) established in the *East County Action Plan for Routes of Regional Significance*, or the future expected TSO of 2.0. Thus, the project would not cause a significant impact based on the Main Street TSO.

Table 3-7
Delay Index Summary

			Existing Conditions [2]		Near-Term with Project		Cumulative With Project	
Roadway Segment	**Peak Hour**	**TSO[1]**	**EB or NB[3]**	**WB or SB [4]**	**EB or NB[3]**	**WB or SB [4]**	**EB or NB[3]**	**WB or SB [4]**
Main Street/Brentwood Boulevard (SR 4) between SR 160 and Balfour Road	AM	2.5	1.4	1.1	1.0	1.3	1.0	1.4
	PM	2.5	1.5	1.2	1.1	1.0	1.1	1.1

1. TSO as established in *East County Action Plan 2000 Final Update.*
2. Delay index as documented in Traffic Service Objective Monitoring Report (CCTA, 2004)
3. Delay index in the eastbound or northbound directions.
4. Delay index in the westbound or southbound directions.

Source: Fehr & Peers, 2007.

Contrary to the comment, the 2004 *Traffic Service Objective Monitoring Report* (Table A-1) does not list East 18th Street as a route of regional significance and does not provide existing delay index for this roadway. Thus, future delay index for East 18th Street cannot be accurately estimated.

Response to Comment 9-4

Though frontage improvements along Main Street would be the responsibility of developers within the Specific Plan area, the widening of Main Street is beyond the scope of the Proposed Project. The widening of Main Street between Neroly Road and SR 160 Southbound Ramps would be completed as part of the Main Street Widening Project. This improvement is included in the City's Transportation Impact Fee (TIF) Program. The Project would contribute to the Main Street Widening Project through its fair share payment of the City's TIF. The design for this project was recently initiated by the City and is expected to be completed in 2008.

Response to Comment 9-5

The analysis completed for the Draft EIR assumes that East 18 Street between Vierra Avenue and SR 160 interchange would be widened to two-lanes in each direction as part of the development expected along East 18th Street (i.e., East 18th Street Specific Plan). As shown on Table 3.2-7, the East 18th Street/Vierra Avenue intersection would operate at LOS A and the East 18th Street/Phillips Lane intersection would operate at LOS C or better during both AM and PM peak hours under Cumulative Plus Project conditions.

Additional analysis shows that, without any improvements (i.e., similar to existing conditions, East 18th Street would continue to provide two eastbound lanes and one westbound lane at Vierra Avenue and one lane in each direction at Phillips Lane), the intersections of East 18th Street with Vierra Avenue and Phillips Lane would continue to operate at mid-LOS D or better (v/c < 0.85 or delay < 50 seconds), as required by the *East County Action Plan* for suburban routes of regional significance, under Cumulative Plus Project conditions. The widening of East 18th Street would not be warranted by the increased traffic generated by the Proposed Project, either on a project-level or cumulative basis.

Response to Comment 9-6

Section 11.6.1 of the City of Antioch General Plan defines exterior noise level standards for commercial areas within the City of Antioch at 70 dBA CNL at front setback. Table 3.3-6 in the Noise chapter of the Draft EIR includes noise measurements along Wilbur Avenue between Vierra Avenue and SB 160 SB onramps. The noise analysis found that the traffic noise along this roadway is 59.3 dBA under the existing conditions, and would increase to 60.0 under the Plus Project scenario and to 62.3 dBA, at a maximum, under the Cumulative No Ramps Plus Project scenario. Though the City appropriately applied its own thresholds of significance regarding noise levels in the Draft EIR, it notes that 62.3 dBA is well below the City of Antioch exterior standard of 70.0 dBA, affirming the Draft EIR's conclusion that the Proposed Project would not be expected to result in any significant project-level noise impacts.

Response to Comment 9-7

Please see Master Response "Urban Decay Analysis."

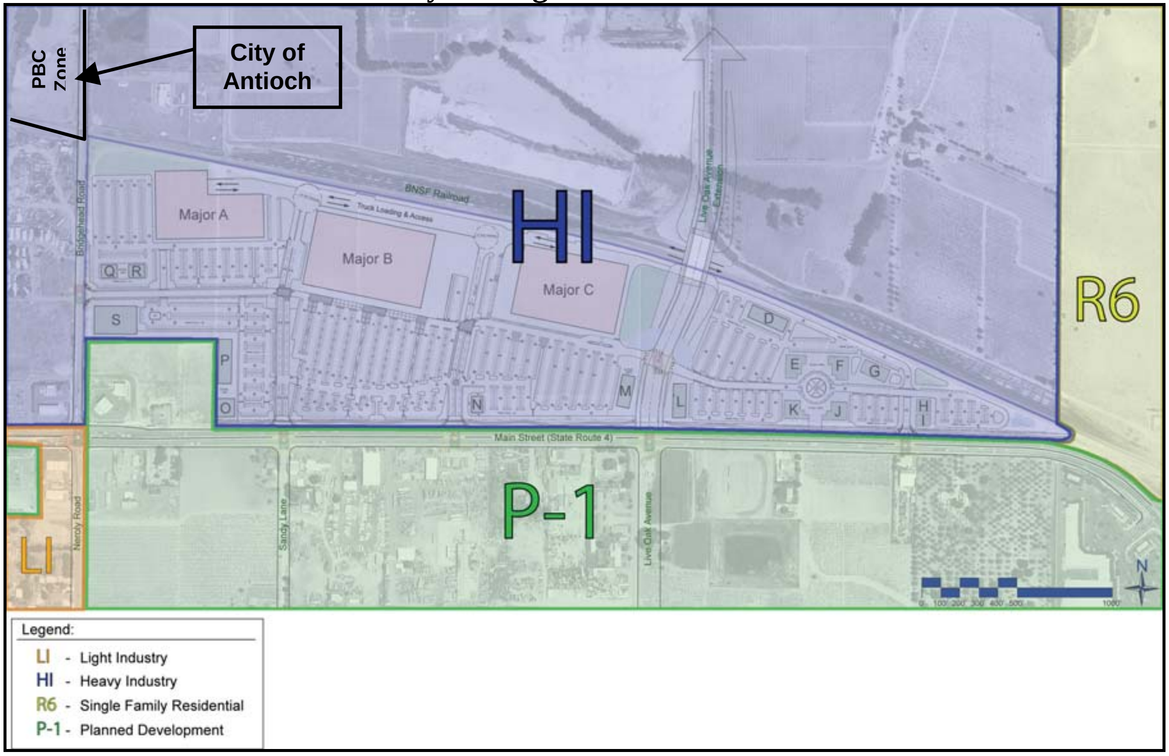
Response to Comment 9-8

Please see Master Response "Urban Decay Analysis."

Response to Comment 9-9

The commenter is correct; Figure 2-20 (See Chapter 2, Project Description) incorrectly labels the boundary between the City of Oakley and the City of Antioch. The portion of land located in the upper left corner of the figure, north of the railroad tracks and west of Bridgehead Road is located within the City of Antioch. The correct zoning designation for that portion of land is Planned Business Center. The error in the figure does not, however, change any of the conclusions in the Draft EIR. Figure 2-20 has been hereby revised as follows:

Revised Figure 2-20
Oakley Zoning District Boundaries



Source: Oakley Community Development Department and Richard T. Loewke, AICP.

Letter 10

From: 11/01/2007 12:10 #002 P.001/002

Community
Development
Department

County Administration Building
651 Pine Street
Fourth Floor, North Wing
Martinez, California 94553-1229

Phone(925) 335-1240

Contra
Costa
County

Dennis M. Barry, AICP
Community Development Director

November 1, 2007

Post-it® Fax Note 7671		Date 11-1-07	# of pages ▸ 2
To Kenneth Strelo		From Steven Goetz	
Co./Dept City of Oakley		Co. CCC CDD	
Phone # 925-625-7000		Phone # 925-335-1240	
Fax # 925-625-9194		Fax # 925 335-1300	

Kenneth Strelo, Senior Planner
City of Oakley
3231 Main Street
Oakley, CA 94561

Dear Mr. Strelo:

I am writing to submit comments from Contra Costa County Community Development staff regarding the *Draft Environmental Impact Report for the River Oaks Crossing Specific Plan Project*. These comments address traffic impacts on State Route 4, construction impacts, trip reductions for pass-by trips, and regional trail facilities.

Traffic Impacts on State Route 4 (Main Street)

10-1 The City of Oakley should put in to use the *East County Action Plan* Traffic Service Objectives as the thresholds of significance for traffic impacts. The *East County Action Plan* lists Non-freeway State Route 4 (Main Street) as a route of regional significance between State Route 160 and the San Joaquin County Line.

10-2 Page 3.2-9 of the Specific Plan EIR states that a significant traffic impact would occur if the operations of a signalized study intersection decline to an unacceptable Level of Service E condition. However, the Traffic Service Objectives from State Route 160 through Balfour Road for this route are: a) Level of Service D or better at signalized intersections; b) Level of Service E or better at unsignalized intersections; and c) a Delay Index of less than 2.5.

10-3 The *Action Plan* obligates local jurisdictions to review local and regional traffic impacts for development projects that generate more than 100 peak-hour trips as part of the Contra Costa Transportation Authority's growth management program. Information on this project's impact on the Traffic Service Objectives of State Route 4 from State Route 160 to Balfour Road should be added to this EIR.

10-4 Page 3.2-11, the Specific Plan EIR states that for unsignalized intersections, the 2000 Highway Capacity Manual method was used to measure Level of Service. The intersections included locations on Main Street where there would be new signals at four locations for driveways into the Specific Plan area. The EIR does not indicate whether a signal warrant analysis from the Manual on Uniform Traffic Control Devices was used for these intersections.

10-5 The spacing of the proposed signals and how they affect one another should also be analyzed to see if the timing might be conflicted. In the event of conflict, a possibility of signal coordination may be one of the measures used. This evaluation would also help determine the project's impact on the Delay Index of 2.5.

Letter 10 cont'd.

Mr. Strelo
November 1, 2007
Page 2

Construction Impacts

10-6 Proposed construction haul routes should be identified, and mitigation measures for road damage due to construction traffic should be outlined, if needed.

Adjustment of Trip Generation for Pass-by Trips

10-7 Page 3.2-17 shows a Project Trip Generation Table that uses a pass-by trip rate of 34 percent for a 242,000 square foot retail establishment. This reduction is based on the average percentage for all shopping centers surveyed as shown in Institute of Transportation Engineers (ITE) *Trip Generation Handbook*. However, a regression curve is also shown in the *Handbook* which modifies the average pass-by trip percentage based on the size of the shopping center. The *Handbook* indicates a 242,000 square foot shopping center would have a pass-by trip rate closer to 30 percent, and that this percentage goes down as the size of a shopping center increases. Page 72 of the *Handbook* says the regression curve should be used as the starting point for pass-by trip estimation. Some additional explanation should be provided on the appropriateness of this pass-by estimate in the EIR and its consistency with the *Handbook's* guidance.

Trail Facilities

10-8 The Regional Transportation Planning Committee for East County, TRANSPLAN, updated the *East County Bikeways Plan* in 2005. The *Plan* lists existing and proposed bikeways for all jurisdictions in East County. The City of Oakley lists three proposed facilities in the project vicinity. BNSF Railroad Right of Way (from Bridgehead Road to Sellers Avenue), and Bridgehead Road-Neroly Road (from the Antioch Regional Shoreline to the Southern city limits), are listed as proposed Class I facilities. Main Street, from Bridgehead Road to Neroly Road/Delta Road, is listed as a proposed Class II facility. The Specific Plan EIR should consider these proposed facilities as part of the plan area.

If you have questions about our comments on the Draft EIR, please feel free to contact me. Thank you for the opportunity to review the Draft EIR for its adequacy and completeness.

Sincerely,

Steven L. Goetz
Deputy Director, Transportation Planning Division

c: J. Sighamony, Transplan Committee
B. Fernandez, Public Works Dept.

G:\Transportation\Steve\letter\sent\2007\River Oaks cover letter DEIR.doc

LETTER 10: CONTRA COSTA COUNTY COMMUNITY DEVELOPMENT DEPARTMENT

Response to Comment 10-1

The thresholds of significance on page 3.2-9 of the Draft EIR do not list the specific level of service (LOS) thresholds used to determine project impacts at each study intersection. Table 3 on Page 8 of the Transportation Impact Analysis (See Appendix C of the Draft EIR), lists the specific LOS thresholds at each study intersection used to determine project impacts. The traffic service objectives established in the *East County Action Plan for Routes of Regional Significance* were used to determine project impacts for both signalized and unsignalized intersections along Main Street.

Response to Comment 10-2

The Traffic Service Objectives (TSOs) in the *East County Action Plan* include LOS D for signalized and LOS E for unsignalized intersections along Main Street. Thus, signalized intersections operating at LOS D or better and unsignalized intersections operating at LOS E or better would be considered acceptable. The thresholds of significance on page 3.2-9 of the Draft EIR state that the project would cause a significant impact if it causes an intersection to decline to LOS E or worse. Thus, the significance criteria stated in the Draft EIR for intersections along Main Street are consistent with the TSOs established in the *East County Action Plan.*

Please see Response to Comment 10-1 about thresholds of significance used at specific intersections.

Please see Response to Comment 9-3 regarding delay index along Main Street.

Response to Comment 10-3

Please see Response to Comment 9-3 regarding Traffic Service Objective on Main Street.

Response to Comment 10-4

As stated in the comment, four driveways along Main Street opposite Sandy Lane, between Sandy Lane and Live Oak Avenue, opposite Live Oak Avenue, and between Live Oak Avenue and Big Break Road would be signalized to provide access to and from the project site. Fehr & Peers, the consulting traffic analyst for the City, determined that all four intersections would satisfy the MUTCD peak hour signal warrant under Near-Term with Project conditions.

Response to Comment 10-5

As is typical with closely spaced intersections along major arterials, both Near-Term With Project and Cumulative With Project traffic operations analyses were completed assuming that the signals on Main Street along project frontage would be coordinated. The coordination of signals on Main Street would contribute to improved traffic flow by minimizing delay for through vehicles and would help in maintaining the traffic service objective along this regional route of significance.

Response to Comment 10-6

Haul routes for project construction have not been identified yet. Construction traffic would most likely use the freeway and non-freeway SR 4 to access the site.

Response to Comment 10-7

A pass-by rate of 34 percent was applied to the 242,000 square-feet of retail in the project. This is the average pass-by rate for shopping centers as published in Institute of Transportation Engineers (ITE) *Trip Generation Handbook, Second Edition*. The handbook also provides a regression equation for estimating pass-by rates based on project size. As stated in the comment, the regression equation would result in a pass-by rate of 30 percent for the 242,000 square-feet of retail. The R^2 provided for the regression equation is 0.37, indicating that the regression equation is a statistically poor estimator for pass-by trips. In addition, increasing the pass-by rate from 34 percent to 30 percent of retail trips as suggested in the comment would result in only 44 additional PM peak hour vehicles, which is not expected to result in any additional impacts.

Response to Comment 10-8

Existing and planned bicycle facilities in the Project vicinity are discussed on page 3.2-6 of the Draft EIR. As discussed in Impact CT-8, the Proposed Project would have a less-than-significant impact on bicycle and pedestrian circulation. The Specific Plan provides for bicycle connections between the Project site and existing and proposed adjacent bicycle facilities.

Letter 11

October 31, 2007

Kenneth Strelo
Senior Planner
City of Oakley
3231 Main Street
Oakley, CA 94561

RECEIVED
NOV 01 2007
CITY OF OAKLEY
COMMUNITY DEVELOPMENT DEPT

Our File: 3029H-06
APN: 037-040-015

Dear Mr. Strelo:

We have reviewed the Draft Environmental Impact Report (DEIR) for the River Oaks Crossing Specific Plan (previously known as the Cline Specific Plan). This property is located on the north side of Main Street (State Route 4) between Bridgehead Road and Big Break Road. We received the DEIR on September 13, 2007, and have the following comments:

11-1

1. The project is located in Drainage Area 29H (DA 29H). Future developments in this area will be subject to a drainage fee in accordance with Flood Control Ordinance Number 2006-50(ordinance number incorrect in DIER, Chapter 3.11 page 9). By ordinance, all subdivision and development of property in this area is subject to the provisions of the drainage fee ordinance. The current fee in this drainage area is $0.90 per square foot of newly created impervious surface area. This fee pays for drainage improvements that help mitigate the increased runoff generated by new development. The City will need to collect the fees during the development process prior to issuance of building permits and/or the recordation of any Final or Parcel Maps.

11-2

2. The District is not the approving local agency for this project, as defined by the Subdivision Map Act. As a special district, the District has an independent authority to collect drainage fees that is not restricted by the Subdivision Map Act. The District reviews the drainage fee rate every year the ordinance is in effect and adjusts the rate annually on January 1 to account for inflation. The drainage fee rate does not vest at the time of tentative map approval. The drainage fees due and payable will be based on the fee in effect at the time of fee collection.

11-3

3. This development should be required to collect and convey all storm waters entering or originating within this project (without diversion of watershed) to the nearest

Letter 11 cont'd.

11-3 cont'd.

natural watercourse or adequate man-made facility. The applicant should verify the adequacy of the downstream system.

11-4

4. According to the District DA 29H Hydrology Map (DWG FD-12617), the project is tributary to DA 29H Lines A and D. The project's northwest and middle areas should drain into Line D, and the east area should drain to Line A.

   Our records indicate that Line A has been installed and Line D will need to be installed. Line A is located along Main Street (State Route 4), crosses the development site and BNSF Railroad, and outfalls into the channel connected to Big Break Marina. Figure 3.11-1 (Chapter 3.11 page 10) in the DEIR does not the show correct current location of Line A. If Line A along with it's corresponding drainage easements are to be relocated to accommodate proposed structures, as mentioned in Chapter 3.11 page 11 (HWQ-1c), it should be illustrated on Figure 3.11-1.

   Line D is proposed to traverse the project site and connect to the existing Line A. Subdivision 7330 designed and constructed the existing 72-inch and 84-inch storm drain system of Line A to accept flows from Line D. However, a stub was not provided for Line D. Therefore, Line D should connect to Line A at the manhole at STA 20+56.72 (Subdivision 7330 Off-Site Drainage Improvement Plans), located south of BNSF Railroad right of way. The location of Line D, while shown down the center of the development, can be shifted north to accommodate the proposed structures but must connect to Line A at the manhole specified above (STA 20+56.72).

   The Hydrology and Water Quality Section of the DEIR should discuss the construction of Line D. In order to avoid flooding impacts in this area, construction of Line D is a necessary mitigation and could be considered a "potentially significant impact."

11-5

5. Work done in accordance with the DA 29H Plan will be eligible for fee credits and/or reimbursement. The District will need to review and approve the Improvement Plans for Line D in order to consider the eligible construction costs for fee credits and/or reimbursement.

11-6

6. The DA 29H Zoning Map (DWG FD-12602) assumed that this area would develop as Heavy Industrial. The DIER indicates that the specific plan will designate the site for a range of possible commercial uses. The DEIR should address any impacts of impervious surfaces for the range of possible commercial uses, on the downstream drainage system portion of the watershed. The District was unable to locate empirical evidence that the downstream drainage system will adequately handle the storm runoff from a denser land use than originally planned for (as stated in Chapter 3.11 page 9 of DIER). If the downstream system is not adequate for the proposed

**Letter 11
cont'd.**

11-6 cont'd. development density, then the proposal would be considered "a potentially significant impact" and specific mitigation measures must be proposed.

We appreciate the opportunity to review the DIER and welcome continued coordination. If you have any questions, please call me at (925) 313-2304 or Tim Jensen at (925) 313-2396.

Sincerely,

Jorge Hernandez
Staff Engineer
Flood Control District

JH:
G:\FldCtl\CurDev\CITIES\Oakley\3029H-06\APN 037-040-008 (Cline Property)\DEIR Comments.doc

Enclosures:

c: G. Connaughton, Flood Control
Jason Vogan, City of Oakley
B. Faraone, Flood Control
T. Jensen, Flood Control

LETTER 11: JORGE HERNANDEZ, FLOOD CONTROL DISTRICT

Response to Comment 11-1

The commenter is correct. As provided in the Draft EIR at page 3.11-11, should the Proposed Project be approved, the City shall collect all applicable development fees, and require the payment of applicable fees to the associated bodies, including fees related to drainage improvements.

Response to Comment 11-2

The commenter is correct. This comment pertains to how the District manages fee schedules and amounts and does not address the adequacy of the Draft EIR.

Response to Comment 11-3

The Draft EIR requires that the developers within the proposed Specific Plan area submit a SWPPP for construction phases of the Proposed Project and Stormwater Control Plan for the operational phases, consistent with the City's joint municipal National Pollutant Discharge Elimination System permit, for the City's review. The SWPPP and associated drainage plans would be required to ensure that the development of the Specific Plan area would not result in any increases in drainage flows beyond current, "no project" levels.

Response to Comment 11-4

As discussed in Impact HWQ 1 on page 3.11-9 of the Draft EIR and reiterated in Mitigation Measure HWQ-1(c), the Proposed Project will be required to comply with the improvements identified in existing drainage plans and must be designed to the satisfaction of the City as well as the CCCFCWCD. This would include compliance with the 29H Drainage Plan as identified in the comment. Line D is identified in the Drainage Plan and will be constructed as part of the Proposed Project. Line D is located on-site and construction impacts are addressed throughout the Draft EIR.

Response to Comment 11-5

Comment noted. The City will provide the Improvement Plans for Line D to the District at the appropriate phase of development.

Response to Comment 11-6

The Draft EIR states that the Proposed Project would be required to comply with existing C.3 Standards, which would ensure that the Proposed Project would not result in any net increase in drainage flows from the Proposed Project site. Because the Proposed Project would be required to mitigate any drainage flows to pre-development levels, additional flows would not exceed current levels. Accordingly, the Draft EIR was not required to analyze the capacity of downstream drainage systems to handle new stormwater run-off, as such additional run-off would not be permitted under the City’s implementation of the C.3 Standards and implementation of Mitigation Measure HWQ-2.

Letter 12

DEIR Letters Opposing Oakley Wal-Mart Project

RECEIVED
NOV 01 2007
CITY OF OAKLEY
COMMUNITY DEVELOPMENT DEPT

Rebecca Willis
Community Development Director
City of Oakley
3231 Main Street
Oakley, CA 94561

Dear: Rebecca Willis

12-1 I am a concerned citizen, concerned about the new Wal-mart that would like to come into Oakley. As you know already there would be an increase of traffic coming off of the Freeway. If the Walmart Store was to come in I am sure there would be alot more congestion at the intersections.

12-2 Also it would make it a hardship for the other stores, they might have to close. We have 3 other chains of grocery stores in the area. People would lose jobs. I have talked with some of the stores in the area and they would not like to see Wal-mart come in. I also get my haircut at one of the hair salons in the area and she has a nail bussiness, I understand so does Wal-mart that would take away business from them.

12-3 You already have a Walmart in Pittsburg and Antioch, I don't think we have to have one in Oakley. You say it will generate more business for Oakley, but do you know that you will also have alot of crime with the new store. The extra money you make, will have to go towards hiring police to keep the crime down, does that make any since. I don't think so.

Concerned

Deb Schneider

LETTER 12: DEB SCHNEIDER, RESIDENT

Response to Comment 12-1

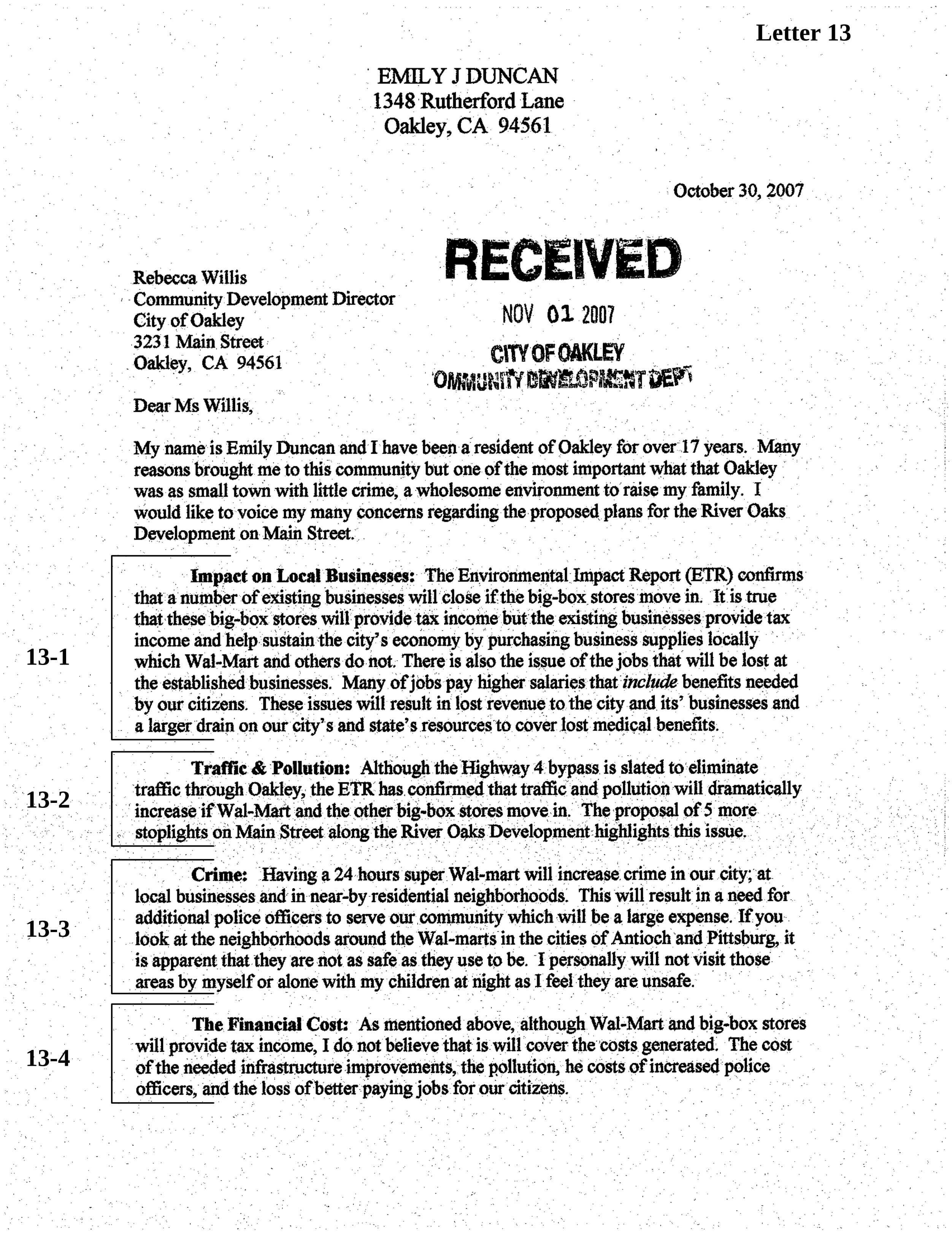
Impacts related to increases in traffic as a result of the construction of the Proposed Project are addressed in Chapter 3.2 of the Draft EIR. The Draft EIR found that, although several road segments and intersections would be potentially impacted by the Proposed Project, the mitigation measures that are proposed would reduce most of these impacts to a less-than-significant level. The only impacts that would remain significant and unavoidable would be to the Wilbur Avenue/SR 160 northbound and southbound ramps. The Draft EIR includes mitigation that would reduce these impacts to less-than-significant levels and requires a fair share payment from developers within the proposed Specific Plan area. As stated in the mitigation measures, the City of Oakley would collect the fair share funding and would reimburse the appropriate entity at the time the improvements are initiated in the City of Antioch. The City of Antioch's Capital Improvement Program does not currently include a proposal for signalization at this intersection. Because those improvements are outside the jurisdiction of Oakley and cannot be guaranteed, the impact is still found to be significant and unavoidable.

Response to Comment 12-2

Please see Master Response "Urban Decay Analysis."

Response to Comment 12-3

As noted in the Public Services chapter of the Draft EIR, additional funding for police protection will come from a per-parcel fee program which would require all developers within the proposed Specific Plan area to contribute to an annual fee program to help provide additional police support for the Proposed Project site. Please see also Response to Comment 8-6.



Letter 13

EMILY J DUNCAN
1348 Rutherford Lane
Oakley, CA 94561

October 30, 2007

Rebecca Willis
Community Development Director
City of Oakley
3231 Main Street
Oakley, CA 94561

RECEIVED
NOV 01 2007
CITY OF OAKLEY
COMMUNITY DEVELOPMENT DEPT

Dear Ms Willis,

My name is Emily Duncan and I have been a resident of Oakley for over 17 years. Many reasons brought me to this community but one of the most important what that Oakley was as small town with little crime, a wholesome environment to raise my family. I would like to voice my many concerns regarding the proposed plans for the River Oaks Development on Main Street.

13-1 **Impact on Local Businesses:** The Environmental Impact Report (ETR) confirms that a number of existing businesses will close if the big-box stores move in. It is true that these big-box stores will provide tax income but the existing businesses provide tax income and help sustain the city's economy by purchasing business supplies locally which Wal-Mart and others do not. There is also the issue of the jobs that will be lost at the established businesses. Many of jobs pay higher salaries that *include* benefits needed by our citizens. These issues will result in lost revenue to the city and its' businesses and a larger drain on our city's and state's resources to cover lost medical benefits.

13-2 **Traffic & Pollution:** Although the Highway 4 bypass is slated to eliminate traffic through Oakley, the ETR has confirmed that traffic and pollution will dramatically increase if Wal-Mart and the other big-box stores move in. The proposal of 5 more stoplights on Main Street along the River Oaks Development highlights this issue.

13-3 **Crime:** Having a 24 hours super Wal-mart will increase crime in our city; at local businesses and in near-by residential neighborhoods. This will result in a need for additional police officers to serve our community which will be a large expense. If you look at the neighborhoods around the Wal-marts in the cities of Antioch and Pittsburg, it is apparent that they are not as safe as they use to be. I personally will not visit those areas by myself or alone with my children at night as I feel they are unsafe.

13-4 **The Financial Cost:** As mentioned above, although Wal-Mart and big-box stores will provide tax income, I do not believe that is will cover the costs generated. The cost of the needed infrastructure improvements, the pollution, he costs of increased police officers, and the loss of better paying jobs for our citizens.

Letter 13 cont'd.

13-5 **City Environment:** And finally we can not ignore the impact this will have on the "Environment" of our city. The increase in traffic, the crime and the devastation to our existing businesses will change our city. I do not feel these changes reflects the City's motto of *A Place for FAMILIES in the HEART of the DELTA* -- a safe family oriented place to live.

Thank you,

Emily Duncan

Emily Duncan

LETTER 13: EMILY DUNCAN, RESIDENT

Response to Comment 13-1

Please see Master Response "Urban Decay Analysis." The commenter's policy objection to the Proposed Project is noted and will be forwarded to the appropriate decision-making bodies.

Response to Comment 13-2

The commenter is correct that there is an increase in traffic associated with the Proposed Project. As discussed in Response to Comment 12-1, the only impact that would remain significant and unavoidable after the implementation of suggested mitigation measures would be the impacts to the northbound and southbound Wilbur Avenue/SR 160 ramps. The Draft EIR includes mitigation that would reduce these impacts to less-than-significant levels and requires a fair share payment from developers within the proposed Specific Plan area. As stated in the mitigation measures, the City of Oakley would collect the fair share funding and would reimburse the appropriate entity at the time the improvements are initiated in the City of Antioch. The City of Antioch's Capital Improvement Program does not currently include a proposal for signalization at this intersection. Because these improvements are outside the jurisdiction of Oakley and, with no program in Antioch to implement them, cannot be guaranteed, the impact is still found to be significant and unavoidable. Further, as discussed in the Cumulative Air Quality discussion included on page 3.6-16 of the Draft EIR, the impacts associated with the development of the Proposed Project in concert with other developments in the area would result in a significant and unavoidable impact.

Response to Comment 13-3

Please see Response to Comments 12-3 and 8-6.

Response to Comment 13-4

The purpose of the Draft EIR is to address the environmental impacts associated with the Proposed Project. The mitigation measures associated with the Draft EIR would ensure that the developers of the Proposed Project be required to pay the fair-share fees associated with any additional infrastructure that the proposed development would require, resulting in a less-than-significant environmental impact. The commenter has not provided any specific information as to why the mitigation measures proposed should not be expected to operate to reduce most potential impacts of the Proposed Project to less-than-significant levels.

The commenter's policy concerns are noted and will be forwarded to the appropriate decision-making bodies.

Response to Comment 13-5

This comment does not address the adequacy of the Draft EIR. However, the commenter's policy concerns are noted and will be forwarded to the City Council for consideration.

Letter 14

To: Rebecca Willis
Community Development Director
City of Oakley
3231 Main Street
Oakley, CA 94561

RECEIVED
NOV 01 2007
CITY OF OAKLEY
COMMUNITY DEVELOPMENT DEPT

From: Paul Seger
1270 Sequoia Drive
Oakley, CA 94561

Re: River Oaks Specific Plan EIR

Date: 01 November 2007

Dear Ms. Willis:

The Draft EIR for the proposed Cline Property development I feel, has a number of poorly researched and planned elements.

14-1 **Traffic:** The board and other defenders of the Wal-Mart project have told me that the Hwy 4 bypass will eliminate enough traffic to more than compensate for the extra daily vehicle trips planned to be generated by the Supercenter projects and housing presently under construction along with future projects are not accounted for. I do not see the studies to back their claims.

14-2 Extra stoplights necessary will add on average an extra 30 minutes to Oakley citizens daily commutes, which due to our Far East Bay location are already lengthy and tiresome. My domestic partner's average work commute to Walnut Creek increase from forty minutes to about and hour and ten minutes. Her average commute home will increase from one hour and fifteen minutes to one hour forty five, or more.

The added stoplights and traffic will eliminate over five hours per week, twenty hours per month and 200 hours per year removed from an Oakley taxpayer's recreation time, not to mention the extra tension and wind-down time.

14-3 There is no mention of increase in minor accidents, harm and deleterious effects and a greater possibly road rage due to the quantity of distraction presented by the project, tired drivers, hot weather, failing economy, stoplights, and just plain bad drivers. The off-ramp at Brentwood Blvd already puts drivers in precarious positions during rush hour with the off-ramp traffic often backed up over a mile on the freeway.

14-4 Alternative routes, small back roads that help maintain the small town appeal of Oakley will become over populated, dangerous, and will lead to ugly over-development on a scale as to remove the charming qualities of our town.

14-5 **Air Quality:** Thousands of new car trips per day will significantly decrease the quality of our air. The number of cases of asthma is on the rise in America and in our region... many Oakley residents moved far East of Oakland, to our town, to escape the rise of pollutants and to enjoy a greater quality of health. The large number of housing projects underway and proposed housing will add even more pollutants. The River Oaks Project is inconsistent with the General Plan's policy to conserve air

Letter 14 cont'd.

14-5 cont'd. quality. There is not suitable mitigation to this fact, not even a curt shift in language. See land use...

14-6 **Land Use and Urban Blight:** This project is in conflict with the General Plan's goal to reduce dependency on regional shopping centers, and to promote community by providing neighborhood sized economic centers and plazas.

Welcome to Wal-Mart-ville. People entering our town will be greeted by a big ugly Wal-Mart building, the company that represents everything destructive to the community values we hold so dear here in Oakley. It will brand our community as a greedy "sold out" town. The path for easy revenue is not necessarily paved with Big Box retail projects that interfere with Oakley's General Plan to reduce dependency on regional shopping centers. Wal-Mart does not define the creative compassionate character of the typical Oakley resident.

The Draft EIR does not take into account factual data on the devastating effects Wal-Mart has on the small-town character that the General Plan purports. Empty buildings and the closing of existing businesses will dot our town. Wal-Mart decimates small businesses, lowers property values and eliminates genuine, unpretentious, friendly community contact.

14-7 **Agricultural and cultural resources:** It is amazing that the City does not care one iota, about the historic implication of destroying the Cline vineyards, the last remaining old-growth vines... that are actually held in high regard in the Draft EIR! A financial "contribution" will be an insignificant side note to the irreplaceable, high quality vineyards being replaced by a dime-a-dozen quaintness of a Wal-Mart super center. A great part of Oakley heritage will be lost forever.

14-8 **Alternatives:** Build up parts of the Cline Property; creating hills, valleys, plains creeks and ponds.
Plant native trees and brush.
Create miles of trails for for mountain biking, joggers, hikers.
Revenue:
Dot paths with coffee shops, juice bars, restaurants, Create a "peak site Cafe" with views of the Delta.
Leave blocks of the vineyard in tact as interpretive centers on vines, vineyards and wine making.
Sponsor regional mountain bike races and "Indian runs" to raise revenue and promote healthy lifestyle.

The River Oaks project is wrong for Oakley.

Sincerely,
Paul Seger
Paul Seger

LETTER 14: PAUL SEGER, RESIDENT

Response to Comment 14-1

Construction of the Highway 4 Bypass was assumed in the traffic analysis for the Proposed Project because Segment 1 (between SR 4 freeway and Lone Tree Way) is expected to be operational in Winter 2008, Segment 3 (between Balfour Road and Vasco Road) is currently under construction, and Segment 2 (between Lone Tree Way and Balfour Road) is expected to be widened in the near future. (See the Transportation and Circulation chapter of the Draft EIR and the Transportation Impact Study provided in Appendix C of the Draft EIR for an analysis of traffic conditions with the completion of the SR 4 Bypass.) Although the SR 4 Bypass would alleviate some of the current congestion, the Draft EIR includes mitigation measures to mitigate the impacts caused by the Proposed Project.

Response to Comment 14-2

The commenter's opinion that the additional stoplights associated with the approval of the Proposed Project would result in a 30-minute increase in daily commutes is not supported by any data or information. As illustrated in Chapter 3.2 of the Draft EIR, Traffic and Circulation, the mitigation measures associated with the Proposed Project would ensure that all intersections are operating within acceptable levels of delay in accordance with the standards identified in the City of Oakley General Plan.

Response to Comment 14-3

Issues related to traffic safety are addressed primarily through the City's level of service (LOS) traffic standards. The standards included in the General Plan are meant to ensure that traffic delays within the City are within acceptable levels as to prevent undo delay as well as to address any potential concerns regarding traffic safety. In accordance with the Oakley 2020 General Plan Circulation Element Policy 3.1.1, the minimum level of service at an intersection within the City would be an LOS D (Please see Table 3.2-2 for a description of LOS levels A-F). The Traffic and Circulation chapter of the Draft EIR addresses traffic based upon the standards identified in Policy 3.1.1 in Impacts CT-5 and CT-6 on pages 3.2-22 through 3.2-24. The Draft EIR found that, after the implementation of suggested mitigation measures, all intersections and road segments within the City of Oakley that would be affected by the Proposed Project would still operate at acceptable (LOS D or greater) levels of service in the near term and long-term cumulative conditions.

In addition, Improvement Plans for the proposed Specific Plan are based on the Design Guidelines included in the Specific Plan. The Design Guidelines set forth in the Specific Plan are intended to promote on-site circulation in order to reduce hazards associated with transportation in and around the Specific Plan area. Discussion of the Design Guidelines related to transportation and circulation can be found under Impact CT-5, Development Plan Circulation Impacts, in the Draft EIR. The Draft EIR determined that the current development plan would have a less-than-significant impact in regard to circulation issues on the Proposed Project site.

Response to Comment 14-4

Please review Chapter 3.2, Traffic and Circulation, regarding the potential distribution of traffic associated with the Proposed Project. Due to the Proposed Project's location on major streets and the easy access from those streets associated with the proposed site plan, the City's traffic expert, Fehr & Peers, determined that the likelihood that smaller arterial roads would be adversely impacted by the additional traffic is very small. The mitigation measures included in the EIR would ensure that the major arterials providing access to the site would continue to provide adequate capacity and further discourage project traffic from diverting to smaller residential roadways. The commenter's concerns regarding the character of the town and the scale of development are noted and will be forwarded to the appropriate decision-making bodies for consideration; however, these concerns do not address the adequacy of the Draft EIR.

Response to Comment 14-5

The commenter is correct in that the addition of extra vehicle trips associated with the Proposed Project would result in a significant impact to air quality. While project-level impacts would be mitigated to less-than-significant levels through the implementation of Mitigation Measures AQ-1 and AQ-2, the Draft EIR found that the cumulative long-term air quality impacts associated with development would be significant and unavoidable. However, it should be noted that, consistent with the General Plan, the mitigation measures included in the Draft EIR would reduce the air quality impacts to the greatest extent feasible.

Response to Comment 14-6

The cited General Plan goal states that the City of Oakley should strive to lessen dependency on regional shopping centers. The development of the Proposed Project would achieve this goal by eliminating the need for the residents of Oakley to go outside of the City for their shopping needs. The purpose of this General Plan goal is to reduce dependency on other shopping centers outside of the City of Oakley (which results in a net loss in the City's tax base). The economic impacts associated with the development of the Proposed Project are addressed in Chapter 3.16 of the Draft EIR and are also discussed in Master Response "Urban Decay Analysis." These potential impacts were found to be less-than-significant. It should be noted however, that the ultimate determination of General Plan consistency rests with the City Council.

The commenter's policy concerns regarding the character of the town and general objections to the Proposed Project are noted and will be forwarded to the appropriate decision-making bodies for consideration.

Response to Comment 14-7

Please see Response to Comment 4-5. The commenter's policy objection is noted and will be forwarded to the appropriate decision-making bodies for consideration.

Response to Comment 14-8

The alternative suggested by the commenter would not satisfy the fundamental project objectives, as noted on page 5-2 of the Alternatives chapter of the Draft EIR. These objectives include the creation of a 630,000 square-foot retail development, and the provision of a commercial center that would serve the local and regional market to attract new customers and retailers to the City of Oakley. Please see the Alternatives chapter of the Draft EIR for an in-depth discussion of the alternatives considered, as well as those that were considered but dismissed, as part of the City's environmental analysis.

Letter 15

TRANSPLAN COMMITTEE
EAST COUNTY TRANSPORTATION PLANNING
Antioch • Brentwood • Oakley • Pittsburg • Contra Costa County
651 Pine Street -- North Wing 4TH Floor, Martinez, CA 94553-0095

November 1, 2007

Kenneth Strelo
Senior Planner
City of Oakley
3231 Main Street
Oakley, CA 94561

RECEIVED
NOV 01 2007
CITY OF OAKLEY
COMMUNITY DEVELOPMENT DEPT

Dear Kenneth:

I am writing in regards to the Draft Environmental Impact Report for the River Oaks Crossing Specific Plan Project. The TRANSPLAN Technical Advisory Committee members received a report regarding the project at their October 16th TAC Meeting.

15-1 The TRANSPLAN Technical Advisory Committee offered the following suggestions and requests for your consideration which are based on the 2000 Update of the East County Action Plan for Routes of Regional Significance.

15-2 1. Transportation facilities that would serve any new development, such as bike facilities, shall be linked to and compatible with existing and planned roads of adjoining areas. The Specific Plan makes note of such facilities. The Technical Advisory Committee encourages working with Tri Delta Transit in determining any transit improvements that may be required during the Specific Plan process. One of the actions in the Action Plan highlights the consideration of adopting development approval guidelines that would call for transit-oriented design, where feasible, as conditions of approval.

15-3 2. The Specific Plan shows Table 2-1 on pages 2-20 and 2-21 that presents information on Land Use Data for planned uses. The land use and traffic analysis for the Specific Plan should use the 2006 Land Use Information System (LUIS) update prepared by CCTA. The 2006 LUIS Update is consistent with Projections 2005, and incorporates local review comments.

15-4 3. The Specific Plan EIR details the planned land uses. With an increase in such uses along this Route of Regional Significance, the Specific Plan must maintain Transplan's ability to meet the Traffic Service Objectives (TSOs) contained within the East County Action Plan. For example, the TSO for SR 4 Non-freeway segments between SR 160 and Balfour Road at signalized intersections is Level of Service D or better; and Level of Service E for unsignalized intersections. It also specifies a delay index of less than 2.5 for SR 4. However, once SR 4 converts to the Bypass, the delay index will go down to less than 2.0 for Main Street.

The East County Action Plan also specifies requires local jurisdictions to review local and regional traffic impacts for development projects that generate more than 100 peak-period trips, as part of CCTA's growth management program.

Letter 15 cont'd.

15-5 4. Impacts to Main Street (currently SR 4) and SR 160 need to be discussed and a plan developed to work with Caltrans to construct 6 lanes under the freeway bridges. Currently the westbound third lane merges before the ramps. It is suggested that there should be a Synchro model that shows the queue lengths to verify there is adequate storage.

15-6 5. SR160 southbound offramp to Wilbur Avenue impacts are discussed at various locations in this report. This is a Caltrans intersection that could be easily mitigated by installing a traffic signal. The developer should consider providing funding for Caltrans to construct the signal. The traffic issue appears to be the southbound left turn traffic at the existing STOP signs will have to wait and backup an unacceptable distance. Traffic going to Antioch makes a right turn to travel west which is done easily. A Level of Service of an F shown on many charts is not acceptable.

15-7 6. The City of Antioch has completed the widening of East Eighteenth Street to four lanes west of SR4/160 except for the area near East 18th and Vierra Road. Does the third lane need to start west of the freeway ramp intersection to improve LOS to mid "D"?

15-8 Will the developer or City of Oakley widen Main Street west of Neroly Road to six lanes so that traffic can get to and from the freeway ramps?

15-9 The East County Action Plan also highlights the implementation of regional transportation improvements, such as the full widening of non-freeway SR 4 through Oakley and Brentwood to Discovery Bay that we are asking the City to look at as part of the Specific Plan process.

If you have any questions about our comments regarding the document, please feel free to contact me. We thank the City for providing the opportunity to review this Notice of Preparation.

Sincerely,

John Sighamony
TRANSPLAN staff

Oakley Transplan TAC Letter 10 29 07

cc: TRANSPLAN Committee
TRANSPLAN Technical Advisory Committee

Phone: 925.335.1278 Fax: 925.335.1300 jsigh@cd.co.contra-costa.ca.us www.transplan.us

LETTER 15: EAST COUNTY TRANSPORTATION PLANNING COMMITTEE

Response to Comment 15-1

This is an introductory comment and does not address the adequacy of the Draft EIR.

Response to Comment 15-2

As stated on page 3.2-24 of the Draft EIR, the Proposed Project Development Plan and Specific Plan identify multiple locations for safe and convenient bicycle and pedestrian access between Project and the existing and planned public streets, sidewalks, and trails surrounding the site. Impact CT-8 identified a less-than-significant effect on pedestrian and bicycle access and circulation. As stated on page 3.2-25 of the Draft EIR, the proposed Specific Plan requires coordination with Tri-Delta Transit as part of each phase of development to provide bus pullouts and other amenities, such as shelters on Main Street, and to provide pedestrian connections between the bus stops on Main Street and major and secondary retailers on the site. Impact CT-9 identified a less-than-significant effect on transit.

Response to Comment 15-3

The methodology used to develop future near-term and cumulative traffic volume forecasts are presented on pages 25 and 40 of the Transportation Impact Study, respectively. The land use database used in the CCTA Travel Demand Model is based on CCTA's 2006 Land Use Information System (LUIS), which is consistent with ABAG *Projections 2005*. However, land uses within the City of Oakley were modified to reflect approved and pending developments under Near-Term conditions, and buildout of the City's General Plan under Cumulative Conditions. This is consistent with typical practice for transportation impact studies in Oakley and east Contra Costa County, and generally presents a more conservative analysis because General Plan buildout contains more development than LUIS database.

Response to Comment 15-4

Please see Response to Comment 10-1 regarding thresholds of significance used for study intersections.

Please see Response to Comment 9-3 regarding delay index along Main Street.

Response to Comment 15-5

Please see Response to Comment 7-8 regarding queues on Main Street at the SR 160 interchange.

Please see Response to Comment 9-4 regarding widening of Main Street west of Neroly Road.

Response to Comment 15-6

As stated in the comment, the Wilbur Avenue/SR 160 southbound ramps would operate at LOS F during PM peak hour under Near-Term with Project conditions. However, the intersection would not meet the MUTCD peak hour signal warrant. As stated in the thresholds of significance on page 3.2-9, a project impact on an unsignalized intersection would be significant if the intersection operates at an unacceptable LOS and meets the MUTCD peak hour signal warrant. Thus, the Project would not cause a significant impact at this intersection under Near-Term conditions. Impact CT-10 identifies the Project impact at this intersection under Cumulative with Project conditions and requires the Project to contribute its fair share to signalization of the intersection.

Response to Comment 15-7

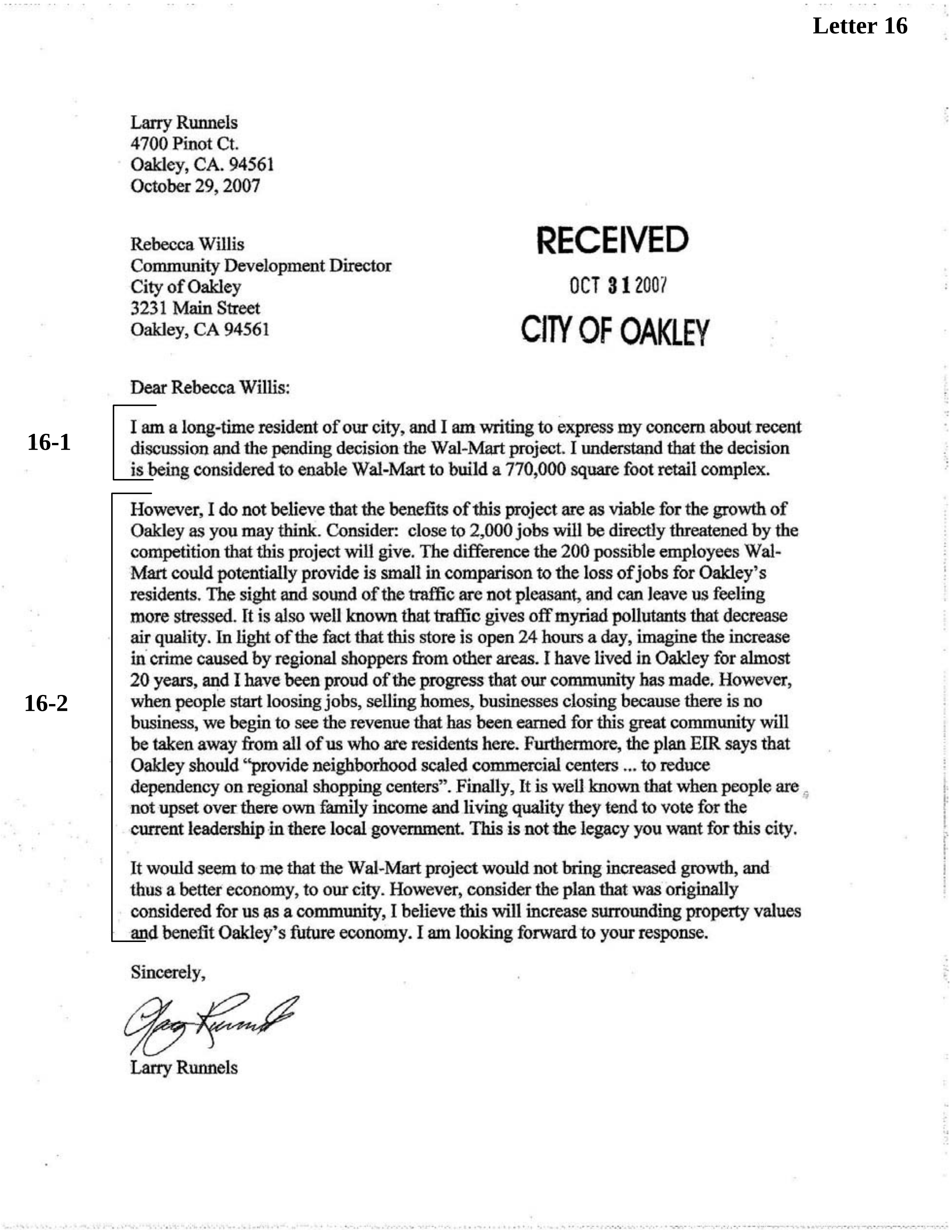
Please see Response to Comment 9-5.

Response to Comment 15-8

Please see Response to Comment 9-4.

Response to Comment 15-9

Please see Response to Comments 9-1 and 9-3 regarding project impacts on non-freeway SR 4 (Main Street) through Oakley and Brentwood. Because the widening of Main Street and Brentwood Boulevard are included in the East Contra Costa Regional Fee Program, the Project would contribute by paying relevant fair-share fees toward the expansion of SR 4/Main Street through the City of Oakley.



Letter 16

Larry Runnels
4700 Pinot Ct.
Oakley, CA. 94561
October 29, 2007

Rebecca Willis
Community Development Director
City of Oakley
3231 Main Street
Oakley, CA 94561

RECEIVED
OCT 31 2007
CITY OF OAKLEY

Dear Rebecca Willis:

16-1 I am a long-time resident of our city, and I am writing to express my concern about recent discussion and the pending decision the Wal-Mart project. I understand that the decision is being considered to enable Wal-Mart to build a 770,000 square foot retail complex.

16-2 However, I do not believe that the benefits of this project are as viable for the growth of Oakley as you may think. Consider: close to 2,000 jobs will be directly threatened by the competition that this project will give. The difference the 200 possible employees Wal-Mart could potentially provide is small in comparison to the loss of jobs for Oakley's residents. The sight and sound of the traffic are not pleasant, and can leave us feeling more stressed. It is also well known that traffic gives off myriad pollutants that decrease air quality. In light of the fact that this store is open 24 hours a day, imagine the increase in crime caused by regional shoppers from other areas. I have lived in Oakley for almost 20 years, and I have been proud of the progress that our community has made. However, when people start loosing jobs, selling homes, businesses closing because there is no business, we begin to see the revenue that has been earned for this great community will be taken away from all of us who are residents here. Furthermore, the plan EIR says that Oakley should "provide neighborhood scaled commercial centers ... to reduce dependency on regional shopping centers". Finally, It is well known that when people are not upset over there own family income and living quality they tend to vote for the current leadership in there local government. This is not the legacy you want for this city.

It would seem to me that the Wal-Mart project would not bring increased growth, and thus a better economy, to our city. However, consider the plan that was originally considered for us as a community, I believe this will increase surrounding property values and benefit Oakley's future economy. I am looking forward to your response.

Sincerely,

Larry Runnels

LETTER 16: LARRY RUNNELS, RESIDENT

Response to Comment 16-1

This is an introductory comment and does not address the adequacy of the Draft EIR.

Response to Comment 16-2

The commenter is directed to the discussions of the Proposed Project's impacts to Traffic and Circulation (Chapter 3.2), Air Quality (Chapter 3.6), and Public Services (Chapter 3.12) for discussions of the significance of the specific impacts addressed by the commenter. The Draft EIR determined that the Proposed Project would have a number of potentially significant impacts, and offers mitigation to reduce these impacts to less-than-significant levels where feasible.

The commenter's contention that the development of the Proposed Project would have a negative effect on the growth of the City of Oakley is not supported by any evidence and is, the City believes, unfounded. The buildout of the City of Oakley General Plan would include the development of additional residential areas (such as the Cypress Corridor) as well as industrial and business areas (including the DuPont property in the northwestern portion of the City). The growth of the City would necessitate the growth of services within the City of Oakley. As identified in the Retail Market Effects and Potential for Urban Decay chapter of the Draft EIR (Chapter 3.16), the Proposed Project, in combination with the other, existing retail establishments within the City of Oakley would be situated to serve the long-term buildout of the City at large. As noted by the commenter, the Draft EIR states that the City should "provide neighborhood scaled commercial centers…to reduce dependency upon regional shopping centers." Should the commercial facilities within the City of Oakley fail to keep up with the increased demand of the growing residency, the residents of Oakley would become more dependent upon regional shopping centers outside of the City of Oakley. Development of the Proposed Project would reduce the City's dependency on regional shopping areas outside the City's limits.

The commenter's general concerns and objections to the Proposed Project are noted and will be forwarded to the appropriate decision-making bodies for consideration; however, this comment does not specifically address the adequacy of the Draft EIR.

Letter 17

Mayor Kevin Romick
Vice Mayor Bruce Connelley

Council Members
Brad Nix
Carol Rios
Pat Anderson

RECEIVED
OCT 31 2007
CITY OF OAKLEY

I have been a resident of Oakley for over fifteen years, and have seen this town become a city. There has been much growth and many improvements from the benefits Oakley has experienced as a city. The council and planning commission have done a good job of making decisions that have planned for the present and for the future of this community.

17-1 I have a great concern over the planned commercial project proposed for the River Oaks site. Big box retailers will cause a drastic negative change to the Oakley community. The project will increase crime, traffic congestion on Main Street, and negative impact on small retailers. These businesses have invested in Oakley and provide the goods and services to our families of this community. Livelihood of these businesses is in jeopardy.

Tax revenue is a large attraction, be objective and look around what we have here. Is there that much gain or do we compromise by allowing large Big box retailers to locate here? Please follow the lead of our sister cities and please do not allow such large projects.

Sincerely,

Jonathan Lee

Jonathan Lee

LETTER 17: JONATHAN LEE

Response to Comment 17-1

The commenter expresses concerns regarding the development of the Proposed Project and the Proposed Project’s impacts on the community at large. The comment broadly raises concerns regarding increased crime, traffic on Main Street, and impacts to small businesses. Please see Response to Comment 8-6 regarding crime. Traffic impacts on Main Street are addressed in Chapter 3.2, Circulation and Transportation, of the Draft EIR. The Proposed Project’s potential to result in urban decay impacts is addressed in Chapter 3.16, Retail Market Effects and Potential for Urban Decay and in Master Response “Urban Decay Analysis.”

The comment further expresses an opinion regarding the Proposed Project which will be forwarded to the appropriate decision-making bodies for consideration.

Letter 18

RECEIVED
OCT 3 0 2007
CITY OF OAKLEY

10/20/07

To: Rebecca Willis

I have been an Oakley resident for over 15 years and I have several concerns over the River Oaks Development that I feel need to be expressed, studied, and addressed by the city before any final plans are made.

18-1
- The traffic that will be created will exceed the existing traffic that we have been waiting to eliminate with the Highway 4 bypass. This means more cars and trucks on our streets leading to more accidents, and more pollution. How are we as a small city going to deal with this, and just how much will be spent to first create the infrastructure to try and support the traffic, and then how much will it cost in the future to continue to support and maintain the roads and lights?

18-2
- We already have most everything we need in the community already. There are 3 grocery stores that pay their associates well, including medical and retirement benefits. If Wal-Mart opens with groceries, what little tax revenue there is will be a trade off, and with the lower wages, the buying power of the citizens will be less. How much revenue will really be gained in the grocery area? There are also small independents that will lose their beauty shops, video, automotive and party supply stores. What about the lost revenue from their establishments? Why are we going to allow Wal-Mart in to push out the businesses that have supported the city all along?

18-3
- A 24 hour operation will bring a big increase in crime to the area. We will be the only place like this in East County. If we push these people off the shopping property they will just take to the nearby residential streets. At approx. $100,000+ per year to support an officer, how many will we need to add, and where will those funds come from?

Letter 18 cont'd.

18-4

- I come in contact with many Oakley citizens every day and for the most part they do not want a Super Wal-Mart in their backyard and believe that there are 2 others close enough. They believe that there are other ways to create revenue, like revisiting the downtown project with other smaller shops and restaurants rather than trying to take the easy way out by accepting what is thrown at them. Will the Mayor and City Counsel *listen* and take into account what the local citizens have to say, or have they chosen to turn a blinds eye, not listen, and do whatever they want?

18-5

I truly believe that if the Mayor and City Council would open their minds and stop looking at $ signs long enough to see what has happened to other smaller communities that have invited Wal-Mart in, they would surely be able to and come up with something *GRAND* to make Oakley a special place. Not to be known as "Oakley, Home of Wal-Mart"

Thank You
Brad Cope

LETTER 18: BRAD COPE, RESIDENT

Response to Comment 18-1

The Draft EIR found that the Proposed Project would result in potentially significant impacts with regard to increased traffic on the Highway 4 (SR-4) bypass. The Draft EIR includes mitigation measures to mitigate the impacts associated with the increased project traffic that would reduce the impact to less-than-significant levels where appropriate. However, as noted in the Draft EIR, several of the mitigation measures that would reduce impacts to the Wilbur Avenue/SR 160 interchange would be outside of the jurisdiction of the City and are located in a jurisdiction, Antioch, which does not propose, as part of any traffic improvement program, to construct these improvements so these impacts would be considered to be significant and unavoidable. However, it should be noted that the traffic analysis for the Proposed Project did not find that the development of the proposed Specific Plan would result in any significant impacts to SR-4 after the implementation of suggested mitigation measures. As stated in the Draft EIR, the applicant would be responsible for the implementation of suggested mitigation measures, which includes fair share funding of necessary roadway improvements. It should also be noted that increased tax revenue associated with the development of the Proposed Project would also provide the general funds to support and maintain the City's overall roadway system.

Response to Comment 18-2

Please see Response to Comment 16-2.

Response to Comment 18-3

Please see Response to Comments 12-3 and 8-6.

Response to Comments 18-4 and 18-5

These comments do not address the adequacy of the Draft EIR; however, the commenter's objections to the Proposed Project are noted. The comments will be forwarded to the City Council for consideration.

4. MITIGATION MONITORING AND REPORTING PROGRAM

INTRODUCTION

Section 15097 of the California Environmental Quality Act (CEQA) requires all State and local agencies to establish monitoring or reporting programs for projects approved by a public agency whenever approval involves the adoption of either a "mitigated negative declaration" or specified environmental findings related to environmental impact reports.

The following is the Mitigation Monitoring and Reporting Program (MMRP) for the proposed River Oaks Specific Plan (Proposed Project). The MMRP includes a description of the requirements of CEQA and a compliance checklist. The project, as approved, includes mitigation measures. The intent of the MMRP is to prescribe and enforce a means for properly and successfully implementing the mitigation measures as identified within the Environmental Impact Report (EIR) for this project. Unless otherwise noted, the cost of implementing the mitigation measures as prescribed by this MMRP shall be funded by the applicant.

COMPLIANCE CHECKLIST

The MMRP contained herein is intended to satisfy the requirements of CEQA as they relate to the EIR for the Proposed Project prepared by the City of Oakley. This MMRP is intended for use by City staff and mitigation monitoring personnel to ensure compliance with mitigation measures during Project implementation. Mitigation measures identified in this MMRP were developed in the EIR prepared for the Proposed Project.

The River Oaks Crossing Specific Plan EIR presents a detailed set of mitigation measures that will be implemented throughout the lifetime of the project. Mitigation is defined by CEQA as a measure that does one or more of the following:

- Avoids the impact altogether by not taking a certain action or parts of an action;
- Minimizes impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifies the impact by repairing, rehabilitating, or restoring the impacted environment;
- Reduces or eliminates the impact over time by preservation and maintenance operations during the life of the project; or
- Compensates for the impact by replacing or providing substitute resources or environments.

The intent of the MMRP is to ensure the effective implementation and enforcement of adopted mitigation measures and permit conditions. The MMRP will provide for monitoring of construction activities, as necessary, and in-the-field identification and resolution of environmental concerns.

Monitoring and documenting the implementation of mitigation measures will be coordinated by the City of Oakley. Table 4-1 identifies the impact, the mitigation measure, the monitoring action for the mitigation measure, the responsible party for the monitoring action, and the timing of the monitoring action. The applicant will be responsible for fully understanding and effectively implementing the mitigation measures contained within the MMRP. The City of Oakley will be responsible for ensuring compliance.

During construction of the project, the City will assign an inspector who will be responsible for field monitoring of mitigation measure compliance. The inspector will report to the City's Community Development Department and will be thoroughly familiar with permit conditions and the MMRP. In addition, the inspector will be familiar with construction contract requirements, construction schedules, standard construction practices, and mitigation techniques. In order to track the status of mitigation measure implementation, field-monitoring activities will be documented on compliance monitoring report worksheets. The time commitment of the inspector will vary depending on the intensity and location of construction. Aided by the attached table, the inspector will be responsible for the following activities:

- On-site, day-to-day monitoring of construction activities;
- Reviewing construction plans and equipment staging/access plans to ensure conformance with adopted mitigation measures;
- Ensuring contractor knowledge of and compliance with the MMRP;
- Verifying the accuracy and adequacy of contract wording;
- Having the authority to require correction of activities that violate mitigation measures. The inspector shall have the ability and authority to secure compliance with the MMRP;
- Acting in the role of contact for property owners or any other affected persons who wish to register observations of violations of project permit conditions or mitigation. Upon receiving any complaints, the inspector shall immediately contact the construction representative. The inspector shall be responsible for verifying any such observations and for developing any necessary corrective actions in consultation with the construction representative and the City of Oakley;
- Obtaining assistance as necessary from technical experts in order to develop site-specific procedures for implementing the mitigation measures; and
- Maintaining a log of all significant interactions, violations of permit conditions or mitigation measures, and necessary corrective measures.

MITIGATION MONITORING AND REPORTING PROGRAM

The following table indicates the mitigation measure number; the impact the measure is designed to address, the measure text, the monitoring agency, implementation schedule, and an area for sign-off indicating compliance.

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
3.2 Circulation and Transportation						
CT-1	Impacts to near term conditions at Main Street / Bridgehead Road / Neroly Road intersection	*The Main Street/Bridgehead Road/Neroly Road intersection shall have a second exclusive left-turn lane added, to provide one exclusive right-turn lane, one through lane, and two left-turn lanes on the southbound approach. This improvement is part of the Main Street widening Project, which is included in the City's Five Year Capital Improvement Program and Transportation Impact Fee Program. The Project shall contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit.*	Project Developer	City Engineer	Fee paid upon issuance of building permits.	
CT-2	Impacts to near term conditions at Oakley Road / Live Oak Avenue intersection	*The Oakley Road/Live Oak Avenue intersection shall be signalized and provided with exclusive left-turn lanes on all approaches. The installation of a signal at the Oakley Road/Live Oak Avenue intersection is included in the City's Transportation Impact Fee Program, but is not currently included in the City's Five Year CIP. If the improvement is included in the City's Five Year CIP upon issuance of the first building permit then the Project shall contribute to the mitigation by paying its fair share of the cost through the*	Project Developer	City Engineer	Fee paid upon issuance of building permits if improvement is in CIP at time of first building permit issuance. If not in CIP at time of first building permit issuance, then	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		payment of the City's Transportation Impact Fee with the issuance of each building permit. In the event the improvement has not been added to the City's Five Year CIP upon issuance of the first building permit then the Project shall install the improvement and be eligible for reimbursement from the Transportation Impact Fee Program.			the improvement shall be constructed prior to occupancy.	
CT-3	Impacts to near term conditions at Neroly Road / Live Oak Avenue intersection	*The Neroly Road/Live Oak Avenue intersection shall be signalized and provided with exclusive left-turn lanes on the northbound and southbound approaches. The installation of a signal at the Neroly Road/Live Oak Avenue intersection is included in the City's Transportation Impact Fee Program, but is not currently included in the City's Five Year CIP. If the improvement is included in the City's Five Year CIP upon issuance of the first building permit then the Project shall contribute to the mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit. In the event the improvement has not been added to the City's Five Year CIP upon issuance of the first building permit then the Project shall install the improvement and be*	Project Developer	City Engineer	Fee paid upon issuance of building permits if improvement is in CIP at time of first building permit issuance. If not in CIP at time of first building permit issuance, then the improvement shall be constructed prior to occupancy.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		eligible for reimbursement from the Transportation Impact Fee Program.				
CT-10	Cumulative Plus Project (2030) impacts to Wilbur Avenue / SR 160 Southbound Ramps	*The Wilbur Avenue/SR 160 southbound ramps intersection shall be signalized. Due to its proximity to the Wilbur Avenue/SR 160 northbound ramps and the Wilbur Avenue/Bridgehead Road intersections, the three intersections shall be signalized at the same time and signal timings and phasings shall be coordinated. The SR 160 ramp intersections are located in the City of Antioch, and the need for this improvement is dependent on the timing of other cumulative projects in Oakley and Antioch. In order to facilitate the construction of improvements on those transportation facilities within the control of Antioch, the City will collect, through development agreements or other document approved as to form by the city attorney, a fair share payment with the issuance of each building permit associated with the project. The City will hold the payments until such time improvements are installed at the subject intersection at which time the City will use the held payments to reimburse the applicable entity. The fair share amount shall be a fee payment based on*	Project Developer	City Engineer	Fee paid upon issuance of each building permit.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		the project's proportionate contribution of traffic to the subject intersection, which has been estimated to be approximately 21%. This amount has been estimated assuming maximum build out of the shopping center (770,000 square feet).				
CT-11	Cumulative Plus Project (2030) impacts to Wilbur Avenue / SR 160 Northbound Ramps	*The Wilbur Avenue/SR 160 northbound ramps intersection shall be signalized. Due to its proximity to the Wilbur Avenue/SR 160 southbound ramps and Wilbur Avenue/Bridgehead Road intersections, the three intersections shall be signalized at the same time and signal timings and phasings shall be coordinated. The SR 160 ramp intersections are located in the City of Antioch, and the need for this improvement is dependent on the timing of other cumulative projects in Oakley and Antioch. In order to facilitate the construction of improvements on those transportation facilities within the control of Antioch, the City will collect, through development agreements or other document approved as to form by the city attorney, a fair share payment with the issuance of each building permit associated with the project. The City will hold the payments until such time improvements are*	Project Developer	City Engineer	Fee paid upon issuance of each building permit.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		installed at the subject intersection at which time the City will use the held payments to reimburse the applicable entity. The fair share amount shall be a fee payment based on the project's proportionate contribution of traffic to the subject intersection, which has been estimated to be approximately 28%. This amount has been estimated assuming maximum build out of the shopping center (770,000 square feet).				
CT-12	Cumulative Plus Project (2030) impacts to Wilbur Avenue / Bridgehead Road	*The Wilbur Avenue/Bridgehead Road intersection shall be signalized and provided with exclusive left-turn lanes on the northbound and westbound approaches. Due to its proximity to the Wilbur Avenue/SR 160 northbound ramps and Wilbur Avenue/SR 160 southbound ramps intersections, the three intersections shall be signalized at the same time and signal timings and phasing shall be coordinated. The installation of a signal at the Wilbur Avenue/Bridgehead Road intersection is included in the City's Transportation Impact Fee Program. The Project shall contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit.*	Project Developer	City Engineer	Fee paid upon issuance of each building permit.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
CT-13	Near Term (Existing + Project) Impacts to Main Street / Neroly Road / Bridgehead Road	*Should the connector ramps not be funded prior to the issuance of building permits, mitigation of the unacceptable conditions at Main Street / Neroly Road / Bridgehead Road intersection will be achieved by converting the second exclusive left-turn lane to a share left-turn/through lane on the northbound approach. The above improvement to the Main Street / Neroly Road / Bridgehead Road intersection is included in the City's Transportation Impact Fee Program, but is not currently included in the City's Five Year CIP. If the improvement is included in the City's Five Year CIP upon issuance of the first building permit then the Project shall contribute to the mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit. In the event the improvement has not been added to the City's Five Year CIP upon issuance of the first building permit then the Project shall install the improvement and be eligible for reimbursement from the Transportation Impact Fee Program.*	Project Developer	City Engineer	Fee paid upon issuance of building permits if improvement is in CIP at time of first building permit issuance. If not in CIP at time of first building permit issuance, then the improvement shall be constructed prior to occupancy.	
CT-14	Cumulative Plus Project (2030)	*Should the connector ramps not be funded prior to the issuance of building permits,*	Project Developer	City Engineer	If not funded prior to issuance	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
	impacts to Main Street / Live Oak Avenue	*mitigation of the unacceptable conditions at Main Street/Live Oak Avenue intersection will be achieved by adding an exclusive right-turn lane on the southbound approach. The Proposed Project shall include the construction of this improvement prior to issuance of the Certificate of Occupancy.*			of first building permit, the improvement shall be constructed prior to occupancy.	
CT-15	Cumulative Plus Project (2030) impacts to Oakley Road / Neroly Road	*The Oakley Road/Neroly Road intersection shall be signalized and provided with exclusive left-turn lanes on all approaches. The installation of a signal at the Oakley Road/Neroly Road intersection, which is designed with exclusive left-turn lanes on all approaches, is included in the City's Transportation Impact Fee Program. The Project shall contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit.*	Project Developer	City Engineer	Fee paid upon issuance of each building permit.	
CT-16	Cumulative Plus Project (2030) impacts to Oakley Road / Live Oak Avenue	*Mitigation of the unacceptable conditions at the Oakley Road/Live Oak Avenue intersection will be achieved by implementing Mitigation Measure CT-2.*	N/A	N/A	N/A	
CT-17(a)	Cumulative Plus	*Add a second exclusive left-turn lane on the*	Project Developer	City	Fee paid upon	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
	Project (2030) impacts to Main Street / Empire Avenue	*westbound approach of the intersection. The widening of Main Street at Empire Avenue is included in the City's Transportation Impact Fee Program. The Project shall contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit.*		Engineer	issuance of each building permit.	
CT-17(b)		*Convert the exclusive southbound right-turn lane at the Oakley Road/Empire Avenue intersection to a shared through/right-turn lane. The widening of Main Street at Empire Avenue is included in the City's Transportation Impact Fee Program. The Project shall contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit.*	Project Developer	City Engineer	Fee paid upon issuance of each building permit.	
CT-17(c)		*Coordinate signal phasing and timing at the Main Street/Empire Avenue and Oakley Road/Empire Avenue intersections. The coordination of signals at Main Street/Empire Avenue and Oakley Road/Empire Avenue intersections is not currently included in the City's Transportation Impact Fee Program. If*	Project Developer	City Engineer	Fee paid upon issuance of building permits if improvement is in the City's TIFP at time of first building	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		the improvement is included in the City's Transportation Impact Fee Program upon issuance of the first building permit then the Project shall contribute to the mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit. *In the event the improvement has not been added to the City's Transportation Impact Fee Program upon issuance of the first building permit then the Project shall install the improvement and be eligible for reimbursement from the Transportation Impact Fee Program.*			permit issuance. If not in City's TIFP at time of first building permit issuance, then the improvement shall be constructed prior to occupancy.	
CT-18	Cumulative Plus Project (2030) impacts to Neroly Road / Live Oak Avenue	*Mitigation of the unacceptable conditions at the Neroly Road/Live Oak Avenue intersection shall be achieved by implementing Mitigation Measure CT-3.*	N/A	N/A	N/A	
CT-19	Project (2030) impacts to Laurel Road / Empire Avenue	*A second exclusive left-turn lane shall be added on the eastbound approach, and an exclusive right-turn lane shall be added on the southbound approach to the Laurel Road/Empire Avenue intersection. This improvement is included in the City's Transportation Impact Fee Program. The*	Project Developer	City Engineer	Fee paid upon issuance of building permits.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		Project shall contribute to this mitigation by paying its fair share of the cost through the payment of the City's Transportation Impact Fee with the issuance of each building permit.				
3.3 Noise						
N-5	Impacts related to construction noise	*All construction activities shall adhere to all applicable provisions of the City of Oakley Noise Ordinance and applicable Oakley 2020 General Plan mitigation measures. Construction activities shall be limited to 7 a.m. to 6 p.m., Monday-Friday and 8 a.m. to 5 p.m. on Saturdays. Construction shall not occur on Sunday. All internal combustion engines shall be fitted with factory specified mufflers, and should be in good working order. The Project contractor(s) shall locate equipment staging areas as far as possible from existing noise-sensitive receivers to the east and west of the Project site.*	Project Contractor	City Building Official	During construction activities.	
3.4 Biological Resources						
BR-1	Impacts related to the removal of Heritage Trees	*Prior to the issuance of grading permits that would result in the removal of Heritage Trees, the Project developer shall apply for a tree removal permit and submit a tree replacement plan for the review and approval of the Community Development*	Project Developer	Community Development Department	Prior to issuance of grading permits.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		Department. The plan shall be in compliance with the City of Oakley Zoning Ordinance. The plan shall include but not be limited to: • *A map showing where the replacement and new trees will be located; and* • *Tree removal shall be mitigated at a minimum 3:1 ratio or other ratio acceptable to the City of Oakley, or an in-lieu fee shall be paid on a per-inch basis as determined by the Community Development Department.*				
BR-2(a)	Impacts related to passerines	*The removal of any trees or shrubs shall occur outside of the avian nesting season. If removal of buildings, trees, emergent aquatic vegetation, or shrubs occurs, or construction begins between February 1 and August 31 (nesting season for passerine or non-passerine land birds), a nesting bird survey shall be performed by a qualified biologist within one week prior to the removal or disturbance of a potential nesting structure, trees, or shrubs, or the initiation of other construction activities. During this survey, a qualified biologist shall inspect all potential nesting habitat (trees, shrubs, structures, grasslands, pastures, etc.) in and immediately adjacent to the impact areas for*	Project Developer	Qualified Biologist Community Development Department	For construction between February 1 and August 31, one week prior to the initiation of construction activities.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		nests. *If a nest is not found, mitigation is not required. If a nest is found onsite, then Mitigation Measure BR-2(b) shall be implemented.*				
BR-2(b)		*All vegetation and structures with active nests shall be flagged and an appropriate non-disturbance buffer zone shall be established around the nesting tree. The size of the buffer zone shall be determined by the Project biologist in consultation with CDFG, shall be submitted to the City for review and will depend on the species involved, site conditions, and type of work to be conducted in the area. Typically, if active nests are found, construction activities shall not take place within 500 feet of the raptor nests and within 75 - 100 feet of other migratory birds until the young have fledged. A qualified biologist shall monitor active nests to determine when the young have fledged and are feeding on their own. The Project biologist and CDFG shall be consulted for clearance before construction activities resume in the vicinity.*	Project Biologist	CDFG Community Development Department	Prior to any construction activities if a nest is found.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
BR-3(a)	Impacts related to burrowing owls	*Prior to issuance of a grading permit, pre-construction surveys of all potential burrowing owl habitat shall be conducted by a qualified biologist within the Project area and within 250 feet of the Project boundary. Presence or sign of burrowing owl and all potentially occupied burrows shall be recorded and monitored according to CDFG and California Burrowing Owl Consortium guidelines. If burrowing owls are not detected by sign or direct observation, construction may proceed.*	Project Biologist	CDFG Community Development Department	Prior to the issuance of grading permits.	
BR-3(b)		*Prior to issuance of a grading permit, focused over-wintering surveys of all potential burrowing owl habitat shall be conducted by a qualified biologist within the River Oaks Crossing Specific Plan area. Presence or sign of burrowing owl shall be recorded and monitored according to CDFG and California Burrowing Owl Consortium guidelines.*	Project Biologist	CDFG Community Development Department	Prior to the issuance of grading permits.	
BR-3(c)		*If potentially nesting burrowing owls are present during pre-construction surveys conducted between February 1 and August 31, grading shall not be allowed within 250 feet of any nest burrow during the nesting*	Project Developer/Project Biologist	CDFG Community Development Department	If nesting owls are present during the period of February through August	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		season (February-August), unless approved by the CDFG.			31, during grading.	
BR-3(d)		*If burrowing owl is detected during pre-construction surveys outside the nesting season (September 1-January 31), passive relocation and monitoring may be undertaken by a qualified biologist following CDFG and California Burrowing Owl Consortium guidelines, which involve the placement of one-way exclusion doors on occupied and potentially occupied burrowing owl burrows. Owls shall be excluded from all suitable burrows within the Project area and within a 160-foot buffer zone of the impact area. A minimum of a week shall be allowed to accomplish this task and allow for owls to acclimate to alternate burrows. These mitigation actions shall be carried out prior to the burrowing owl breeding season (February 1- August 31) and until construction begins, the site shall be monitored weekly by a qualified biologist to ensure that burrowing owls do not re-inhabit the site.*	Project Developer/Project Biologist	CDFG Community Development Department	If burrowing owls are present during the period of September 1 through January 31, prior to any construction activities.	
BR-3(e)		*The City has adopted an ordinance to enforce mitigation fee payment schedules*	Project Developer	Community Development	Fee paid upon issuance of	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		based upon the recently approved East Contra Costa County Habitat Conservation Plan (HCP). The River Oaks Crossing Specific Plan area is within the HCP inventory area. The HCP development fee is based on the project location. The HCP includes three Fee Zones, defined by a map that determines the fee paid by development (Figure 9-1 of the HCP), regardless of the land cover type within them. The River Oaks Crossing site is within the HCP Development Fee Zone I: Cultivated and Disturbed Lands. Prior to the issuance of grading permits, the applicant shall pay the appropriate HCP Development Fee Zone I fees for the proposed project site.		Department	grading permits.	
BR-3(f)		*Before construction activities begin, all construction personnel shall receive training that includes photos of burrowing owl for identification purposes, habitat description, limits of construction activities in the Project area, and guidance regarding general measures being implemented to conserve burrowing owl as they relate to the Project.*	Project Developer	Community Development Department	Prior to any construction activities.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
BR-3(g)		*A monitoring report of all activities associated with pre-construction surveys, avoidance measures, and passive relocation of burrowing owls shall be submitted to the City and CDFG no later than two weeks before initiation of grading.*	Project Developer/Project Biologist	CDFG Community Development Department	At least two weeks prior to initiation of grading.	
3.5 Cultural Resources						
CR-1(a)	Impacts to known historic and prehistoric artifacts	*All construction personnel shall be trained regarding the recognition of possible buried cultural remains, including prehistoric and historic resources during construction, prior to the initiation of construction or ground-disturbing activities. The Project sponsor shall complete training for all construction personnel. Training shall inform all construction personnel of the procedures to be followed upon the discovery of archaeological materials, including Native American burials.*	Project Developer	Community Development Department	Prior to any construction activities.	
CR-1(b)		*Any excavation contract (or contracts for other activities that may have subsurface soil impacts) shall include clauses that require construction personnel to attend training so they are aware of the potential for inadvertently exposing buried archaeological deposits.*	Project Developer	Community Development Department	Prior to any construction activities.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
CR-1(c)		*The Project sponsor shall provide a background briefing for supervisory construction personnel describing the potential for exposing cultural resources and anticipated procedures to treat unexpected discoveries.*	Project Developer	Community Development Department	Prior to any construction activities.	
CR-1(d)		*Should unanticipated finds be uncovered during construction, work in the immediate vicinity must cease until an archaeologist is informed and an assessment of the historic or prehistoric resources is conducted.*	Project Contractor	Community Development Department	During grading/ construction activities.	
CR-2(a)	Impacts related to unearthing of previously unknown archaeological and paleontological resources, including human remains	*In the event that Native American human remains or funerary objects are discovered, the provisions of the California Health and Safety Code should be followed. Section 7050.5(b) of the California Health and Safety Code should be implemented in the event that human remains or possible human remains are located.* *The County Coroner, upon recognizing the remains as being of Native American origin, is responsible to contact the Native American Heritage Commission within twenty-four hours. The Commission has various powers and duties to provide for the ultimate*	Project Contractor	County Coroner	During grading activities.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		disposition of any Native American remains, as does the assigned Most Likely Descendant. Sections 5097.98 and 5097.99 of the Public Resources Code also call for "protection to Native American human burials and skeletal remains from vandalism and inadvertent destruction." A combination of preconstruction worker training and intermittent construction monitoring by a qualified archaeologist will serve to achieve compliance with this requirement for protection of human remains. Worker training typically instructs workers as to the potential for discovery of cultural or human remains, and both the need for proper and timely reporting of such finds, and the consequences of failure thereof. Once the find has been identified, the archaeologist will make the necessary plans for treatment of the find(s) and for the evaluation and mitigation of impacts if the finds are found to be significant according to CEQA.				
CR-2(b)		*Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of historic and prehistoric resources that could be encountered on site. Monitoring shall occur*	Project Developer Project Archaeologist	Community Development Department	During ground disturbance activities.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		during ground disturbing construction within the Project area, or at the discretion of the consulting principal archaeologist. The qualifications of the principal archaeologist shall be approved by the City of Oakley.				
3.6 Air Quality						
AQ-1(a)	Impacts related to construction dust emissions	*Consistent with guidance from the BAAQMD, and prior to issuance of a grading permit, the applicant shall incorporate the following mitigation measures into the construction contract documents, which shall be submitted for the review and approval of the City Engineer:* • *Water all active construction areas at least twice daily and more often during windy periods; active areas adjacent to existing land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers or dust palliatives;* • *Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard;* • *Pave, apply water three times daily, or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites;*	Project Developer	City Engineer	Prior to issuance of grading permits.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		• *Sweep daily (preferably with water sweepers) all paved access roads, parking areas, and staging areas at construction sites; water sweepers shall vacuum up excess water to avoid runoff-related impacts to water quality;* • *Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets;* • *Apply non-toxic soil stabilizers to inactive construction areas;* • *Enclose, cover, water twice daily, or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.);* • *Limit traffic speeds on unpaved roads to 15 mph;* • *Install sandbags or other erosion control measures to prevent silt runoff to public roadways; and* • *Replant vegetation in disturbed areas as quickly as possible.*				
AQ-1(b)		*Consistent with guidance from the BAAQMD, and prior to issuance of a grading permit, the applicant shall incorporate the following mitigation measures into the construction contract*	Project Developer	City Engineer	Prior to issuance of grading permits.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		documents, which shall be submitted for the review and approval of the City Engineer: • *Use alternative fueled construction equipment (where available)* • *Minimize idling time (5 minutes maximum);* • *Use post-combustion controls to treat exhaust;* • *Maintain properly tuned equipment;* • *Use CARB-certified engines (i.e. three years old or less, and comply with CARB emission standards); and* • *Limit the hours of operation of heavy equipment and/or the amount of equipment in use, such that heavy equipment is only operating between the hours of 7 AM and 6 PM, Monday through Friday, and 8 AM to 5 PM on Saturday. (No use of heavy equipment on Sunday.)*				
3.7 Energy Conservation						
EC-2(a)	Increased demand on electric and natural gas infrastructure	*Each improvement plan shall show the location and method of connection to the existing natural gas supply line located along the Main Street frontage of the site. In addition, development of Major Building Envelope A and all nearby site improvements*	Project Engineer	City Engineer	Prior to approval of improvement plans.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		shall either require that the lines be realigned or the envelope for Building A be adjusted, in order to avoid construction and/or operational conflicts. Plans shall be designed to the satisfaction of the City Engineer, pipeline owner(s) and utility provider.				
EC-2(b)		*Each improvement plan shall provide for underground installation of all onsite utilities, with the exception of high voltage lines, to the satisfaction of the City Engineer. In addition, improvement plans shall be prepared to provide for the undergrounding of existing overhead utility lines along Bridgehead Road, as required by the City and utility pole owners.*	Project Engineer	City Engineer	Prior to approval of improvement plans.	
EC-2(c)		*Each developer shall pay any and all connection fees to which the property may be subject prior to issuance of building permits. The type and amount of the fees shall be those in effect at the time the building permit is issued.*	Project Developer	City Engineer	Fees paid in conjunction with issuance of building permits.	
3.9 Agricultural Resources						
AR-2(a)	Impacts to loss of old growth	*The Project's effects on agricultural resources shall be further reduced by*	Project Developer	Community Development	Fee paid upon issuance of	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
	vineyard	*contributing to the acquisition and permanent protection of property for habitat protection, including farming operations within East Contra Costa County through contribution to the East Contra Costa County HCP. No permit for development pursuant to the approval of the Development Plan shall be issued until the East Contra Costa County HCP fee, as adopted by the City of Oakley, has been paid.*		Department	grading permits.	
AR-2(b)		*A funding contribution of $50,000 shall be made to the City of Oakley concurrently with the issuance of initial permits for Project construction, to be used for the establishment of vineyard-related informational presentations at an Agricultural History Museum within the City.*	Project Developer	Community Development Department	Funding contribution paid upon issuance of first building permits.	
3.10 Geology & Soils						
GS-1(a)	Impacts related to exposing people or structures to groundshaking	*Construction of the Proposed Project shall conform to the seismic requirements stipulated in the current Uniform Building Code for the seismic zone of highest seismic risk.*	Project Developer	City Building Official	Prior to issuance of building permits.	
GS-1(b)		*A detailed geotechnical engineering design report for proposed building sites shall be*	Project Engineer	City Building Official	Prior to issuance of building	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		submitted to the Chief Building Official to ensure sufficient foundation stability prior to issuance of building permits.			permits.	
GS-2	Impacts related to liquefaction	*Prior to issuance of a grading permit, the applicant/ developer shall incorporate the recommendations of a design-level geotechnical report into the improvement plans. The following measures include but are not limited to, the options available to reduce site liquefaction potential and/or adverse effects to structures located above potentially liquefiable soils. Once final grading plans are designed, the Project's geotechnical engineers shall determine the appropriate methods of mitigating the effects of liquefaction. These methods may include, but are not limited to the following measures:* • *Remove and replace potentially liquefiable soils;* • *Strengthen foundations (e.g., post-tensioned slab, reinforced mat or grid foundation, or other similar system) to resist excessive differential settlement associated with seismically-induced liquefaction;* • *Support the proposed struts on an*	Project Developer	City Engineer	Prior to issuance of grading permits.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		engineered fill pad in order to reduce differential settlement resulting from seismically-induced liquefaction and post-seismic pore pressure dissipation; and • *Densify potentially liquefiable soils with an in situ ground improvement technique such as deep dynamic compaction, vibro-compaction, vibro-replacement, compaction grouting, or other similar methods.* *The specific design requirements, as identified by the Project geotechnical engineer and approved by the City Engineer, shall be incorporated into all construction documents.*				
GS-3	Impacts related to erosion and sedimentation	*Prior to issuance of a grading permit, the Project applicant shall submit, for the review and approval of the City Engineer, an erosion control plan that utilizes standard construction practices to limit the erosion effects during construction of the Proposed Project. Measures could include, but are not limited to:* • *Hydro-seeding;* • *Placement of erosion control measures*	Project Developer	City Engineer	Prior to issuance of grading permits.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		within drainageways and ahead of drop inlets; • *The temporary lining (during construction activities) of drop inlets with "filter fabric" (a specific type of geotextile fabric);* • *The placement of straw wattles along slope contours;* • *Directing subcontractors to a single designation "wash-out" location (as opposed to allowing them to wash-out in any location they desire);* • *The use of siltation fences; and* • *The use of sediment basins and dust palliatives.*				
GS-4	Impacts related to expansive soils	*Prior to approval of improvement plans, the Project developer shall conduct a design-level geotechnical study, which shall specifically address whether expansive soils are present in the development area and include measures to address these soils where they occur. The recommendations from the geotechnical study shall be incorporated into the design of roadway and infrastructure improvements as well as foundation and building design for the review and approval of the City Engineer*	Project Developer	City Engineer City Building Official	Prior to approval of improvement plans or issuance of building permits.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	**Impact**	**Mitigation Measure**	**Implementing Party**	**Monitoring Agency**	**Implementation Schedule**	**Sign Off**
		and Chief Building Official. Improvements, as directed by the soils engineer, may involve replacing the material under foundations and slabs-on-grade with "non-expansive" material, or modifying the expansive soil by compaction control, pre-wetting and the installation of moisture barriers.				
		3.11 Hydrology & Water Quality				
HWQ-1(a)	Impacts to water quality standards or waste discharge requirements	*Prior to any grading activities, the applicant shall provide a Storm Water Pollution Prevention Plan (SWPPP) for the area disturbed by grading or other construction activities on the Project site which shall include construction and post construction BMPs (including both physical and programs BMPs) to the satisfaction of the City Engineer. The SWPPP may include the following:* • *Straw Wattle;* • *Silt Fences;* • *Silt Slacks and Rock Bags for Drain Inlet Protection;* • *Hydro-Seeding;* • *Erosion Control Blankets;* • *Concrete Washouts; and/or* • *Wheel Washing Stations.*	Project Developer	City Engineer	During architectural review for first major tenant and prior to issuance of first building permit.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
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Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
HWQ-1(b)		*Contra Costa County Flood Control and Water Conservation District Drainage fees for the Drainage Area shall be paid by the Project applicant prior to building permit issuance.*	Project Developer	Community Development Department	Fee paid upon issuance of building permits.	
HWQ-1(c)		*Improvement plans for Secondary building envelope D and any adjoining structures shall provide for protection or relocation of the existing storm drain pipeline at the easterly end of the site within an easement to the satisfaction of the City and CCCFCWCD authorities.*	Project Engineer	City Engineer Contra Costa County Flood Control and Water Conservation District	Prior to approval of improvement plans.	
HWQ-2	Impacts to related to drainage patterns or runoff that could cause sedimentation, erosion, or flooding	*Prior to the issuance of grading permits, the developer shall obtain and comply with the NPDES general construction permit including the submittal of a Notice of Intent (NOI) and associated fee to the SWRCB, and the preparation of a Storm Water Pollution Prevention Plan (SWPPP) that includes construction BMPs to be submitted to the City Engineer for review.*	Project Developer	City Engineer	During architectural review for first major tenant and prior to issuance of grading permits.	
3.12 Public Services						
PS-1(a)	Impacts related	*Prior to building permit issuance, each*	Project Developer	City Building	Prior to issuance	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
	to adequate Fire Department facilities and infrastructure	*developer shall comply with all applicable requirements of the Uniform Fire Code and the adopted policies of the East Contra Costa Fire Protection Districts. The Chief Building Official shall review the building plans to ensure compliance.*		Official	of building permits.	
PS-1(b)		*Prior to building permit issuance, each developer shall provide an adequate and reliable water supply for fire protection with a minimum fire flow of 2,000 gallons per minute (GPM). The required fire flow shall be delivered from not more than two fire hydrants flowing simultaneously while maintaining 20 pounds of residual pressure in the main. The City Engineer shall ensure the minimum fire flow requirements are satisfied. Flow requirements will be determined by the ECCFPD prior to issuance of encroachment and/or building permits. The developer shall provide the number and type of fire hydrants required by ECCFPD and the City Engineer. Hydrant locations will be determined by the ECCFPD and the City Engineer prior to building and/or encroachment permit issuance. All applicable connection fees shall be paid to DWD at the time of permit issuance.*	Project Developer	ECCFPD City Engineer	Prior to issuance of building permits.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
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Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
PS-1(c)		*Prior to construction involving use of flammable materials, the developer shall provide access driveways having all-weather driving surfaces of not less than 20' unobstructed width and not less than 13'6" of vertical clearance to within 150 feet of travel distance to all portions of the exterior walls of every building. Access driveways shall not exceed 16 percent grade, shall have a minimum outside turning radius of 42 feet, and must be capable of supporting imposed loads of fire apparatus (37 tons). Center divide medians on any access roadways shall leave a minimum remaining lane width of 16 feet on each side. Median length shall not exceed 150 feet when a 16-foot lane width is used. A rolled curb and an unobstructed drivable surface on the median may be used to assist with meeting apparatus turning radius requirements. The City Engineer shall ensure compliance.*	Project Developer	City Engineer	Prior to construction involving the use of any flammable materials.	
PS-1(d)		*Prior to encroachment and/or building permit issuance for improvements, the developer shall submit plans and specifications to the ECCFPD and the City Engineer for review and approval in accordance with codes, regulations, and*	Project Developer	ECCFPD City Engineer	Prior to encroachment and/or building permit issuance.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		ordinances administered by the ECCFPD and the State Fire Marshal's office.				
PS-2	Impacts related to adequate law enforcement facilities	*Prior to building permit issuance for development within the River Oaks Crossing Specific Plan, the landowner shall participate in the provision of funding to maintain police services by voting to approve a special tax for the parcels within the specific plan. The tax shall be the per parcel annual amount (with appropriate future cost of living adjustment) as established at the time of voting by the City Council. The election to provide for the tax shall be completed prior to issuance of permits. Should the buildings be ready for occupancy prior to the City receiving the first disbursement from the tax bill, the Project proponent shall be responsible for paying the pro-rata share for the remainder of the tax year prior to the City conducting a final inspection.*	Project Developer	Community Development Department	Election for tax completed prior to issuance of building permits and pro rata payment prior to occupancy.	
PS-3	Impacts related to adequate funding for local schools	*Prior to issuance of building permits, the Proposed Project developer shall pay appropriate SB50 and AB16 school impact fees.*	Project Developer	Community Development Department	Fee paid upon issuance of building permits.	
PS-4	Adequate provision of	*Prior to the issuance of building permits, the Project proponent shall pay applicable City*	Project Developer	Community Development	Fee paid upon issuance of	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
	parks and recreation space	*of Oakley Public Facilities Impact Fees.*		Department	building permits.	
PS-5	Cumulative impacts related to adequate Fire Department facilities and infrastructure	*Prior to the issuance of building permits, the Project proponent shall pay a fair share of costs for new fire protection facilities and services, consistent with Ordinance 06-01 requiring fire impact fees, adopted by the City of Oakley.*	Project Developer	Community Development Department	Fee paid upon issuance of building permits.	
3.13 Utilities & Service Systems						
USS-1	Impacts related to increased demand on existing wastewater facilities	*Each improvement plan shall provide for connection to the existing ISD gravity trunk line located in Main Street. Improvement plans shall be prepared for each phase of development showing the proposed location and method of connection, to the satisfaction of the City Engineer and ISD. All applicable connection fees shall be paid to ISD at the time of permit issuance.*	Project Engineer	ISD City Engineer	Prior to approval of improvement plans with fees paid upon issuance of building permit.	
USS-2	Impacts related to adequate water supply and delivery	*Prior to approval of improvement plans, the applicant shall be required to pay a fair share fee as determined by the DWD toward the CIP for water service infrastructure improvements.*	Project Developer	DWD City Engineer	Fees paid prior to approval of improvement plans.	
USS-4	Cumulative impacts related to increased demand on	*Prior to issuance of building permits, the applicant shall pay applicable trunkline and plant capacity fees to the ISD for the new WWTP.*	Project Developer	ISD City Engineer	Fees paid upon issuance of building permits.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
	existing wastewater facilities					
		3.14 Aesthetics				
AES-2	Impacts related to the existing visual character or quality of the area	*As part of the Architectural Review for the first Major tenant, the applicant shall submit a master Project Maintenance Program (PMP), to assure that all landscaping, water elements, pavement areas, buildings, mechanical systems, and other site and building improvements are properly cared for and will retain a high-quality appearance and proper operation. The PMP will include plans for maintenance of all building(s) and site improvements throughout the life of the Project. The PMP may include provisions acceptable to the Community Development Director that address reuse of the Major Retail building(s) in the event that the building(s) becomes vacant. The City may collect a Letter of Credit in an amount acceptable to the City Manager, but not to exceed $25,000 per pad, from each of the Major Retail pads to guarantee adherence to the standards for maintenance and reuse as called for in the PMP. The City may draw upon these funds only in the event of*	Project Developer	Community Development Director	During architectural review for first major tenant.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
MITIGATION MONITORING AND REPORTING PROGRAM

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		violation of the PMP. This requirement will help to assure long-term compliance with a range of aesthetic, acoustical, land use, water quality, and other mitigation measures from the Project EIR.				
AES-3	Impacts related to new sources of light and glare	*During construction, the developer shall install hooded and/or shielded streetlights to avoid excessive lighting on adjacent properties. The method for shielding of the lighting shall be subject to the review and approval of the Community Development Director.*	Project Developer	Community Development Department	During construction activities and prior to occupancy.	
3.15 Hazards & Hazardous Materials						
HHM-1	Impacts related to the extension of natural gas pipelines	*Implement Mitigation Measures EC-2(a) through EC-2(c).*	N/A	N/A	N/A	
HHC-2	Impacts to related to storm drainage facilities	*Implement Mitigation Measures HWQ-1(a) through HWQ-1(c).*	N/A	N/A	N/A	
HHM-4	Impacts to related to groundwater monitoring wells	*Any improvements associated with the River Oaks Crossing Specific Plan Project that would encroach onto well locations would require close coordination with USEPA and DTSC; and, prior to obtaining clearance to grade the site or conduct earthwork activities,*	Project Developer	USEPA DTSC	Prior to issuance of grading permits or conducting earthwork on the site.	

TABLE 4-1
RIVER OAKS CROSSING SPECIFIC PLAN
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Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		Project workplans shall be developed and pre-approved by USEPA and DTSC for all construction activities occurring adjacent to these wells. *Prior to obtaining clearance to grade the site or conduct any earthwork activities, the applicant shall consult with the United States Environmental Protection Agency and Department of Toxic Substances Control regarding the relocation/reconstruction of on-site wells and piezometers. The relocation/reconstruction sites for piezometers PZ-17 and PZ-36, as well as monitoring wells MW-59 and MW-60 shall be determined by the United States Environmental Protection Agency and Department of Toxic Substances Control. During work that would involve any modification to, or potential impact upon these wells, such activity shall be directly supervised by the EPA and/or DTSC.*				
HHM-5	Impacts related to on-site irrigation wells	*Prior to the issuance of grading permits, the applicant shall hire a licensed well drilling contractor to properly abandon the on-site water wells according to City of Oakley and/or Contra Costa County Guidelines.*	Project Developer	City Engineer	Prior to issuance of grading permits.	

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MITIGATION MONITORING AND REPORTING PROGRAM

Mitigation Number	Impact	Mitigation Measure	Implementing Party	Monitoring Agency	Implementation Schedule	Sign Off
		Upon obtaining a well closure permit, the metal casing should be pulled out and the well backfilled with pea gravel and cement grout for the final review and approval by the City Engineer.				
HHM-6	Impacts related to concrete standpipes	*Should underground pipelines or underground structures be uncovered during construction activities, the Project proponent shall stop work in the vicinity and provide an assessment, which determines whether the discovered features contain asbestos and/or lead paint, to the City Engineer for review. If pipelines or associated features do not contain asbestos, further mitigation is not required. If any pipelines or associated features contain asbestos, the applicant shall submit an asbestos abatement plan consistent with local, state, and federal standards, subject to approval by the City Engineer.*	Project Developer	City Engineer	During construction activities.	

GEOTECHNICAL INVESTIGATION REPORT
WAL-MART STORE #3718
MAIN STREET (HIGHWAY 4) &
BRIDGEHEAD ROAD
OAKLEY, CALIFORNIA

November 18, 2005

Kleinfelder Project No. 61089/GEO

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KLEINFELDER
An employee owned company

November 18, 2005
File No. 61089.GEO

Mr. Shell MacPherson
PACLAND
2901 Douglas Boulevard
Suite 295
Roseville, California 95661

Subject: **GEOTECHNICAL INVESTIGATION REPORT**
WAL-MART STORE #3718
MAIN STREET (HIGHWAY 4) & BRIDGEHEAD ROAD
OAKLEY, CALIFORNIA

Dear Mr. MacPherson:

Kleinfelder is pleased to present the results of our geotechnical investigation for the Wal-Mart Retail #3718 located at Main Street (Highway 4) and Bridgehead Road in Oakley, California. The accompanying report includes background information regarding the anticipated construction, the purpose of our investigation, and scope of services provided. In addition, discussions regarding our investigative procedures, the known geologic conditions within the project area, and the site conditions encountered during our field exploration are presented. Finally, geotechnical conclusions and recommendations are provided for project design and construction. The appendices of the report provide logs of borings, a description of our laboratory testing, and the results of our laboratory tests. We have also included an information sheet about the geotechnical engineering report published by ASFE. Our firm is a member of ASFE, and we feel this sheet will help you better understand our report.

Recommendations provided herein are contingent on the provisions outlined in the Additional Services and Limitations sections of this report. The project Owner should become familiar with these provisions in order to assess further involvement by Kleinfelder and other potential impacts to the proposed project.

We appreciate the opportunity of providing our services for this project. If you have questions regarding this report or if we may be of further assistance, please contact our office at (925) 427-6477 or John Mancini, Kleinfelder's Senior Client Service Manager for PACLAND at (801) 261-3336

Sincerely,

KLEINFELDER, INC.

FOR. Thomas Hoktcheu
Staff Professional

Fernando J. Silva, C.E., G.E.
Area Manager

REGISTERED PROFESSIONAL ENGINEER
FERNANDO J. SILVA
No. 2519
Exp. 6/30/08
GEOTECHNICAL
STATE OF CALIFORNIA

TH/JD/FJS: js

6c: Client
cc: John Mancini, Kleinfelder, Salt Lake City, UT

TABLE OF CONTENTS

List of Plates

Appendix A – Soil Boring Logs

Appendix B – Laboratory Test Results

Appendix C

Appendix D

1. INTRODUCTION

1.1 General

Kleinfelder was retained by PACLAND to complete a geotechnical engineering investigation of a 76.4-acre site for a proposed retail development located at Main Street (Highway 4) and Bridgehead Road in Oakley, California, as shown on Plate 1. The entire property is subdivided into a 20.2-acre Parcel A, a 0.9-acre Parcel B, a 18.9-acre Remainder 1 Parcel, and a 36.4-acre Remainder 2 Parcel. The purpose of the geotechnical investigation was to explore the surface and subsurface conditions at the site and provide recommendations pertaining to geotechnical aspects of the proposed site development.

1.2 Project Description

Based on the provided Conceptual Site Plan, dated March 12, 2004 by PACLAND, information provided by PACLAND and the *Geotechnical Investigation Specifications and Report Requirements (10/5/04)*, the proposed Wal-Mart Store #3718 will be constructed in Parcel A. The project will include a retail building approximately 203,091 square feet in area located at the northern portion of Parcel A, while the majority of the remaining approximately 676,821 square foot area will be developed as a parking lot with a total number of 1015 parking spaces. Appurtenant construction will include truck well areas, various concrete flatwork, buried utilities, and landscaping.

Specific details pertaining to the proposed developments on Parcels B, Remainder 1, and Remainder 2 are unknown at this time, and thus are not addressed in this report.

Based on information contained in the Wal-Mart *Geotechnical Investigation Specifications and Report Requirements*, we anticipate that the proposed retail building will be a tall, single-story, steel bar joist and steel deck roof structure utilizing steel columns, concrete masonry unit (CMU) exterior walls, and concrete slab-on-grade construction. We anticipate structural support will be provided using isolated spread footings for interior and exterior column loads and continuous foundations below the CMU walls. We understand that the typical interior and exterior column loads (dead-plus-live) will be in the range of 77 and 40 kips, respectively, and that the maximum occasional load may reach 125 kips. The concrete masonry wall gravity loads range from 1.5 to 2.0 kips per lineal foot for non-load bearing walls and 4.0 to 6.0 kips per lineal foot for load bearing walls. The estimated maximum uniform floor slab live load is 125 pounds per square foot, and the maximum estimated floor slab concentrated load is 5 kips.

The project site is currently covered with vineyards. A preliminary grading plan was not available at the time this report was prepared; however, based on existing site topography, cuts and fills during earthwork are anticipated to be minimal (3 feet or less) in order to provide a level foundation pad with positive site drainage. Excavations for underground utilities are not anticipated to exceed 10 feet below final site grade. No detention basins are planned at this time. In the event these structural or grading details are inconsistent with the final design criteria, our firm should be contacted to review our recommendations and update them, as appropriate.

1.3 Authorization and Scope of Work

The purpose of our investigation was to explore and evaluate site subsurface conditions in order to provide geotechnical design parameters and recommendations related to the geotechnical aspects of new foundation design and construction as well as recommendations for asphalt pavement design.

In accordance with a request from PACLAND, the scope of our services was outlined in our proposal for geotechnical engineering services (relative to the proposed site layout) to Mr. Shell MacPherson on August 5, 2005 (Proposal No PIT5P151). The proposed scope of services was subsequently approved and authorized by PACLAND on August 18, 2005, and included the following tasks:

- Collect and review readily available geotechnical and geologic data for the subject site;
- Conduct a geotechnical site reconnaissance and identify exploration locations prior to mobilizing subsurface exploration equipment;
- Plan and conduct a subsurface investigation including hollow-stem auger soil borings to provide information relative to soil, groundwater, and other geologic conditions underlying the proposed Retail project;
- Conduct limited laboratory testing in general accordance with appropriate American Society for Testing Materials (ASTM) and Caltrans standards to verify field classifications and provide estimates of engineering parameters necessary for geotechnical design;
- Prepare a draft report that evaluates potential foundation systems and geotechnical construction considerations, including earthwork in accordance with the geotechnical guidance document provided by PACLAND and the 2001 California Building Code; and
- Prepare a final report that incorporates comments from PACLAND's review of the draft report.

2. FIELD AND LABORATORY INVESTIGATION

2.1 Field Exploration

At the time of our exploration, the site was covered with vineyards and there were warnings posted indicating the presence of underground utility lines. Subsurface conditions were initially investigated during the period of September 16 through October 3, 2005. A total of 92 borings, herein identified as Borings B-1 through B-67, P-1 through P-15, PB-1, PB-2 and RB-1 through RB-8 were drilled at representative locations within the proposed retail building footprint and parking lot areas. Boring locations were approximated by pacing from on-site features. The approximate boring locations are illustrated on Plate 2.

Initially, we contacted Underground Service Alert (USA) to verify the presence or absence of public utility right-of ways at the site. USA indicated the presence of an active gas line passing through the site. We also subcontracted the service of a private underground utility locator to clear each boring location. Many of our initial boring locations were over utility lines. A representative of Pacific Gas and Electric (PG&E) present onsite at the time of our field exploration required us to not drill some of our borings because of uncertain locations of underground utility lines. This requirement reduced the number of 10-feet deep borings listed in our proposal in the pavement areas from 67 to 51 while still meeting the 100-foot spacing between borings. In addition, the reduction in number of borings did not compromise the accuracy of our geotechnical investigation.

Two (2) drilling permits were acquired from the Contra Costa County Environmental Health Department (CCEHD).

A summary of our field exploration program is as follows:

Location	Number of Borings	Depth of Exploration*	Drilling Footage
Proposed Retail Building (including TLE)	16	15 to 21.5 feet, plus 1 to 41.5 feet	364 ft
Pavement Areas	51	11.5 ft	586.5 ft
Parcel B	2	21.5 ft	43 ft
Remainder 1	8	7 to 21.5 ft, & 1 to 31.5ft	182 ft
Remainder 2	15	14 to 21.5 ft, & 1 to 31.5ft	332.5 ft
Total Drilling Footage			1,508 ft

* - Below existing ground surface

The *Geotechnical Investigation Specifications and Report Requirements* provided by PACLAND indicate that one boring should be drilled to 100 feet to provide information for site seismic classification where the International Building Code (IBC) is enforced. It should be noted that the California Building Code (revised 2001), rather than the IBC, is used in California. Furthermore, the Site Class for the project area has been well established by our past experience in the vicinity of the site. The deeper boring was therefore advanced to a depth of about 41.5 feet, instead of 100 feet, as was indicated in our proposal.

The borings were drilled by Frontier Drilling of Linden, California using a truck mounted drill rig equipped with 6-inch diameter hollow-stem augers. Upon completion, the borings were backfilled with a cement-bentonite grout under the observation of CCEHD personnel in accordance with the requirements of the drilling permits.

A Kleinfelder staff engineer directed exploration activities, prepared logs of soil borings, visually classified soils according to the Unified Soil Classification System, and collected representative, undisturbed and bulk soil samples. Samples were obtained by driving a California Modified Sampler with an outer diameter (O.D) of 2.5 inches and inner diameter (I.D) of 2.0 inches, or a Standard Penetration Sampler, 18 inches high with the free fall of an automatic 140-pound hammer. Soil samples were packaged and sealed in the field to reduce moisture loss and returned to our soil laboratory for further testing. The boring logs were prepared in accordance with the nomenclature and symbols presented on Plates A-1 and the boring logs are presented as Plates A-2 through A-93 in Appendix A. The stratigraphic contacts shown represent the approximate boundaries between soil types; actual transitions may be more gradual. The soil and groundwater conditions depicted are only for the specific dates and locations reported. Following completion of the final version of this report, the soil samples obtained from our field exploration will be retained for a period of 6 months.

2.2 Laboratory Testing

Laboratory tests were performed in accordance with current ASTM standards on selected soil samples to evaluate pertinent physical and engineering characteristics and properties of the subsurface soils which may affect the geotechnical aspect of project and construction. The laboratory testing program was formulated with emphasis on the evaluation of natural moisture content, in-place density, gradation analysis, Atterberg limits, unconfined compressive strength, organic content, R-value, pH and minimum resistivity of the subsurface soils.

The laboratory testing program included the following:

- Unit weight and moisture content tests (38 tests) were performed in general accordance with ASTM Test Method D 2216;
- Resistance value (R-Value) tests (7 tests) were performed in accordance with CTM 301;

- Atterberg limits tests (7 tests) were performed in accordance with ASTM Test Method D 4318;

- Moisture/density relationship tests (4 tests) were performed in accordance with ASTM D 1557;

- Unconfined compressive strength tests (8 tests) were performed in accordance with ASTM Test Method D 2166;

- Sieve analysis/wash#200 (12 tests) were performed in accordance with ASTM Test Method C 136;

- Organic content tests (4 tests) were performed in accordance with ASTM Test Method D 2974; and

- Soil pH and minimum resistivity tests (7 tests) were performed in accordance with USEPA 9045C test methods (performed by Sequoia Analytical Laboratories of Sacramento, CA).

Laboratory results are summarized on the Logs of Borings in Appendix A and in tabular format on Plate B-1 in Appendix B. Graphical and tabular results of the tests are also presented on Plates B-2 through B-28 of Appendix B.

Several tests such as consolidation, swell, and triaxial strength listed in the Owner's *Geotechnical Investigation Specifications and Report Requirements* were not performed during this study. Consolidation tests were not performed because soft, compressible clays were not encountered during our field exploration. Swell tests were not performed because of the very low plasticity of the near surface granular soils. Because the site is relatively level with planned cuts less than 10 feet and thus slope stability analysis is not warranted, triaxial shear tests were not performed. Instead, unconfined compressive strength tests were performed to evaluate the undrained shear strength of the fine-grained site soils.

3. SITE CONDITIONS

3.1 Geologic Setting

Northern Contra Costa County is bordered on the west by the San Francisco Bay, on the north by the Carquinez Straits and Suisun Bay, and on the north and east by the Sacramento and San Joaquin Rivers. A major part of the county lies within the Coast Ranges geomorphic province of Central California. The easternmost part of the county, including the area around the confluence of the Sacramento and San Joaquin Rivers, is within the Great Valley geomorphic province. The Coast Ranges consist of smooth rolling hills and fairly rugged mountains ranging in elevation from near sea level along San Francisco Bay and the San Joaquin Valley to 3,849 feet at Mount Diablo. Folds, thrusts, and faults form a series of nearly parallel, northwest-trending ridges made up mostly of Tertiary age (2 to 65 million years old) marine and non-marine shales, siltstones, sandstones, claystones, and conglomerates that strike roughly east-west and dip to the north. Bedrock at depth is presumed to be the Franciscan Complex of Upper Jurassic to Cretaceous age (65 to 140 million year old) that lies along the east side of the San Andreas Fault, located about 47 miles southwest of the site. Valleys between the ridges, including the San Joaquin Valley, are filled with Quaternary alluvium on small fans and flood plains. Ridges bordering the San Francisco and Suisun Bays are skirted by terraces and alluvial fans that merge into the tidal flats adjacent to the bays.

The local geology of the site area has been mapped by various authors. These maps differ in scale and detail, but agree the site is underlain at the surface by loose, wind blown deposits (Qs) composed of sand, underlain by weakly consolidated Holocene alluvium (Qhsc) composed of sands with interbedded clay and silt strata to a depth of at least 150 feet. The Soil Survey of Contra Costa County, California published by the US Department of Agriculture, Soil Conservation Service (1977) refers to the near-surface soils within a majority of the project area as belonging to the Delhi (DaC) soil series. The Delhi soil is described as wind-modified sands with moderate shear strength and a low shrink-swell (expansion) potential.

3.2 Faulting and Seismicity

The San Andreas Fault (SAF), located about 47 miles to the southwest, is considered to dominate the structure and seismicity of the region. This right-lateral strike-slip fault, which extends from the Gulf of California, in Mexico, to Cape Mendocino, off the Coast of Humbolt County in Northern California, forms a portion of the boundary between two independent tectonic plates on the surface of the earth. To the west of the SAF is the Pacific plate, which moves north relative to the North American plate, located east of the fault. In the San Francisco Bay area, movement across this plate boundary is concentrated on the SAF; however, it is also distributed, to a lesser extent, across a number of faults, which include the Calaveras, Concord-Green Valley, Greenville, Rodgers Creek, and Hayward faults among others. Together, these faults are referred to as the SAF system. Some of the significant events attributed to the SAF include the 1906 (M8+) San Francisco Earthquake, the 1838 and 1865 (M7) San Francisco Earthquakes, and 1989 (M6.9) Loma Prieta Earthquake. Seismic events attributed to some nearby faults or faults closer to the site include the 1861 (M5.7) San Ramon Valley earthquake on the Calaveras fault, the 1980 (M5.8) Livermore earthquake on the Greenville fault, the 1889 (M6.3) Antioch earthquake, the 1955 (M5.4) Concord earthquake fault, and the 1868 (M6.8) Hayward earthquake.

Many secondary or potentially active fault traces are located in the vicinity of the project site. The closest of these are the Antioch fault and the Great Valley fault system, located about 5 and about 4.7 miles to the west and east, respectively. The Antioch fault is reported to have had historic earthquakes in 1889 and 1965 and at one time been thought to be actively creeping (Burke and Helley, 1973). Accordingly, the fault was originally zoned under the

Alquist-Priolo Act for ground rupture hazards. More recent studies (Wills, 1992 and Woodward-Clyde Consultants, 1994) have been unable to find convincing evidence for Holocene offset. Consequently, the Antioch Fault is believed to be only potentially active by the California Division of Mines and Geology (CDMG).

The Great Valley fault system is characterized by a zone of thrust faulting, reverse faults, and folds that extend for several hundred miles from the southern San Joaquin Valley in Kern County northward to the northern San Joaquin Valley in Tehama County. Although not exposed at the surface, regional studies have suggested the Great Valley fault system may be comprised of between 18 and 25 segments ranging from about 7 to 35 miles in length, with most segments between 12 and 19 miles, on the basis of the seismo-tectonic environment of the area. The 1983 (M6.5) Coalinga and 1985 (M6.1) Kettlemen Hills are two recent earthquake events that are attributed to this fault system. The characteristic earthquake for the average-length segment is believed capable of yielding earthquakes of magnitude 6.3 to 6.4, or slightly smaller than the Coalinga earthquake, and the longest segments are believed capable of yielding earthquakes as large as magnitude 7.0.

A table summarizing regional faults, the distance from the fault trace at the surface to the site, the estimated upper-bound earthquake magnitude for each fault, and the 1997 Uniform Building Code (UBC) Seismic Source Type for each fault is presented below:

Fault	Distance, Miles (km)	Maximum Magnitude	UBC Seismic Source Type
Greenville	9.9 (16.0)	6.9	B
Concord-Green Valley	14.9 (24.0)	6.9	B
Calaveras	19.2 (31.0)	6.8	A
Hayward	28.5 (46.0)	7.1	A
West Napa	31.3 (50.5)	6.5	B
Rodgers Creek	34.6 (55.8)	7.0	A
San Andreas	47.0 (76.0)	7.9	A

The San Francisco Bay Area, and Contra Costa County are located within an area of high seismic activity relative to other areas of California. The California Building Code (CBC), rather than the International Building Code (IBC), is used in California. According to the California Building Code, 2001 edition, the site is located in Seismic Zone 4. The California Geological Survey's Probabilistic Seismic Hazards Mapping Ground Motion Page (CGS, 2004) yields a PGA value of 0.39g for the Design Basis Earthquake (DBE). This PGA value is for a CBC (2001) Soil Profile Type S_D, which is appropriate for this alluvial site.

3.2.1 Soil Profile Type

In developing site-specific seismic design criteria, the characteristics of the soils underlying the site are critical in evaluating the site response at a given site. Based on the results of our field investigation, the majority of the site is underlain by Quaternary Older Alluvium to about 41.5 feet deep, the maximum depths explored. Based on the boring blow count data and our knowledge of these formations we conclude that a Site Profile Type S_D per Table 16A-J of 2001 CBC is appropriate for this site. Soil Profile Type S_D is defined as stiff soil with shear wave velocity between 180 m/s (600 feet/sec) and 360 m/s (1,200 feet/sec), or Standard Penetration Test (SPT) blow counts (N-values) of 15 to 50, or Undrained Shear Strength (Su)> 1,000 to 2,000 psf.

3.2.2 Site Amplification

The project site lies within Seismic Zone 4 as per Plate 16A-2 of the California Building Code (CBC, 2001). Zone 4 includes all of the San Francisco Bay Area, including Contra Costa County, and represents an area of high seismic risk. Soil Profile Type S_D in Seismic Zone 4 corresponds to Seismic Coefficient values of $C_a = 0.44$ and $C_v = 0.64$ (Table 16A-Q and 16A-R, respectively). Design in accordance with CBC Zone 4 will be appropriate for this site. The Greenville Fault, located about 9.9 miles (16 km) from the project site, is considered a Type B fault, and the proximity of the fault to the site is greater than 15 kilometers. Near Source Factors, $N_a = 1.0$ and $N_v = 1.0$, are considered applicable for this site and should be used in seismic design of structures.

3.3 Other Geologic Hazards

The seismic effects of an earthquake can be classified as primary and secondary. Primary effects include ground shaking and tectonic deformation (ground rupture). Secondary effects of a seismic event include liquefaction, lateral spreading, lurching, densification, landslides, erosion, flooding, seiches and tsunami. These effects are described below.

3.3.1 Ground Shaking

As discussed previously, the potential of strong ground shaking from earthquakes generated on active faults in the region is a significant geologic hazard throughout the Bay Area and Northern California, and is considered to be the most significant geologic hazard affecting the subject site. Future developments should be designed and constructed according to the most current earthquake resistance standards for Seismic Zone 4, as outlined in the California Building Code to minimize potential structural distress.

3.3.2 Ground Rupture

The site is not located within a State-designated Alquist-Priolo Earthquake Fault Zone where site-specific studies addressing the potential for surface fault rupture are required, and no known active faults traverse the site. Therefore, the likelihood of damage to the proposed Retail Center due to ground-surface rupture is considered to be very low.

3.3.3 *Liquefaction Potential*

Liquefaction is the loss of soil strength that can occur in loose, saturated sand during seismic shaking. As loose granular soils are shaken, their tendency to densify leads to the development of positive pore pressures. If the intensity or duration of the shaking is sufficient enough, the build up in pore pressures can produce a significant loss of soil shear strength. The susceptibility of a granular soil to liquefaction is a function of the gradation, density, and fines content of the soils. The susceptibility to liquefy decreases with respective increases in: distribution of grain sizes; soil density; fines content; and, clay-size fraction of the fines. The susceptibility to liquefaction also tends to decrease as a function of the age of the soil deposit.

The potential for an earthquake with the intensity and duration characteristics capable of promoting liquefaction is a possibility during the design life of the project. The subsurface conditions encountered during our investigation indicate that the majority of the soils encountered near or below the groundwater level at the site are either relatively dense or substantially clayey, and are not susceptible to liquefaction. A layer of loose to medium dense silty sand was encountered in boring RB-5 between a depth of about 9 to 15.5 feet below existing site grade. However, this layer appears to be discontinuous and overlain by very stiff silty clays and sandy silts, which cause a bridging effect. Therefore, if liquefaction of this layer was to occur, the effects should not be manifested at the ground surface.

3.3.4 *Lateral Spreading*

Lateral spreading is generally caused by liquefaction of soils on gentle slopes, resulting in predominately horizontal displacement and lateral extension of the soil mass accompanied by shear and tensile cracking of the ground surface. Lateral spreading can also occur on nearly flat-lying terrain where horizontal displacement takes place towards an unsupported slope face such as a steep stream bank.

It is our opinion that the potential for lateral spreading on this site is very low due to the dense nature of the subsurface soils across the site, and that there are no nearby steep, unsupported slopes on the remaining portions.

3.3.5 *Lurching*

Lurching is the phenomena where strong seismic shaking causes cracking, wrenching and chaotic displacement of the ground surface in soft, weak soils. It is typically associated with liquefaction and, therefore, occurs mostly in loose, cohesionless soils. Sandy or muddy water may erupt from cracks producing sand boils. Due to the predominately dense nature of the subsurface granular soils, we conclude that the probability of structural damage due to lurching is low.

3.3.6 Densification and Differential Settlement

Earthquake shaking can produce compaction and densification of loose granular soils. The amount of compaction across the site can vary due to differences in soils types, producing differential settlement. Since the majority of the soils on the site are either relatively dense or cohesive in nature, the potential for structural damage due to seismic densification and differential settlement is considered to be low.

3.3.7 Landslides

The majority of the site and adjacent areas exhibit little topographic relief. Aerial photographs covering the site do not show indications of historical slope instability at the site either. As such, it is our opinion that the potential for landslide or rock-fall hazards at the site is minimal.

3.3.8 Erosion and Sedimentation

Due to the relatively flat topography, runoff velocities on the site will be low; also, there appears to have been no excessive erosion on the site in its existing condition. Provided that all graded areas are revegetated, the potential of erosion on the site is considered to be low. Erosion protection in accordance with Contra Costa County standards should be incorporated into any site grading plans and specifications.

3.3.9 Tsunami, Seiche, and Flooding

The inland location of the project site indicates the risk for tsunami or seiche is low. Electronic flood data available from FEMA (Panel No. 060205 0480B) indicates that the site is located within Zone C, a region characterized by "minimal flooding".

3.3.10 Subsidence

Soil subsidence is the lowering of the Earth's surface caused by oxidation of peat lands accompanying drainage and cultivation, lowering of the artesian head in confined aquifer systems due to the intensive pumping of ground water, or by near-surface compaction of moisture-deficient alluvial-fan deposits above the water table (CDMG 1996). The soils encountered in our test borings consisted predominately of alluvial, silty and sandy soils with interbedded zones of clay soils. Although the site was blanketed with vineyards, it has not been developed extensively for agriculture where intensive pumping is needed for irrigation. This indicates that the current potential for subsidence across the subject site is low.

3.4 Surface Conditions

The site is bounded by Main Street (Hwy 4) on the south, Bridgehead Road on the west, and railroad tracks on the north and east. The parcel is located in east Contra Costa County, City of Oakley, California. At the time of our field explorations, the site was utilized for agricultural purposes. The relatively flat site was blanketed with vineyards over the entire area and loose wind-blow silty sands at the surface. An overhead electrical line is located on the easterly area of the site.

3.5 Subsurface Conditions

3.5.1 Subsurface Soil Profile

Based on our geotechnical investigation, the near-surface soils encountered at the project site consist of about 3 to 3.5 feet of loose to medium dense silty sands, underlain by interbedded layers of medium dense to very dense silty sands and sandy silts, and stiff to very stiff, low to highly plastic silty and sandy clays to the maximum depths explored at about 41.5 feet below existing site grade.

The natural moisture content of the subsurface soils at the time of our investigation ranged from about 2.7 to 26.5 percent indicating a dry to very moist condition, and the dry unit weight of the soils ranged from about 97 to 124 pounds per cubic foot (pcf). Resistance (R-value) tests performed on 7 samples of the near-surface soils indicates the near-surface sandy soils should provide excellent support for pavements as indicated by R-values ranging from 44 to 61. Underlying clays were usually low to highly plastic based on Liquid Limits (LL) ranging from 0 to 68 and Plasticity indices (PI) ranging from 0 to 44.

Detailed descriptions of the subsurface conditions encountered during our field investigation are presented on the Logs of Borings, Plates A-2 through A-93 of Appendix A. A summary of laboratory tests is presented on Plate B-1 of Appendix B. Other test results are presented on Plates B-2 through B-28 of Appendix B.

3.5 .2 Resistivity and pH of Soils

Results of pH and resistivity testing on seven samples of on-site soils, performed by Sequoia Analytical of Sacramento, California, are summarized below. A copy of the test results and brief description as presented by Sequoia are included at the end of Appendix B.

Boring No. & Depth	pH	Resistivity (ohm-cm)
RB-1 (2½ ft)	7.16	2,890
RB-4 (2½ ft)	7.05	1,833
B-35 (2½ ft)	7.08	4,760
B-24 (2½ ft)	7.40	5,750
B-43 (2½ ft)	7.12	4,830
P-6 (2½ ft)	7.21	2,420
P-15 (2½ft)	6.86	3,400

The analytical test results indicate the soil samples are moderately corrosive to corrosive to buried metal objects as indicated by minimum resistivity values varying from 1,833 to 5,750 ohm-cm. Tests for pH level indicate the soils have a slightly basic condition with pH levels varying from 6.86 to 7.40.

Based on the laboratory test results, it appears that underground metallic piping may need to be designed with some type of corrosion protection system. However, it should be noted that we are not corrosion experts. The above are general discussions. We strongly recommend that a corrosion expert be retained to further evaluate the soil corrosion properties and design a corrosion protection system appropriate for the project.

3.5.3 Groundwater

At the time of our field investigation, groundwater was encountered at depths ranging from about 12 to 20 feet below the site grades (bsg). Monitoring of water levels after drilling was not possible due to the CCEHD requirement to backfill all borings with neat cement grout following completion of the drilling.

It should be noted that groundwater and soil moisture conditions within the area will vary depending on irrigation practices, seasonal influences, new construction, or other factors not apparent at the time of our field investigation. The evaluation of such factors is beyond the scope of this investigation.

Groundwater contamination is known to exist under the Dupont site to the north, and is ongoing investigation/remediation by DTSC under the oversight of Kleinfelder. Kleinfelder has prepared a Phase I ESA report for the project site under separate cover. Our Phase I ESA report contains more detail on this issue.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 General

Based on the results of our field exploration, laboratory testing, and engineering analyses performed, it is our opinion that the proposed retail development project is geotechnically feasible, provided the recommendations presented in this report are incorporated in project design and construction.

This report was prepared considering the site layout and building location shown on the Conceptual Site Plan provided by PACLAND dated March 12, 2004. If any of these assumptions are significantly different from what is planned, we should be contacted to re-evaluate and update our recommendations. Kleinfelder should be retained to review final grading plans to confirm the applicability of our recommendations and to make modifications, if appropriate.

The required Owner's summary forms, are included in Appendix C.

4.2 Soil/Rock Conditions and Geotechnical Issues

Soil/rock conditions at the site are characterized by the following properties that will influence site development from a geotechnical perspective:

Loose Sands. The near-surface soils encountered at the project site consisted of about 3 to 3.5 feet of loose to medium dense silty sands, underlain by interbedded layers of medium dense to very dense silty sands and sandy silts, and stiff to very stiff, low to highly plastic silty and sandy clays to the maximum depths explored. Furthermore, these soils may exhibit a potential to hydroconsolidate with increases in soil moisture content. Hydroconsolidation is characterized by an abrupt or sudden decrease in soil volume (settlement) most often caused by infiltration or ponding of seasonal run-off or man-made sources, such as irrigation, leaking utilities, etc.

Given these conditions, the primary geotechnical consideration from a development standpoint is the limited support characteristics of the near-surface loose to medium dense silty sands. These soils are relatively weak and may consolidate or settle significantly under the anticipated structural loading.

The most direct and presumably cost effective method to improve the subgrade conditions would be to overexcavate and recompact the near-surface loose to medium dense sandy soils to a depth of 3.5 feet in order to provide a firm, uniform base immediately below the structures where stresses are highest. A secondary grading consideration is that deeper stripping will be required where concentrations of organic-laden soils and roots from the existing vineyard are encountered during grading. We anticipate that the 3.5-foot overexcavation discussed herein will be sufficient to remove the organic-laden soils.

Detailed recommendations regarding the geotechnical aspects of project design and construction are provided in the following sections of this report.

4.3 Site Earthwork

4.3.1 Site Preparation

Prior to general site grading, existing vegetation, organic topsoil, and any debris should be removed and disposed of outside the construction limits. The depth of stripping for removal of organics is estimated to be approximately 2- to 4-inches below existing grades over a majority of the site. Deeper stripping will be required where concentrations of organic soils, grape vine or tree stumps or roots larger than 1 inch in diameter are encountered during site grading.

Although not encountered in the borings completed in our field investigation, we were warned of the presence of abandoned and active utility lines passing trough the site by USA and by a private utility service. Besides these confirmed utility lines, septic tanks, cesspools, wells and/or foundations may exist onsite. If encountered within the area of construction, these items should be removed and disposed of off-site. Existing wells should be abandoned in accordance with applicable regulatory requirements. Existing utility pipelines, which extend beyond the limits of the proposed construction and will be abandoned in-place, should be plugged with cement grout to prevent migration of soil and/or water or remove the smaller pipes. All excavations resulting from removal activities should be cleaned of loose or disturbed material (including all previously-placed backfill) and dish-shaped (with sides sloped 3(H):1(V) or flatter) to permit access for compaction equipment.

4.3.2 Near -Surface Soils

Based on our findings and previous experience, the near-surface wind-blown sands extending to a depth of about 3.5 feet below existing site grades are loose to medium dense, relatively weak, and may consolidate or settle significantly under structural loading. Furthermore, these soils may exhibit a potential to hydroconsolidate with increases in soil moisture content. Hydroconsolidation is characterized by an abrupt or sudden decrease in soil volume (settlement) most often caused by infiltration or ponding of seasonal run-off or man-made sources, such as irrigation, leaking utilities, etc. To reduce this risk, the loose sands within the upper 3.5 feet should be: (1) removed entirely; (2) over-excavated and recompacted as engineered fill; (3) scarified in-place and recompacted as structural fill; or (4) a combination of the above procedures.

As discussed above and in Section 4.2, the loose near-surface soils within the building pad should be overexcavated to a depth of 3.5 feet below existing grades and replaced with structural fill. The zone of over-excavation and compaction should extend laterally a minimum of 5 feet outside the perimeter of the building. In pavement areas, we recommend that the upper 2 feet of the loose to medium dense sands be overexcavated and recompacted as engineered fill. This may be accomplished by overexcavating 1 foot, scarifying and recompacting the upper 1 foot of exposed subgrade soils in-place, and replacing the overexcavated soils with engineered fill. Overexcavation and recompaction in pavement areas should extend laterally a minimum of 2 feet beyond back of curb or edge of pavement.

We recommend that all exposed subgrade areas that will receive fill and/or structures be re-compacted to a minimum of 90 percent relative compaction (RC) based on the modified Proctor test method (ASTM D-1557). In pavement areas, we recommend that the top twelve inches of subgrade be compacted to at least 95 percent relative compaction. Subgrade soils in all areas should be moisture conditioned to slightly over optimum moisture content for sandy soils and at a uniform moisture content of ±3 percent optimum moisture content for clayey soils. Surface stripping, preparation, moisture conditioning and compaction testing of subgrade soils, as appropriate, should be observed and documented by the Geotechnical Engineer responsible for site grade or their qualified personnel.

4.3.3 Unstable Ground

In the event unstable (i.e. unstable or "pumping" ground) subgrades are encountered within planned building or pavement areas, it may be necessary to over-excavate loose or soft soils to expose more stable underlying material. Subgrade stabilization alternative methods are presented below in the event unstable subgrade is encountered.

A heavy, rubber-tired vehicle (typically a loaded water truck) should be used to test the load/deflection characteristics of the finished subgrade materials. This vehicle should have a minimum rear axle load (at the time of testing) of 16,000 pounds with tires inflated to at least 65 pounds per square inch pressure. If the tested surface shows a visible deflection extending more than 6 inches from the wheel track at the time of loading, or a visible crack remains after loading, corrective measures should be implemented. Such measures could include disking to aerate, replacement with drier material, recompaction or other method. Kleinfelder should be retained to assist in developing which method (or methods) would be applicable for this project.

4.3.4 Proof Rolling

Following compaction or mitigation of unstable subgrades, it may be desirable to proof roll these areas to evaluate if any other unstable zones may exist. Proof rolling should be observed by a professional representative of our firm and may consist of observing if any deflections are made from the dynamic loading of a fully loaded water truck or another piece of heavy equipment.

4.3.5 Wet Weather Construction

Based on our findings and historical records, groundwater levels are no anticipate to rise near surface or impede grading operations at the site. However, if site grading is perform during or following extended periods of rainfall, the moisture content of the near-surface soils may be significantly above optimum. This condition, if encountered, could seriously delay grading by causing an unstable subgrade condition. Typical measures include discing and aerating the soils during dry weather; mixing the soil with dryer materials; removing and replacing the soils with an approved fill material; or stabilizing with a geotextile fabric or grid. Our firm should be consulted prior to implementing any measure to observe the unstable subgrade condition and provide site-specific recommendations.

4.3.6 Structural or Non-Expansive Fill

Structural fill should only be installed on subgrades that have been properly prepared and stabilized in accordance with the preceding recommendations.

The native sandy soils encountered in our borings, minus organics, debris and/or other deleterious materials, should be suitable for use as fill. Although not encountered in near-surface soils during our field investigation, native clays are considered potentially expansive and not acceptable for re-use as engineered fills.

All on-site soils planned for re-use as engineered fill, and all import fill soils should be nearly free of organic or other deleterious debris, essentially non-plastic, and less than 3 inches in maximum dimension. In general, well-graded mixtures of gravel, sand, non-plastic silt, and small quantities of cobbles, rock fragments, and/or clay are acceptable for use as import fill. Specific requirements for import "non-expansive" fill, as well as applicable test procedures to verify material suitability are provided below. On-site soils planned for re-use as engineered fill should also meet these requirements.

Gradation (ASTM C136)	
Sieve Size	**Percent Passing**
3-inch	100
No. 4	50 – 100
No. 200	15 – 70
Plasticity (ASTM D4318)	
Liquid Limit	**Plasticity Index**
Less than 30	Less than 12
Organic Content (ASTM D2974)	
Less than 3 percent	

All fill materials (on-site or imported) to be used for engineered fill should be sampled and tested by the Geotechnical Engineer responsible for site grading prior to being transported to and/or placed on the site.

All engineered fill must be placed in uniform, horizontal lifts not exceeding 8 inches in loose thickness (prior to compaction). On-site or imported granular soils must be moisture-conditioned to a moisture content at or slightly over optimum for compaction. All engineered fill should be compacted to a minimum of 90 percent compaction based on the ASTM D1557 test method. In non-structural areas, such as landscaping, fills may be compacted to 85 percent compaction if the potential for settlements on the order of one to two inches is acceptable. Fill placement should be observed and tested for compaction on a daily basis.

4.4 Shallow Spread Foundations

4.4.1 General

Following preparation of the building pad as recommended in the previous sections of the this report, the structure should be supported on spread footings designed in accordance with the following sections of this report. Information provided by PACLAND indicates maximum column loads of approximately 150 kips with average loads of approximately 50 to 85 kips for exterior and interior columns, respectively. Bearing wall loads range from 4 to 6 kips per lineal foot. Foundations should be able to tolerate total settlements of up to ¾

4.5 Interior Floor Slabs

The subgrade under all floor slab areas should be prepared in accordance with Section 4.3, Site Earthwork.

For exposed concrete slabs, we recommend that slabs be constructed on a 2-inch thick layer of fine aggregate underlain by 4 inches of coarse aggregate. Fine aggregate base should consist of clean, granular fill with less than 3 percent clay and/or friable particles or materials having a gradation in accordance with the ASTM D448 No. 10 with 6 to 12 percent passing the No. 200 sieve. Coarse aggregate should consist of either ASTM D448 No. 467, 57, or 67. An alternate to using coarse and fine aggregate would be to use 6 inches of compacted Caltrans Class 2 Aggregate Baserock.

For floor slabs supported on subgrades that are prepared in accordance with the preceding recommendations the floor slab may be designed for a modulus of subgrade reaction (k) of 150 pounds per cubic inch.

Intrusion of subgrade moisture through the floor slab can occur through fluid or vapor phase as the result of hydraulic, thermal or humidity gradients. To reduce the impact of this subsurface moisture and the potential from other moisture sources, a common practice is to place a vapor barrier under the slab. This is particularly true where moisture sensitive floor coverings are anticipated. Depending on the details of the vapor barrier design, the system may not be completely effective in preventing floor slab moisture problems.

This system, however, may not be completely effective in preventing floor slab moisture vapor transmission. Furthermore, this system will not necessarily assure that floor slab moisture transmission rates will meet floor-covering manufacturer standards and that indoor humidity levels will not inhibit mold growth. These post-construction conditions should be addressed separately by qualified specialists with local knowledge of slab moisture protection systems, flooring design and other potential components that may be influenced by moisture. Our study addresses present subgrade conditions only and does not evaluate future potential conditions for support of slabs unless specifically stated otherwise.

Based on the site soil and groundwater conditions present at the time of our field study, in our opinion a vapor barrier is not warranted provided that some latent moisture vapor transmission is acceptable. We do recommend, however, that all floor slabs that will be topped with moisture-sensitive flooring be underlain by a vapor barrier and a minimum 4-inch thick layer of compacted crushed rock graded (in lieu of the coarse aggregate layer discussed above) so that 100 percent passes the one-inch sieve and less than 5 percent passes the No. 4 sieve. The gravel layer will act as a capillary moisture break, reducing the transfer of moisture through the slab.

Furthermore, it must be understood that factors other than a vapor barrier can significantly influence flooring problems. These other factors include quality of concrete, interior ventilation, type of flooring adhesive, concrete curing time and sources of moisture from plumbing leaks, landscaping or surface drainage. It is emphasized that we are not floor moisture proofing experts. The building and designers should consider all available measures for slab moisture protection.

4.6 Retaining Walls

Low retaining walls (less than 5 feet in height) will likely be required at truck docks and loading ramps. The recommendations presented herein are for walls less than 5 feet in maximum height. The following section provides general retaining wall recommendations for concrete masonry unit and/or cast in place concrete walls. We understand that mechanically stabilized earth walls are generally preferred by PACLAND's client; however, for this project planned retaining walls are not within a planned fill construction area and significant additional cuts would be required to construct such walls. Kleinfelder should review the final grading plan to determine if additional recommendations are warranted.

Lateral pressures on retaining walls depend upon the type of wall, hydrostatic pressure behind the wall, type of backfill material, and allowable wall movement. Where allowable wall movement is less than approximately 0.5 percent of the wall height or where wall movement is constrained, lateral earth pressures should be estimated for an "at rest" condition. Where allowable wall movement is greater than 0.5 percent of the wall height, lateral earth pressures should be estimated for an "active" condition. An active equivalent fluid pressure of 45 pcf may be used for an active condition for walls backfilled with granular soils. Walls backfilled with clay soils should be designed for an equivalent fluid lateral earth pressure of 65 pounds per cubic foot (pcf) for the "at rest" condition for level backfill. All walls that will retain clay soils should be designed for the "at rest" condition. It should be noted that these earth pressures do not include the effects of hydrostatic pressures acting behind the wall.

We recommend an allowable coefficient of sliding resistance between the concrete and bearing soils of 0.35 be used in the analysis. If passive earth resistance is needed, such as for keyways, a value of 350 pcf equivalent fluid pressure, should be used for the native soils or compacted fill. These values include a safety factor of 1.5. For retaining walls not attached to a structure, placing a series of weep holes at the wall base should control hydrostatic pressures. Drainage is discussed in greater detail in Section 4.9, *Drainage Considerations*.

If surcharge loads at the top of retaining walls are anticipated, Kleinfelder should be notified to analyze the resultant lateral loads applied to the walls. Experience has shown that lateral loads caused by minor surcharges are often over-estimated during wall design; while lateral loads caused by heavy surcharges, i.e. truck traffic, are frequently under-estimated using simplified analysis methods. We recommend that if lateral earth pressure diagrams are prepared by the structural engineer or by the engineer for the wall contractor, Kleinfelder should be allowed to review and comment on these diagrams during the design process.

4.6.1 Retaining Wall Backfill

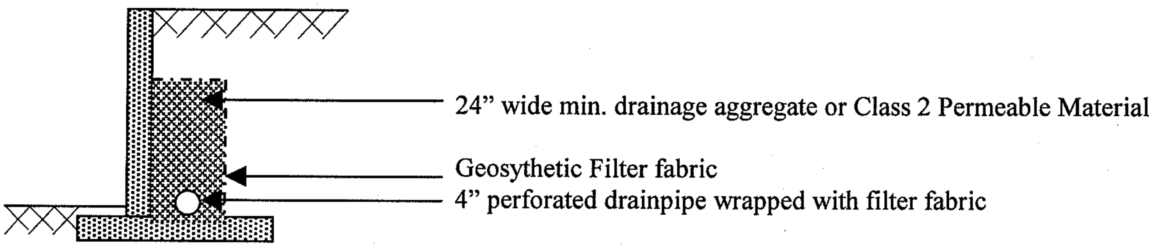
Backfill within a distance of 2 feet of the back of retaining walls should consist of free-draining crushed rock with 100 percent passing the 1-inch sieve and 95 percent retained on the No. 4 sieve. To reduce backfill pressures, we recommend that soil backfill be compacted to between 90 and 92 percent relative compaction (ASTM D-1557) within five feet of the wall. An alternate to the drain rock recommended above may consist of Caltrans Class 2 Permeable Material placed in accordance with the latest edition of the Caltrans Standard Specifications.

In addition, we recommend that any backfill that is placed within five feet of the wall (measured horizontally) be compacted in thin lifts with lightweight, hand-operated compaction equipment or a hoe-pack mounted on an excavator. Over-compaction of this fill can significantly increase wall pressures. If any foundations or other major loads are supported on the backfill, these situations can create lateral surcharges pressures on retaining walls. In this event, Kleinfelder should be contacted for additional recommendations.

Expansive soils, i.e., clays, plastic silts, and/or clayey sands, should not be used for backfill against retaining walls unless approved by the geotechnical engineer. The wedge of non-expansive backfill should extend from the bottom of each retaining wall outward and upward at a slope of 1(H):(1V) or flatter.

4.6.2 Backfill Drainage

All retaining walls should be backfilled with a free draining granular material (i.e. crushed drain rock or Caltrans Class 2 permeable material) as discussed in the previous section to prevent the development of hydrostatic pressures behind retaining walls. This backfill should be separated from the retained soils by a geosynthetic filter fabric meeting the minimum property values for Underdrains as specified in the 2002 Caltrans Standard Specifications Section 88-1.03 Filter Fabric. Seepage collected in the gravel and fabric drain should be conveyed by a perforated drainpipe to a storm drain inlet or other suitable disposal location. A graphical illustration of the retaining wall backfill drainage is presented below.



4.7 Subsurface Facilities

The near-surface soils encountered during our field investigation consist primarily of loose to medium dense silty sands, underlain by interbedded layers of medium dense to very dense silty sands and sandy silts, and stiff to very stiff, low to highly plastic silty and sandy clays to the maximum depths explored. Based upon our explorations, we anticipate that excavations

Temporary dewatering of wider, deeper, and/or more extensive excavations may require well points, deep wells, and/or deep sumps. To help maintain bottom stability of wider, deeper and/or more extensive excavations, groundwater levels should be drawn-down a minimum of three feet below the lowest portion of the excavation. Since temporary dewatering will impact and be dependent on construction methods and scheduling, we recommend the Contractor be solely responsible for the design, installation, maintenance, and performance of all temporary dewatering systems.

4.9 Drainage Considerations

Foundation and slab performance depends greatly on how well runoff waters drain from the site. This drainage should be maintained both during construction and over the entire life of the project. The ground surface around structures should be graded so that water readily flows rapidly away from structures without ponding. The surface gradient needed to do this depends on the landscaping type. In general, pavement and landscaped areas within five feet of buildings should slope away at gradients of at least two percent. Densely vegetated areas should have minimum gradients of five percent away from buildings in the first five feet. Water from downspouts and overland runoff should be independently collected and routed to storm drains and/or pond areas. This water should not be allowed to infiltrate to the foundation level beneath the buildings.

Planters should be built so that water exiting from them will not seep into the foundation areas or beneath slabs and pavement. In general, the elevation of exterior grades should not be higher than the elevation of the gravel capillary break beneath the slabs to help prevent water intrusion beneath slabs. In any event, maintenance personnel should be instructed to limit irrigation to the minimum actually necessary to properly sustain landscaping plants. Should excessive irrigation, waterline breaks, or unusually high rainfall occur, saturated zones and "perched" groundwater may develop, Consequently, the site should be graded so that water drains away readily without saturating the foundation or landscaped areas. Potential sources of water, such as water pipes, drains, fountains, and the like, should be frequently examined for signs of leakage or damage. Any such leakage or damage should be promptly repaired.

4.10 Asphalt and Portland Cement Concrete Pavements

Pavement design is based on considerations of predicted traffic volumes, soil subgrade conditions, and acceptable maintenance levels. PACLAND's specifications provided vehicle and traffic information for pavement design, including 18-kip ESALs (18,000-lb. equivalent single-axle loads). The minimum 20-year design life ESALs for standard- and heavy-duty pavements were given as 109,500 and 335,800. This corresponds to traffic indices (TI) of 7 and 8 for standard and heavy-duty pavement sections, respectively.

Analysis was performed for standard and heavy-duty pavement classifications and laboratory testing included gradation, Atterberg Limits and Resistance value (R-value) to characterize the surficial soils. The anticipated primary soil types that will be exposed at pavement subgrades are silty sands and sandy silts according to the Unified Soil Classification System. The R-value tests conducted (see Appendix B) on seven representative samples of pavement subgrade materials yielded R-values varying from 44 to 61. A maximum R-value of 44 was utilized in our analysis. Asphalt concrete pavement design was conducted in accordance with the Caltrans Highway Design Manual – Chapter 600, Design of the Pavement Structural Element (July 1, 1995).

4.10.1 Subgrade Preparation

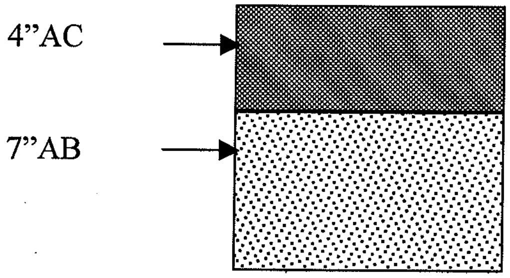
We recommend that areas proposed to receive pavement should be stripped and prepared in accordance with Section 4.3.1 Site Preparation, Section 4.3.2 Near Surface Soils, and Section 4.3.6 Structural Fill of this report, and as described herein.

Prior to installing base course we recommend that all pavement areas be proof rolled with a fully loaded dump truck or equivalent rubber-tired earthwork equipment. We recommend this vehicle have a minimum rear axle load (at the time of testing) of 16,000 pounds with tires inflated to at least 65 pounds per square inch pressure. If the tested surface shows a visible deflection extending more than 6 inches from the wheel track at the time of loading, or a visible crack remains after loading, corrective measures should be implemented. Any areas that pump, weave, or appear soft or muddy should be over-excavated and compacted fill should be reinstalled. Subgrade stabilization should be completed in accordance with Section 4.3.3 as necessary. Pavement and base coarse materials and installation should be in accordance with California Department of Transportation Standard Specifications with the exception that relative compaction should be evaluated using ASTM D1557 test methods.

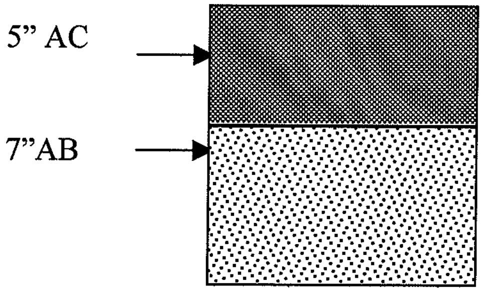
4.10.2 Asphalt Pavement Sections

An R-value of 44 as utilized for our calculation of pavement sections for a 20-year design life, assuming normal pavement maintenance including crack sealing is performed on a periodic basis. The R-value of 44 is anticipated to be representative of the near surface sandy soils encountered across the site. During site grading, we recommend that the exposed subgrade conditions be reviewed by the project geotechnical engineer and additional R-value testing performed, as appropriate. Thinner pavement sections may be feasible based upon the final subgrade soils. We recommend the following minimum pavement structural sections based on an R-value of 44:

Standard Duty Pavement



Heavy Duty Pavement



- To help offset plastic shrinkage, concrete pavement may be reinforced with at least No. 3 bars, 24 inches on-center.

- Construction joint spacing should not exceed 12 feet.

- Thickened edges should be used along outside edges of concrete pavements. Edge thickness should be at least 2 inches greater than the concrete pavement thickness and taper to the actual concrete pavement thickness 36 inches inward from the edge. Integral curbs may be used in lieu of thickened edges.

- Overfinishing of concrete pavements should be avoided. Typically, a broom or burlap drag finish should be used.

5. ADDITIONAL SERVICES

5.1 Plans and Specifications Review

Because the design details for the proposed project were not available at the time this report was prepared, we recommend that Kleinfelder be retained to review the geotechnical aspects of the project plans and specifications as the design is being developed to confirm the applicability of our recommendations, or to make approach modifications.

In the event Kleinfelder is not, retained to review the final project plans and specifications to evaluate if our recommendations have been properly interpreted, we will assume no responsibility for misinterpretation of our recommendations.

5.2 Construction Observation and Testing

Kleinfelder provides comprehensive construction observation, special inspection, and testing services to meet the requirements of the CBC, local building officials, and project plans and specifications. Kleinfelder should provide earthwork monitoring and testing, special inspection, and materials testing in accordance with project plans and specifications. This would also provide Kleinfelder the opportunity to observe the soil conditions encountered during construction, evaluate the applicability of the recommendations presented in this report to the soil conditions encountered, and recommend appropriate changes in design or construction procedures if conditions differ from those described herein.

6. UNCERTAINTY AND LIMITATIONS

We have prepared this report for use PACLAND and Wal-Mart Stores, Inc., for design and construction planning purposes. The data and report should be reviewed as a part of the project evaluation process, however, our report, conclusions and interpretations should not be considered as warranty of the subsurface conditions. Experience has shown that subsurface soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations and not be detected by a geotechnical study. If, during future site operations, subsurface conditions are encountered that vary appreciably from those described herein, Kleinfelder should be notified for review of our recommendations and revision of such, if necessary.

Kleinfelder is available to provide continuing geotechnical services as the project proceeds through design. We also routinely monitor the geotechnical aspects of construction in order to evaluate compliance with our recommendations, particularly those activities outlined in Section 4 of this report.

This report may be used only by PACLAND and Wal-Mart Stores, Inc., for the purposes stated, within a reasonable time from its issuance. Any party other than those referenced above that wish to rely on the report should complete the Application for Authorization to Use, included in Appendix E. Unauthorized use of this report by any party other than PACLAND or Wal-Mart Stores, Inc., will release Kleinfelder from all liability resulting from unauthorized use of the report.

Land use, site conditions (both on- and off-site), or other factors may change over time and could materially affect our findings. Therefore, this report should not be relied upon after 24 months from its issue. Kleinfelder should be notified if the project is delayed by more than 24 months from the date of this report so that a review of site conditions can be made, and recommendations revised if appropriate.

This firm does not practice or consult in the field of safety engineering. We do not direct the contractor's operations, and we cannot be responsible for the safety of personnel other than our own on the site; the safety of others is the responsibility of the contractor. The contractor should notify the Wal-Mart Stores, Inc., if he considers any of the recommended actions presented herein unsafe.

7. REFERENCES

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FEHR & PEERS
TRANSPORTATION CONSULTANTS

MEMORANDUM

Date: February 7, 2008

To: Cindy Gnos, Raney Planning and Management

From: Sam Tabibnia

Subject: River Oaks Crossing Specific Plan EIR – Updated Analysis

1031-1976

This memorandum summarizes the updated analysis completed for the River Oaks Crossing Specific Plan EIR. This updated analysis was completed to account for the Oakley Station and Carol Lane Projects which were not accounted for in the DEIR analysis because the City was not aware of these projects at the time.

The Oakley Station project is a 206,000 square-foot shopping center on the south side of Main Street between Live Oak Avenue and Big Break Road. This project is consistent with the City of Oakley General Plan designation for the project area. The Carol Lane project is a multi-family residential development just south of the Oakley Station project with access through Carol Lane. This site was designated as light industrial in the City's General Plan.

Based on our updated analysis, the additional traffic generated by these projects would not result in a new impact under Near Term (2010) conditions. However, the previously identified Mitigation Measure CT-1 would no longer be adequate to mitigate project impacts at the Main Street/ Bridgehead Road/Neroly Road intersection under Near Term (2010) conditions. Mitigation Measure CT-13, which was identified as a Cumulative (2030) mitigation measure at this intersection would need to be implemented under Near Term (2010) conditions.

The Cumulative (2030) analysis completed for the River Oaks Crossing Specific Plan DEIR accounted for the buildout of the City of Oakley General Plan. Since the Oakley Station project is consistent with the City's General Plan, the Cumulative (2030) analysis already accounts for this project. The proposed uses at the Carol Lane Project site would generate fewer trips than the previous light industrial designation. Thus, the Cumulative (2030) analysis presented in the DEIR is based on more conservative assumptions and the analysis and conclusions continue to be valid.

The updated Near Term (2010) and consistency with the Cumulative (2030) analyses are described in more detail below.

UPDATED NEAR TERM (2010) ANALYSIS

Since the Near Term (2010) analysis presented in the River Oaks Crossing Specific Plan DEIR did not account for the Oakley Station and Carol Lane projects, the Contra Costa Transportation Authority (CCTA) Decennial Countywide Travel Demand model used in the DEIR analysis was rerun to include these two projects. Figures 1 and 2 present the updated AM and PM peak hour turning volumes at the study intersections under Near Term (2010) No Project and Near Term

(2010) With Project conditions, respectively. Similar to the analysis presented in the DEIR, intersection operations were analyzed using CCTALOS and Highway Capacity Manual (HCM) methods. Table 1 summarizes the intersection LOS analysis results. The LOS calculation sheets are provided in the Appendix.

TABLE 1
UPDATED NEAR TERM (2010) WITH AND WITHOUT PROJECT CONDITIONS
INTERSECTION PEAK HOUR LOS SUMMARY

Intersection	Control[1]	Peak Hour	NEAR TERM NO PROJECT				NEAR TERM WITH PROJECT			
			CCTALOS		HCM		CCTALOS		HCM	
			V/C Ratio[2]	LOS	Delay[3]	LOS	V/C Ratio[2]	LOS	Delay[3]	LOS
1. Wilbur Avenue/Minaker Drive	Signal	AM	0.25	A	10	A	0.25	A	10	B
		PM	0.22	A	9	A	0.24	A	9	A
2. Wilbur Avenue/Viera Avenue	SSSC	AM	--	--	2 (15)	A (B)	--	--	2 (16)	A (C)
		PM	--	--	1 (14)	A (B)	--	--	1 (16)	A (C)
3. Wilbur Avenue/SR 160 SB Ramps	SSSC	AM	--	--	3 (11)	A (B)	--	--	4 (13)	A (B)
		PM	--	--	7 (27)	A (D)	--	--	**27 (>60)**	**D (F)**
4. Wilbur Avenue/SR 160 NB Ramps	SSSC	AM	--	--	1 (11)	A (B)	--	--	1 (12)	A (B)
		PM	--	--	3 (16)	A (C)	--	--	3 (20)	A (C)
5. Wilbur Avenue/Bridgehead Road	AWSC	AM	--	--	13	B	--	--	15	C
		PM	--	--	10	A	--	--	16	C
6. East 18th Street/Hillcrest Avenue	Signal	AM	0.33	A	19	B	0.33	A	19	B
		PM	0.58	A	27	C	0.59	A	29	C
7. East 18th Street/Viera Avenue	Signal	AM	0.44	A	7	A	0.47	A	7	A
		PM	0.50	A	6	A	0.57	A	7	A
8. East 18th Avenue/Phillips Lane	Signal	AM	0.20	A	14	B	0.23	A	14	B
		PM	0.29	A	16	B	0.35	A	16	B
9. Main Street/SR 160 SB Ramps	Signal	AM	0.40	A	16	B	0.45	A	15	B
		PM	0.47	A	29	C	0.59	A	30	C
10. Main Street/SR 160 NB Ramps	Signal	AM	0.54	A	11	B	0.60	B	11	B
		PM	0.65	B	19	B	0.79	C	25	C
11. Main Street/Bridgehead Road/Neroly Road	Signal	AM	0.42	A	20	B	0.48	A	20	C
		PM	0.85	D	39	D	**0.96**	**E**	**71**	**E**
12. Main Street/Sandy Lane	SSSC/ Signal [4]	AM	--	--	0 (20)	A (C)	0.51	A	6	A
		PM	--	--	**1 (>60)**	**A (F)**	0.73	C	17	B
13. Main Street/Live Oak Avenue	Signal	AM	0.43	A	7	A	0.57	A	17	B
		PM	0.58	A	4	A	0.85	D	38	D
14. Main Street/Big Break Road	Signal	AM	0.47	A	16	B	0.53	A	16	B
		PM	0.59	A	25	C	0.71	C	22	C

TABLE 1
UPDATED NEAR TERM (2010) WITH AND WITHOUT PROJECT CONDITIONS INTERSECTION PEAK HOUR LOS SUMMARY

			NEAR TERM NO PROJECT				NEAR TERM WITH PROJECT			
			CCTALOS		HCM		CCTALOS		HCM	
Intersection	Control[1]	Peak Hour	V/C Ratio[2]	LOS	Delay[3]	LOS	V/C Ratio[2]	LOS	Delay[3]	LOS
15. Oakley Road/Neroly Road	AWSC	AM	--	--	12	B	--	--	13	B
		PM	--	--	16	B	--	--	24	C
16. Oakley Road/Live Oak Avenue	AWSC	AM	--	--	9	A	--	--	12	B
		PM	--	--	10	B	--	--	**>60**	**F**
17. Oakley Road/Empire Avenue	Signal	AM	0.30	A	18	B	0.34	A	18	B
		PM	0.51	A	24	C	0.61	B	30	C
18. Main Street/Empire Avenue	Signal	AM	0.41	A	20	B	0.46	A	21	C
		PM	0.57	A	22	C	0.68	A	27	C
19. Main Street/Vintage Parkway	Signal	AM	0.39	A	11	B	0.44	A	11	B
		PM	0.44	A	11	B	0.53	A	13	B
20. Main Street/O'Hara Avenue	Signal	AM	0.50	A	11	B	0.58	A	14	B
		PM	0.72	C	17	B	0.88	D	37	D
21. Cypress Road/Empire Avenue	Signal	AM	0.25	A	11	B	0.28	A	11	B
		PM	0.38	A	12	B	0.44	A	13	B
22. Cypress Road/Main Street	Signal	AM	0.36	A	22	C	0.40	A	23	C
		PM	0.42	A	28	C	0.50	A	29	C
23. Neroly Road/Live Oak Avenue	AWSC	AM	--	--	12	B	--	--	17	C
		PM	--	--	12	B	--	--	**52**	**F**
24. Laurel Road/Live Oak Avenue	Signal	AM	0.33	A	10	A	0.37	A	13	B
		PM	0.34	A	9	A	0.44	A	13	B
25. Laurel Road/Empire Avenue	Signal	AM	0.52	A	23	C	0.53	A	24	C
		PM	0.65	B	33	C	0.70	B	36	D
26. Bridgehead Road/Project Driveway	N/A/ Signal	AM	--	--	--	--	0.37	A	10	A
		PM	--	--	--	--	0.36	A	11	B
27. Main Street/Project Driveway Center	N/A/ Signal	AM	--	--	--	--	0.48	A	4	A
		PM	--	--	--	--	0.67	B	11	B
28. Main Street/Project Driveway East	N/A/ Signal	AM	--	--	--	--	0.46	A	10	A
		PM	--	--	--	--	0.78	C	30	C

TABLE 1
UPDATED NEAR TERM (2010) WITH AND WITHOUT PROJECT CONDITIONS
INTERSECTION PEAK HOUR LOS SUMMARY

			NEAR TERM NO PROJECT				NEAR TERM WITH PROJECT			
			CCTALOS		HCM		CCTALOS		HCM	
Intersection	Control[1]	Peak Hour	V/C Ratio[2]	LOS	Delay[3]	LOS	V/C Ratio[2]	LOS	Delay[3]	LOS

Bold indicates intersection operating at deficient level of service.

1. Signal = Signalized intersection
   SSSC = Side-street stop-controlled intersection
   AWSC = All-way stop-controlled intersection
2. Volume-to-capacity ratio (V/C) determined for all signalized intersections using the CCTALOS methodology.
3. Average intersection delay is calculated for all signalized and unsignalized intersections using the 2000 *Highway Capacity Manual* (HCM) methods. For side-street stop-controlled intersections, average intersection delay (in seconds per vehicle) is presented. Delay for worst approach is shown in brackets.
4. Intersection is side-street stop-controlled under Near Term No Project conditions, but will be signalized under Near Term with Project conditions.

Source: Fehr & Peers, 2008.

The additional traffic generated by these two projects would result in additional congestion at the study intersections. However, similar to the analysis presented in the DEIR, the proposed project would continue to cause a significant impact at only the following three intersections:

Impact CT-1	Main Street/Bridgehead Road/Neroly Road
Impact CT-2	Oakley Road/Live Oak Avenue
Impact CT-3	Neroly Road/Live Oak Avenue

Mitigation Measures CT-2 and CT-3 as identified in the DEIR would continue to be adequate to mitigate the project impacts at the Oakley Road/Live Oak Avenue and Neroly Road/Live Oak Avenue intersections. However, Mitigation Measure CT-1 would not be adequate to mitigate the project impact at the Main Street/Bridgehead Road/Neroly Road intersection. Mitigation Measure CT-13, which the DEIR identified to mitigate project impact at this intersection under Cumulative (2030) conditions would also be needed to mitigate the project impacts under the updated Near Term (2010) With Project conditions.

Mitigation Measure CT-1 would add a second exclusive left-turn lane to the southbound approach of the intersection to provide one exclusive right-turn lane, one through lane, and two left-turn lanes. Mitigation Measure CT-13 would convert the second exclusive left-turn lane on the northbound approach to a share left-turn/through lane. Both mitigation measures are included in the City's Transportation Impact Fee and the project would contribute to these mitigations by paying its fair share of the cost through payment of the City's Transportation Impact Fee.

As shown in Table 2, implementation of both Mitigation Measures CT-1 and CT-13 at the Main Street/Bridgehead Road/Neroly Road intersection would mitigate project impacts to a less-than-significant level.

TABLE 2
MITIGATED NEAR TERM (2010) WITH PROJECT CONDITIONS
INTERSECTION PEAK HOUR LOS SUMMARY

			NEAR TERM WITH PROJECT				NEAR TERM WITH PROJECT MITIGATED			
			CCTALOS		HCM		CCTALOS		HCM	
Study Intersection	Control[1]	Peak Hour	V/C Ratio[2]	LOS	Delay[3]	LOS	V/C Ratio[2]	LOS	Delay[3]	LOS
11. Main Street/ Bridgehead Road/Neroly Road	Signal	AM	0.48	A	20	C	0.43	A	17	B
		PM	**0.96**	**E**	**71**	**E**	0.87	D	47	D
16. Oakley Road/Live Oak Avenue	AWSC/ Signal	AM	--	--	12	B	0.28	A	13	B
		PM	--	--	**>60**	**F**	0.44	A	16	B
23. Neroly Road/Live Oak Avenue	AWSC/ Signal	AM	--	--	17	C	0.43	A	24	C
		PM	--	--	**52**	**F**	0.51	A	25	C

Bold indicates intersection operating at deficient level of service.

1. Signal = Signalized intersection
   SSSC = Side-street stop-controlled intersection
   AWSC = All-way stop-controlled intersection
2. Volume-to-capacity ratio (V/C) determined for all signalized intersections using the CCTALOS methodology.
3. Average intersection delay is calculated for all signalized and unsignalized intersections using the 2000 *Highway Capacity Manual* (HCM) methods. For side-street stop-controlled intersections, average intersection delay (in seconds per vehicle) is presented. Delay for worst approach is shown in brackets.

Source: Fehr & Peers, 2008.

CONSISTENCY WITH CUMULATIVE (2030) CONDITIONS ANALYSIS

The Cumulative (2030) conditions analysis completed for the River Oaks Crossing DEIR included the buildout of the City of Oakley General Plan. Since the Oakley Station project is consistent with the City's General Plan, it would also be consistent with the Cumulative (2030) conditions analysis presented in the DEIR. However, the Carol Lane project was designated "Light Industrial" at the time of the Cumulative conditions analysis. Based on the latest information provided by City of Oakley staff, the proposed Carol Lane project would consist of 450 multi-family dwelling units with 216 dwelling units designated for seniors only.

Table 3 presents the estimated trip generation for the proposed Carol Lane project and compares it to the trip generation under previous "Light Industrial" designation. As shown in Table 3, the proposed project would generate 68 fewer trips during the AM peak hour and 21 fewer trips during the PM peak hour.

Thus, the Cumulative (2030) conditions analysis completed for the River Oaks Crossing DEIR would present a more conservative analysis and continues to be valid.

TABLE 3
CAROL LANE PROJECT
TRIP GENERATION COMPARISON

Land Use	ITE Code	Amount	AM Peak Hour	PM Peak Hour
Proposed Project				
Multi-Family Residential[1]	220	234 DU	118	146
Senior Attached Residential[2]	252	216 DU	17	24
Total Proposed Project			***135***	***170***
General Plan Designation				
Light Industrial[3]	110	248 KSF	203	191
Total General Plan Designation			***203***	***191***
Difference			***-68***	***-21***

Notes: du = dwelling unit; ksf = 1,000 square feet.

[1] Trip generation based on the regression equations for Apartment (Land Use 230) in the Institute of Transportation Engineers' (ITE) *Trip Generation* (7th Edition), as presented below.
AM Equation: T = 0.49 (X) + 3.73
PM Equation: T = 0.55 (X) + 17.65
Where: T = trip ends and X = number of dwelling units

[2] Trip generation based on the aver rates for Senior Adult Housing – Attached (Land Use 252) in the Institute of Transportation Engineers' (ITE) *Trip Generation* (7th Edition), as presented below.
AM Rate: (T) = .08 (X)
PM Rate: (T) = 0.11 (X)
Where: T = trip ends and X = number of dwelling units

[3] Trip generation based on the regression equations for Light Industrial (Land Use 110) in the Institute of Transportation Engineers' (ITE) *Trip Generation* (7th Edition), as presented below.
AM Equation: T = 1.18 (X) – 89.28
PM Equation: T = 1.43 (X) – 163.42
Where: T = trip ends and X = number of dwelling units

Source: Fehr & Peers, 2008.

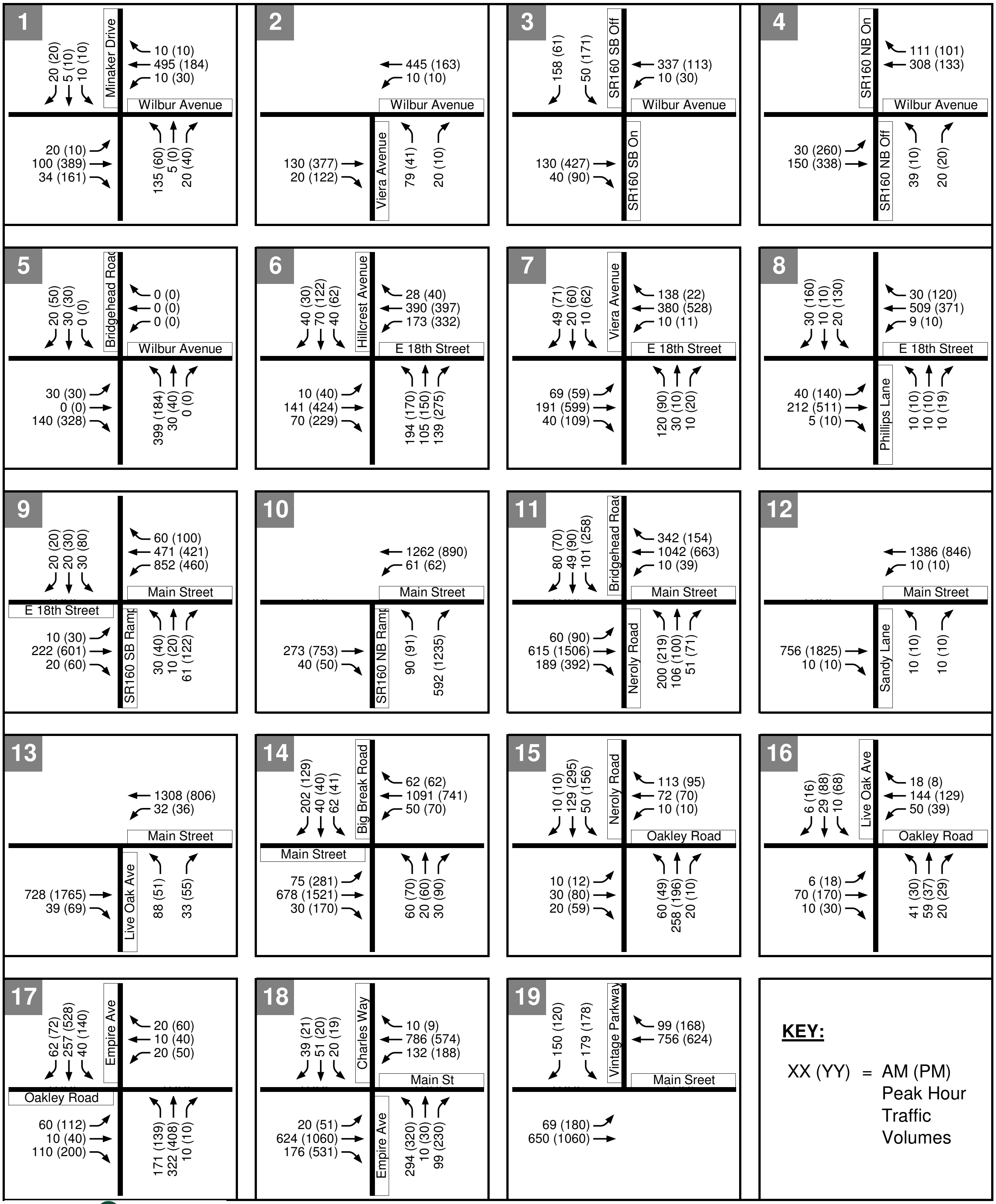
Please contact us with questions or comments.

Enclosures:

Figure 1 – Near Term (2010) No Project Peak Hour Intersection Volumes

Figure 2 – Near Term (2010) With Project Peak Hour Intersection Volumes

Appendix – Intersection LOS Calculation Sheets



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River Oaks Crossing Specific Plan

NEAR-TERM (2010) NO PROJECT PEAK HOUR INTERSECTION VOLUMES

February 2008
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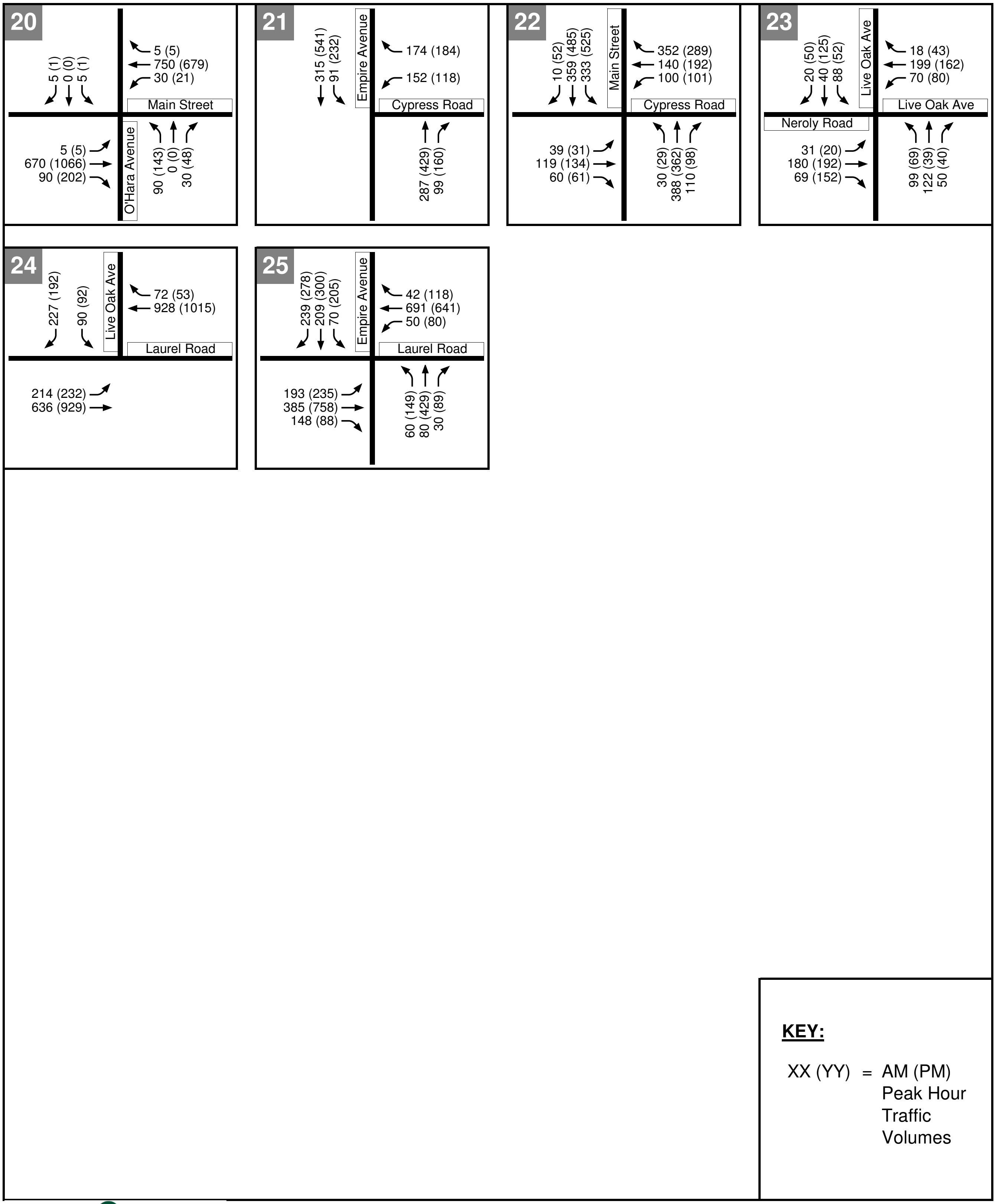
FIGURE 1A



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River Oaks Crossing Specific Plan

NEAR-TERM (2010) NO PROJECT PEAK HOUR INTERSECTION VOLUMES

FIGURE 1B

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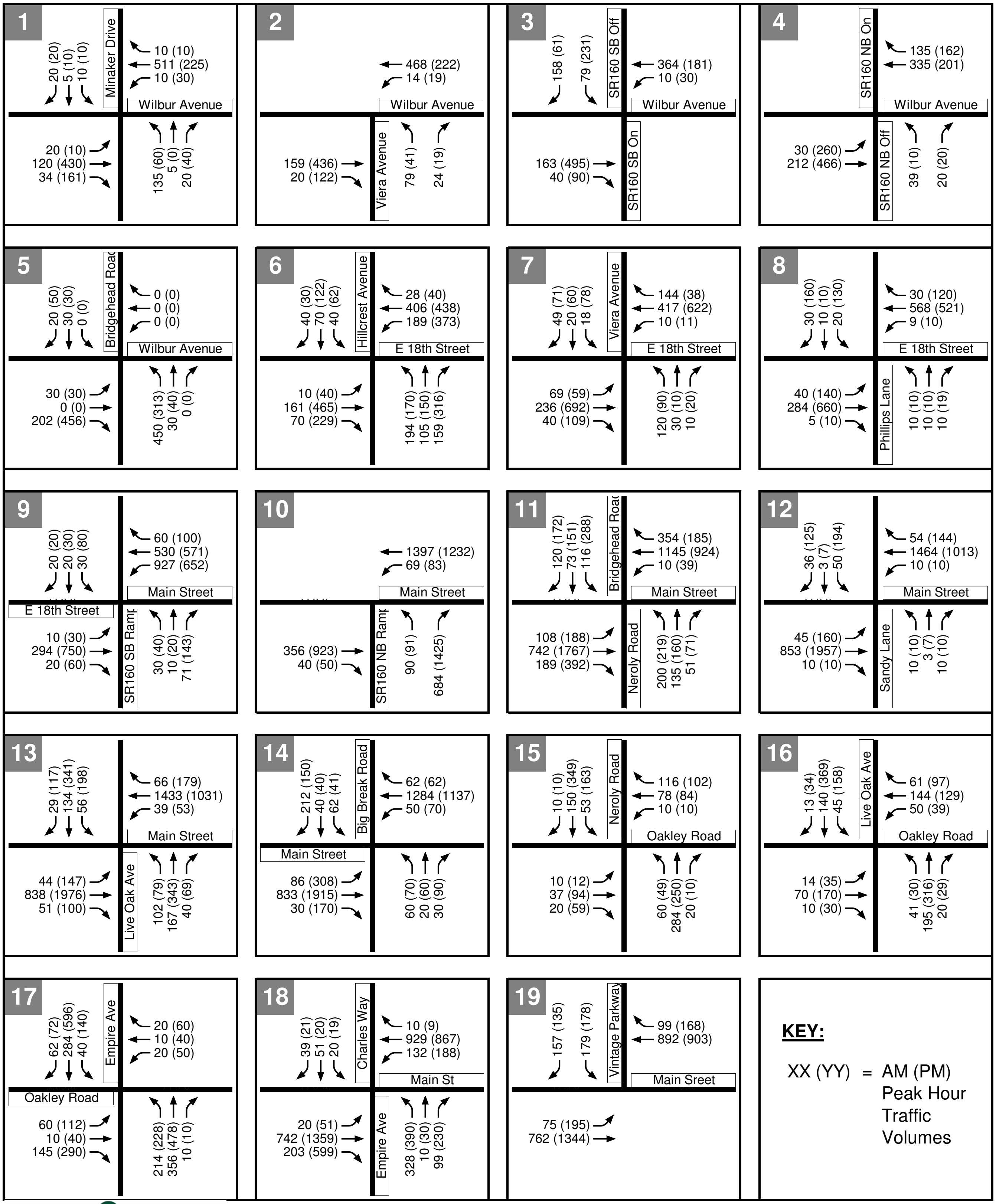

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River Oaks Crossing Specific Plan

NEAR-TERM (2010) WITH PROJECT PEAK HOUR INTERSECTION VOLUMES

FIGURE 2A

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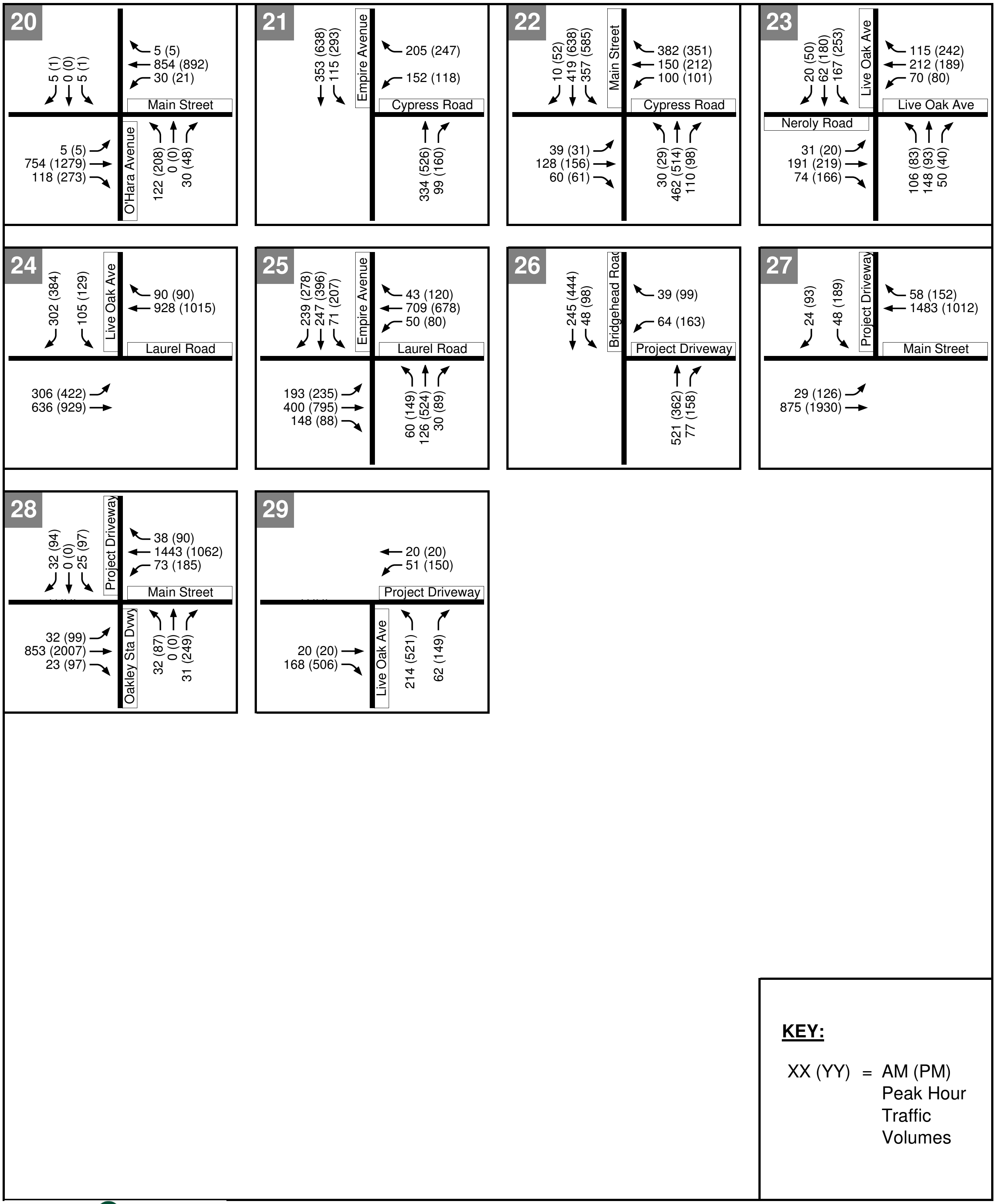

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River Oaks Crossing Specific Plan

NEAR-TERM (2010) WITH PROJECT PEAK HOUR INTERSECTION VOLUMES

FIGURE 2B

February 2008
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Appendix

HCM Signalized Intersection Capacity Analysis
1: Wilbur Avenue & Minaker Drive

2010 AM
2/4/2008

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱			↰	↱		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.96		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.97	1.00
Satd. Flow (prot)	1770	3406		1770	3529			1777	1583		1803	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.72	1.00		0.83	1.00
Satd. Flow (perm)	1770	3406		1770	3529			1346	1583		1543	1583
Volume (vph)	20	100	34	10	495	10	135	5	20	10	5	20
Peak-hour factor, 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
Adj. Flow (vph)	21	104	35	10	516	10	141	5	21	10	5	21
RTOR Reduction (vph)	0	17	0	0	1	0	0	0	17	0	0	17
Lane Group Flow (vph)	21	122	0	10	525	0	0	146	4	0	15	4
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	1.4	25.9		1.2	25.7			10.6	10.6		10.6	10.6
Effective Green, g (s)	1.4	25.9		1.2	25.7			10.6	10.6		10.6	10.6
Actuated g/C Ratio	0.03	0.52		0.02	0.52			0.21	0.21		0.21	0.21
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	50	1775		43	1825			287	338		329	338
v/s Ratio Prot	c0.01	0.04		0.01	c0.15							
v/s Ratio Perm								c0.11	0.00		0.01	0.00
v/c Ratio	0.42	0.07		0.23	0.29			0.51	0.01		0.05	0.01
Uniform Delay, d1	23.8	5.9		23.8	6.8			17.3	15.4		15.5	15.4
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	5.6	0.0		2.8	0.1			1.4	0.0		0.1	0.0
Delay (s)	29.4	5.9		26.6	6.9			18.7	15.4		15.6	15.4
Level of Service	C	A		C	A			B	B		B	B
Approach Delay (s)		9.0			7.3			18.3			15.5	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	49.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

2: Wilbur Avenue & Viera Avenue

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱		↰	↑	↰↱	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	130	20	10	445	79	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	141	22	11	484	86	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			163		658	152
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			163		658	152
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		80	98
cM capacity (veh/h)			1416		426	894

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	163	11	484	108
Volume Left	0	11	0	86
Volume Right	22	0	0	22
cSH	1700	1416	1700	476
Volume to Capacity	0.10	0.01	0.28	0.23
Queue Length 95th (ft)	0	1	0	21
Control Delay (s)	0.0	7.6	0.0	14.7
Lane LOS		A		B
Approach Delay (s)	0.0	0.2		14.7
Approach LOS				B

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↰	↑↑					↰		↱
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	130	40	10	337	0	0	0	0	50	0	158
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	134	41	10	347	0	0	0	0	52	0	163
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	347			175			349	523	155	523	543	174
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	347			175			349	523	155	523	543	174
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	88	100	81
cM capacity (veh/h)	1208			1399			466	454	864	435	442	840

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	175	10	174	174	52	163
Volume Left	0	10	0	0	52	0
Volume Right	41	0	0	0	0	163
cSH	1700	1399	1700	1700	435	840
Volume to Capacity	0.10	0.01	0.10	0.10	0.12	0.19
Queue Length 95th (ft)	0	1	0	0	10	18
Control Delay (s)	0.0	7.6	0.0	0.0	14.4	10.3
Lane LOS		A			B	B
Approach Delay (s)	0.0	0.2			11.3	
Approach LOS					B	

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	28.7%	ICU Level of Service	A
Analysis Period (min)	15		

4: Wilbur Avenue & SR 160 NB On

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑			↑↱		↰		↱			
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	30	150	0	0	308	111	39	0	20	0	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	32	160	0	0	328	118	41	0	21	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	446			160			387	669	80	530	610	223
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	446			160			387	669	80	530	610	223
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			92	100	98	100	100	100
cM capacity (veh/h)	1111			1417			534	366	964	413	396	781

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2
Volume Total	32	80	80	218	227	41	21
Volume Left	32	0	0	0	0	41	0
Volume Right	0	0	0	0	118	0	21
cSH	1111	1700	1700	1700	1700	534	964
Volume to Capacity	0.03	0.05	0.05	0.13	0.13	0.08	0.02
Queue Length 95th (ft)	2	0	0	0	0	6	2
Control Delay (s)	8.3	0.0	0.0	0.0	0.0	12.3	8.8
Lane LOS	A					B	A
Approach Delay (s)	1.4			0.0		11.1	
Approach LOS						B	

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	28.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
5: Wilbur Avenue & Live Oak Ave

2010 AM
2/4/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	30	0	140	0	0	0	399	30	0	0	30	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	0	152	0	0	0	434	33	0	0	33	22

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	33	152	0	466	54
Volume Left (vph)	33	0	0	434	0
Volume Right (vph)	0	152	0	0	22
Hadj (s)	0.53	-0.67	0.00	0.22	-0.21
Departure Headway (s)	6.3	5.1	5.6	4.7	4.8
Degree Utilization, x	0.06	0.22	0.00	0.61	0.07
Capacity (veh/h)	529	651	579	754	704
Control Delay (s)	8.5	8.3	8.6	14.6	8.1
Approach Delay (s)	8.3		0.0	14.6	8.1
Approach LOS	A		A	B	A

Intersection Summary			
Delay	12.5		
HCM Level of Service	B		
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

6: E 18th Street & Hillcrest Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑	↱	↰	↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3363		1770	3504		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3363		1770	3504		1770	1863	1583	1770	1863	1583
Volume (vph)	10	141	70	173	390	28	194	105	139	40	70	40
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	157	78	192	433	31	216	117	154	44	78	44
RTOR Reduction (vph)	0	54	0	0	4	0	0	0	124	0	0	38
Lane Group Flow (vph)	11	181	0	192	460	0	216	117	30	44	78	6
Turn Type	Prot			Prot			Split		Perm	Split		Perm
Protected Phases	1	6		5	2		8	8		4	4	
Permitted Phases									8			4
Actuated Green, G (s)	0.3	17.0		8.7	25.9		10.6	10.6	10.6	6.6	6.6	6.6
Effective Green, g (s)	1.3	19.0		10.2	27.9		12.1	12.1	12.1	8.1	8.1	8.1
Actuated g/C Ratio	0.02	0.31		0.17	0.45		0.20	0.20	0.20	0.13	0.13	0.13
Clearance Time (s)	4.0	5.0		4.5	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	37	1041		294	1592		349	367	312	234	246	209
v/s Ratio Prot	0.01	0.05		c0.11	c0.13		c0.12	0.06		0.02	c0.04	
v/s Ratio Perm									0.02			0.00
v/c Ratio	0.30	0.17		0.65	0.29		0.62	0.32	0.10	0.19	0.32	0.03
Uniform Delay, d1	29.6	15.5		23.9	10.5		22.5	21.1	20.2	23.7	24.1	23.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.5	0.1		5.1	0.1		3.3	0.5	0.1	0.4	0.7	0.1
Delay (s)	34.1	15.6		29.1	10.6		25.8	21.6	20.3	24.1	24.9	23.3
Level of Service	C	B		C	B		C	C	C	C	C	C
Approach Delay (s)		16.4			16.0			23.1			24.3	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	61.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↱			↰↑	↱		✣	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.96			1.00	0.85		0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.99	
Satd. Flow (prot)	1770	3539	1583	1770	1788			1791	1583		1696	
Flt Permitted	0.37	1.00	1.00	0.62	1.00			0.79	1.00		0.96	
Satd. Flow (perm)	686	3539	1583	1153	1788			1480	1583		1636	
Volume (vph)	69	191	40	10	380	138	120	30	10	10	20	49
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	77	212	44	11	422	153	133	33	11	11	22	54
RTOR Reduction (vph)	0	0	16	0	18	0	0	0	8	0	41	0
Lane Group Flow (vph)	77	212	28	11	557	0	0	166	3	0	46	0
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)	28.3	28.3	28.3	28.3	28.3			10.5	10.5		10.5	
Effective Green, g (s)	29.3	29.3	29.3	29.3	29.3			11.5	11.5		11.5	
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63			0.25	0.25		0.25	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	429	2216	991	722	1119			364	389		402	
v/s Ratio Prot		0.06			c0.31							
v/s Ratio Perm	0.11		0.02	0.01				c0.11	0.00		0.03	
v/c Ratio	0.18	0.10	0.03	0.02	0.50			0.46	0.01		0.12	
Uniform Delay, d1	3.7	3.5	3.3	3.3	4.8			15.0	13.3		13.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.2	0.0	0.0	0.0	0.4			0.9	0.0		0.1	
Delay (s)	3.9	3.5	3.3	3.3	5.1			15.9	13.3		13.8	
Level of Service	A	A	A	A	A			B	B		B	
Approach Delay (s)		3.6			5.1			15.7			13.8	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	6.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	46.8	Sum of lost time (s)	6.0
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↱		↰↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		0.97	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.93		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3526		1770	3539	1583	1770	1723		3433	1653	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3526		1770	3539	1583	1770	1723		3433	1653	
Volume (vph)	40	212	5	9	509	30	10	10	10	20	10	30
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.92	0.90	0.92	0.90	0.92	0.92	0.92
Adj. Flow (vph)	43	236	6	10	566	33	11	11	11	22	11	33
RTOR Reduction (vph)	0	2	0	0	0	23	0	9	0	0	28	0
Lane Group Flow (vph)	43	240	0	10	566	10	11	13	0	22	16	0
Turn Type	Prot			Prot		Perm	Split			Split		
Protected Phases	5	2		1	6		7	7		3	3	
Permitted Phases						6						
Actuated Green, G (s)	1.8	14.0		0.6	12.8	12.8	6.3	6.3		6.5	6.5	
Effective Green, g (s)	1.8	14.0		0.6	12.8	12.8	6.3	6.3		6.5	6.5	
Actuated g/C Ratio	0.04	0.32		0.01	0.29	0.29	0.15	0.15		0.15	0.15	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	73	1137		24	1044	467	257	250		514	248	
v/s Ratio Prot	c0.02	0.07		0.01	c0.16		0.01	c0.01		0.01	c0.01	
v/s Ratio Perm						0.01						
v/c Ratio	0.59	0.21		0.42	0.54	0.02	0.04	0.05		0.04	0.06	
Uniform Delay, d1	20.4	10.7		21.2	12.8	10.9	16.0	16.0		15.8	15.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.6	0.1		11.3	0.6	0.0	0.1	0.1		0.0	0.1	
Delay (s)	32.0	10.8		32.5	13.4	10.9	16.0	16.1		15.8	15.9	
Level of Service	C	B		C	B	B	B	B		B	B	
Approach Delay (s)		14.0			13.6			16.0			15.9	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	43.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

	↰	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰↰	↑↑	↱	↰	↱		↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		0.97	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.87		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	3396		3335	3438	1538	1719	1577		1719	1674	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.73	1.00		0.69	1.00	
Satd. Flow (perm)	1719	3396		3335	3438	1538	1320	1577		1250	1674	
Volume (vph)	10	222	20	852	471	60	30	10	61	30	20	20
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	11	236	21	906	501	64	32	11	65	32	21	21
RTOR Reduction (vph)	0	5	0	0	0	12	0	61	0	0	20	0
Lane Group Flow (vph)	11	252	0	906	501	52	32	15	0	32	22	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8			4		
Actuated Green, G (s)	1.0	40.8		40.2	80.0	80.0	6.0	6.0		6.0	6.0	
Effective Green, g (s)	1.0	41.8		40.2	81.0	81.0	6.0	6.0		6.0	6.0	
Actuated g/C Ratio	0.01	0.42		0.40	0.81	0.81	0.06	0.06		0.06	0.06	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	4.0	4.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	17	1420		1341	2785	1246	79	95		75	100	
v/s Ratio Prot	c0.01	c0.07		c0.27	0.15			0.01			0.01	
v/s Ratio Perm						0.03	0.02			c0.03		
v/c Ratio	0.65	0.18		0.68	0.18	0.04	0.41	0.16		0.43	0.22	
Uniform Delay, d1	49.3	18.3		24.5	2.1	1.9	45.3	44.6		45.3	44.8	
Progression Factor	1.00	1.00		0.67	0.31	0.06	1.00	1.00		1.00	1.00	
Incremental Delay, d2	62.0	0.3		1.2	0.1	0.1	1.2	0.3		1.4	0.4	
Delay (s)	111.3	18.6		17.6	0.8	0.2	46.5	44.9		46.8	45.2	
Level of Service	F	B		B	A	A	D	D		D	D	
Approach Delay (s)		22.4			11.1			45.4			45.9	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
10: Main Street & SR 160 NB On

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱		↰	↑↑	↰	↱↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	0.88
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3372		1719	3438	1719	2707
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3372		1719	3438	1719	2707
Volume (vph)	273	40	61	1262	90	592
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	300	44	67	1387	99	651
RTOR Reduction (vph)	8	0	0	0	0	439
Lane Group Flow (vph)	336	0	67	1387	99	212
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type			Prot			pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases						8
Actuated Green, G (s)	54.4		23.0	82.4	8.6	31.6
Effective Green, g (s)	55.4		24.0	83.4	8.6	32.6
Actuated g/C Ratio	0.55		0.24	0.83	0.09	0.33
Clearance Time (s)	5.0		5.0	5.0	4.0	5.0
Vehicle Extension (s)	4.0		3.0	4.0	2.0	3.0
Lane Grp Cap (vph)	1868		413	2867	148	991
v/s Ratio Prot	0.10		0.04	c0.40	c0.06	0.05
v/s Ratio Perm						0.03
v/c Ratio	0.18		0.16	0.48	0.67	0.21
Uniform Delay, d1	11.0		30.0	2.3	44.3	24.4
Progression Factor	0.26		1.09	0.49	1.00	1.00
Incremental Delay, d2	0.2		0.2	0.6	8.6	0.1
Delay (s)	3.1		33.0	1.7	52.9	24.5
Level of Service	A		C	A	D	C
Approach Delay (s)	3.1			3.1	28.3	
Approach LOS	A			A	C	

Intersection Summary			
HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑↑	↱	↰↰	↱		↰	↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.91	1.00	0.97	1.00		0.95	0.95	1.00
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00
Satd. Flow (prot)	1719	3317		1719	4940	1538	3335	1722		1633	1688	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00
Satd. Flow (perm)	1719	3317		1719	4940	1538	3335	1722		1633	1688	1538
Volume (vph)	60	615	189	10	1042	342	200	106	51	101	49	80
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	668	205	11	1133	372	217	115	55	110	53	87
RTOR Reduction (vph)	0	19	0	0	0	179	0	22	0	0	0	77
Lane Group Flow (vph)	65	854	0	11	1133	193	217	148	0	79	84	10
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases						6						7
Actuated Green, G (s)	8.0	57.6		1.2	50.8	50.8	12.2	12.2		12.0	12.0	12.0
Effective Green, g (s)	8.0	58.6		1.2	51.8	51.8	12.2	12.2		12.0	12.0	12.0
Actuated g/C Ratio	0.08	0.59		0.01	0.52	0.52	0.12	0.12		0.12	0.12	0.12
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	138	1944		21	2559	797	407	210		196	203	185
v/s Ratio Prot	c0.04	c0.26		0.01	0.23		0.07	c0.09		0.05	c0.05	
v/s Ratio Perm						0.13						0.01
v/c Ratio	0.47	0.44		0.52	0.44	0.24	0.53	0.71		0.40	0.41	0.06
Uniform Delay, d1	44.0	11.5		49.1	15.1	13.3	41.2	42.2		40.7	40.7	39.0
Progression Factor	0.98	0.88		0.95	0.90	0.72	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.9	0.7		9.4	0.5	0.6	0.7	8.5		0.5	0.5	0.0
Delay (s)	44.1	10.8		56.3	14.0	10.2	41.9	50.6		41.2	41.2	39.0
Level of Service	D	B		E	B	B	D	D		D	D	D
Approach Delay (s)		13.1			13.4			45.7			40.5	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	19.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

12: Main Street & Sandy Lane

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱		↰	↑↑	↰↱	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	756	10	10	1386	10	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	840	11	11	1540	11	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					0	
Upstream signal (ft)	1017					
pX, platoon unblocked			0.94		0.94	0.94
vC, conflicting volume			851		1638	426
vC1, stage 1 conf vol					846	
vC2, stage 2 conf vol					792	
vCu, unblocked vol			778		1615	325
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		93	98
cM capacity (veh/h)			766		161	622

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	560	291	11	770	770	22
Volume Left	0	0	11	0	0	11
Volume Right	0	11	0	0	0	11
cSH	1700	1700	766	1700	1700	256
Volume to Capacity	0.33	0.17	0.01	0.45	0.45	0.09
Queue Length 95th (ft)	0	0	1	0	0	7
Control Delay (s)	0.0	0.0	9.8	0.0	0.0	20.4
Lane LOS			A			C
Approach Delay (s)	0.0		0.1			20.4
Approach LOS						C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱		↰	↑↑	↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3412		1719	3438	1719	1538
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3412		1719	3438	1719	1538
Volume (vph)	728	39	32	1308	88	33
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	809	43	36	1453	98	37
RTOR Reduction (vph)	2	0	0	0	0	33
Lane Group Flow (vph)	850	0	36	1453	98	4
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type			Prot			custom
Protected Phases	2		1	6		
Permitted Phases				6	8	3
Actuated Green, G (s)	72.3		5.2	81.5	9.5	8.5
Effective Green, g (s)	73.3		5.2	82.5	9.5	9.5
Actuated g/C Ratio	0.73		0.05	0.82	0.10	0.10
Clearance Time (s)	5.0		4.0	5.0	4.0	5.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2501		89	2836	163	146
v/s Ratio Prot	0.25		0.02	c0.42		
v/s Ratio Perm					c0.06	0.00
v/c Ratio	0.34		0.40	0.51	0.60	0.02
Uniform Delay, d1	4.7		45.9	2.7	43.4	41.0
Progression Factor	0.84		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3		3.0	0.7	6.1	0.1
Delay (s)	4.3		48.9	3.3	49.6	41.1
Level of Service	A		D	A	D	D
Approach Delay (s)	4.3			4.4	47.2	
Approach LOS	A			A	D	

Intersection Summary			
HCM Average Control Delay	6.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↱			↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			0.97	1.00
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1719	1647			1756	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.59	1.00			0.78	1.00
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1075	1647			1414	1538
Volume (vph)	75	678	30	50	1091	62	60	20	30	62	40	202
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	83	753	33	56	1212	69	67	22	33	69	44	224
RTOR Reduction (vph)	0	0	11	0	0	23	0	29	0	0	0	194
Lane Group Flow (vph)	83	753	22	56	1212	46	67	26	0	0	113	30
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		custom	Prot		custom	Perm			Perm		Perm
Protected Phases	5			1				3			7	
Permitted Phases		2	2		6	6	3			7		7
Actuated Green, G (s)	8.8	66.7	66.7	6.7	64.6	64.6	12.6	12.6			12.6	12.6
Effective Green, g (s)	8.8	67.7	67.7	6.7	65.6	65.6	13.6	13.6			13.6	13.6
Actuated g/C Ratio	0.09	0.68	0.68	0.07	0.66	0.66	0.14	0.14			0.14	0.14
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0			5.0	5.0
Vehicle Extension (s)	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	151	2328	1041	115	2255	1009	146	224			192	209
v/s Ratio Prot	c0.05			0.03				0.02				
v/s Ratio Perm		0.22	0.01		c0.35	0.03	0.06				c0.08	0.02
v/c Ratio	0.55	0.32	0.02	0.49	0.54	0.05	0.46	0.12			0.59	0.15
Uniform Delay, d1	43.7	6.7	5.3	45.0	9.1	6.1	39.8	37.9			40.6	38.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	4.1	0.4	0.0	1.2	0.9	0.1	0.8	0.1			3.0	0.1
Delay (s)	47.8	7.0	5.3	46.2	10.1	6.2	40.6	38.0			43.5	38.2
Level of Service	D	A	A	D	B	A	D	D			D	D
Approach Delay (s)		10.9			11.4			39.5			40.0	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	30	20	10	72	113	60	258	20	50	129	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	11	33	22	11	79	124	66	284	22	55	142	11

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	66	214	371	208
Volume Left (vph)	11	11	66	55
Volume Right (vph)	22	124	22	11
Hadj (s)	-0.13	-0.30	0.03	0.06
Departure Headway (s)	5.7	5.2	5.0	5.3
Degree Utilization, x	0.10	0.31	0.52	0.30
Capacity (veh/h)	546	627	679	636
Control Delay (s)	9.3	10.5	13.3	10.6
Approach Delay (s)	9.3	10.5	13.3	10.6
Approach LOS	A	B	B	B

Intersection Summary			
Delay	11.6		
HCM Level of Service	B		
Intersection Capacity Utilization	40.5%	ICU Level of Service	A
Analysis Period (min)	15		

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	6	70	10	50	144	18	41	59	20	10	29	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	78	11	56	160	20	46	66	22	11	32	7

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	96	236	133	50
Volume Left (vph)	7	56	46	11
Volume Right (vph)	11	20	22	7
Hadj (s)	-0.02	0.03	0.00	0.00
Departure Headway (s)	4.6	4.5	4.8	4.9
Degree Utilization, x	0.12	0.29	0.18	0.07
Capacity (veh/h)	738	761	707	677
Control Delay (s)	8.3	9.4	8.8	8.2
Approach Delay (s)	8.3	9.4	8.8	8.2
Approach LOS	A	A	A	A

Intersection Summary			
Delay	8.9		
HCM Level of Service	A		
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↑	↱		↰↑	↱	↰	↑↑↱		↰	↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.95		1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00		0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1708	1583		1803	1583	1770	3523		1770	1863	1583
Flt Permitted	0.95	0.97	1.00		0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1708	1583		1803	1583	1770	3523		1770	1863	1583
Volume (vph)	60	10	110	20	10	20	171	322	10	40	257	62
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	11	120	22	11	22	186	350	11	43	279	67
RTOR Reduction (vph)	0	0	110	0	0	20	0	2	0	0	0	38
Lane Group Flow (vph)	37	39	10	0	33	2	186	359	0	43	279	29
Turn Type	Split		Perm	Split		Perm	Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	5.7	5.7	5.7		4.6	4.6	10.3	36.0		2.0	27.7	27.7
Effective Green, g (s)	5.7	5.7	5.7		5.6	5.6	11.3	37.0		3.0	28.7	28.7
Actuated g/C Ratio	0.08	0.08	0.08		0.08	0.08	0.17	0.55		0.04	0.43	0.43
Clearance Time (s)	4.0	4.0	4.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	142	145	134		150	132	297	1937		79	794	675
v/s Ratio Prot	0.02	c0.02			c0.02		c0.11	0.10		0.02	c0.15	
v/s Ratio Perm			0.01			0.00						0.02
v/c Ratio	0.26	0.27	0.08		0.22	0.01	0.63	0.19		0.54	0.35	0.04
Uniform Delay, d1	28.8	28.8	28.4		28.8	28.3	26.0	7.6		31.5	13.0	11.3
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	1.0	0.2		0.7	0.0	4.1	0.0		7.5	0.3	0.0
Delay (s)	29.8	29.9	28.6		29.6	28.4	30.1	7.6		38.9	13.3	11.3
Level of Service	C	C	C		C	C	C	A		D	B	B
Approach Delay (s)		29.1			29.1			15.3			15.8	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	18.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	67.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↱		↰↰	↑	↱		↰↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.99	1.00
Satd. Flow (prot)	1719	3539	1538	1770	3533		3335	1810	1583		1799	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.99	1.00
Satd. Flow (perm)	1719	3539	1538	1770	3533		3335	1810	1583		1799	1538
Volume (vph)	20	624	176	132	786	10	294	10	99	20	51	39
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	693	196	147	873	11	327	11	110	22	57	43
RTOR Reduction (vph)	0	0	125	0	1	0	0	0	87	0	0	41
Lane Group Flow (vph)	22	693	71	147	883	0	327	11	23	0	79	2
Heavy Vehicles (%)	5%	2%	5%	2%	2%	2%	5%	5%	2%	2%	5%	5%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	0.6	19.9	19.9	5.0	24.3		11.3	11.3	11.3		2.8	2.8
Effective Green, g (s)	1.6	20.9	20.9	6.0	25.3		12.3	12.3	12.3		2.8	2.8
Actuated g/C Ratio	0.03	0.36	0.36	0.10	0.44		0.21	0.21	0.21		0.05	0.05
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	47	1275	554	183	1541		707	384	336		87	74
v/s Ratio Prot	0.01	0.20		c0.08	c0.25		c0.10	0.01			c0.04	
v/s Ratio Perm			0.05						0.01			0.00
v/c Ratio	0.47	0.54	0.13	0.80	0.57		0.46	0.03	0.07		0.91	0.03
Uniform Delay, d1	27.8	14.8	12.4	25.4	12.3		20.0	18.1	18.3		27.5	26.3
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	7.2	0.5	0.1	21.9	0.5		0.5	0.0	0.1		66.1	0.2
Delay (s)	35.0	15.2	12.5	47.3	12.8		20.4	18.1	18.4		93.6	26.5
Level of Service	C	B	B	D	B		C	B	B		F	C
Approach Delay (s)		15.1			17.7			19.9			69.9	
Approach LOS		B			B			B			E	

Intersection Summary			
HCM Average Control Delay	19.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	58.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↱		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3478		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3478		1770	1583
Volume (vph)	69	650	756	99	179	150
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	77	722	840	110	199	167
RTOR Reduction (vph)	0	0	13	0	0	130
Lane Group Flow (vph)	77	722	937	0	199	37
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	2.8	28.3	21.5		10.7	10.7
Effective Green, g (s)	2.8	29.3	22.5		10.7	10.7
Actuated g/C Ratio	0.06	0.61	0.47		0.22	0.22
Clearance Time (s)	4.0	5.0	5.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	103	2160	1630		395	353
v/s Ratio Prot	c0.04	0.20	c0.27		c0.11	
v/s Ratio Perm						0.02
v/c Ratio	0.75	0.33	0.57		0.50	0.11
Uniform Delay, d1	22.3	4.6	9.3		16.3	14.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	25.2	0.1	0.5		1.0	0.1
Delay (s)	47.5	4.7	9.8		17.3	15.0
Level of Service	D	A	A		B	B
Approach Delay (s)		8.8	9.8		16.3	
Approach LOS		A	A		B	

Intersection Summary			
HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	48.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↱		↰	↱			✥	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1861		1770	1583			1695	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.75	1.00			0.90	
Satd. Flow (perm)	1770	1863	1583	1770	1861		1399	1583			1564	
Volume (vph)	5	670	90	30	750	5	90	0	30	5	0	5
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.92	0.90	0.92	0.90	0.92	0.92	0.92
Adj. Flow (vph)	5	744	100	33	833	5	100	0	33	5	0	5
RTOR Reduction (vph)	0	0	32	0	0	0	0	28	0	0	4	0
Lane Group Flow (vph)	5	744	68	33	838	0	100	5	0	0	6	0
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)	0.9	51.6	51.6	1.9	52.6		10.1	10.1			10.6	
Effective Green, g (s)	0.9	52.6	52.6	1.9	53.6		10.6	10.6			10.6	
Actuated g/C Ratio	0.01	0.68	0.68	0.02	0.70		0.14	0.14			0.14	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.5	4.5			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	21	1271	1080	44	1294		192	218			215	
v/s Ratio Prot	0.00	0.40		c0.02	c0.45			0.00				
v/s Ratio Perm			0.04				c0.07				0.00	
v/c Ratio	0.24	0.59	0.06	0.75	0.65		0.52	0.02			0.03	
Uniform Delay, d1	37.8	6.5	4.1	37.4	6.5		30.9	28.8			28.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	5.8	0.7	0.0	51.4	1.1		2.5	0.0			0.1	
Delay (s)	43.6	7.2	4.1	88.8	7.6		33.4	28.8			28.8	
Level of Service	D	A	A	F	A		C	C			C	
Approach Delay (s)		7.0			10.7			32.3			28.8	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.96		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3403		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3403		1770	3539
Volume (vph)	152	174	287	99	91	315
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	169	193	319	110	101	350
RTOR Reduction (vph)	0	151	50	0	0	0
Lane Group Flow (vph)	169	42	379	0	101	350
Turn Type		Perm			Prot	
Protected Phases	8		2		1	6
Permitted Phases		8				
Actuated Green, G (s)	9.8	9.8	18.7		5.0	27.7
Effective Green, g (s)	10.3	10.3	19.7		5.0	28.7
Actuated g/C Ratio	0.22	0.22	0.42		0.11	0.61
Clearance Time (s)	4.5	4.5	5.0		4.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	388	347	1426		188	2161
v/s Ratio Prot	c0.10		c0.11		c0.06	0.10
v/s Ratio Perm		0.03				
v/c Ratio	0.44	0.12	0.27		0.54	0.16
Uniform Delay, d1	15.8	14.7	8.9		19.9	4.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	0.2	0.1		2.9	0.0
Delay (s)	16.6	14.9	9.0		22.8	4.0
Level of Service	B	B	A		C	A
Approach Delay (s)	15.7		9.0			8.2
Approach LOS	B		A			A

Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	47.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↱	↱	↰	↑↑	↱	↰↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	0.95	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.95		1.00	0.94	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3360		1770	1667	1504	1770	3539	1583	3433	3525	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3360		1770	1667	1504	1770	3539	1583	3433	3525	
Volume (vph)	39	119	60	100	140	352	30	388	110	333	359	10
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	132	67	111	156	391	33	431	122	370	399	11
RTOR Reduction (vph)	0	52	0	0	30	215	0	0	89	0	2	0
Lane Group Flow (vph)	43	147	0	111	224	78	33	431	33	370	408	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	1.9	13.1		4.6	15.8	15.8	1.6	15.8	15.8	9.8	24.0	
Effective Green, g (s)	1.9	13.1		4.6	15.8	15.8	1.6	15.8	15.8	9.8	24.0	
Actuated g/C Ratio	0.03	0.22		0.08	0.27	0.27	0.03	0.27	0.27	0.17	0.40	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	57	742		137	444	401	48	943	422	567	1427	
v/s Ratio Prot	0.02	0.04		c0.06	c0.13		0.02	c0.12		c0.11	0.12	
v/s Ratio Perm						0.05			0.02			
v/c Ratio	0.75	0.20		0.81	0.50	0.19	0.69	0.46	0.08	0.65	0.29	
Uniform Delay, d1	28.5	18.8		26.9	18.4	16.8	28.6	18.2	16.3	23.2	11.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	42.7	0.1		29.1	0.9	0.2	33.8	0.4	0.1	2.7	0.1	
Delay (s)	71.2	19.0		56.0	19.3	17.1	62.4	18.5	16.4	25.9	12.0	
Level of Service	E	B		E	B	B	E	B	B	C	B	
Approach Delay (s)		28.2			24.5			20.5			18.6	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	59.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↱			↰↑↱			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	31	180	69	70	199	18	99	122	50	88	40	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	196	75	76	216	20	108	133	54	96	43	22

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	132	173	184	128	295	161
Volume Left (vph)	34	0	76	0	108	96
Volume Right (vph)	0	75	0	20	54	22
Hadj (s)	0.16	-0.27	0.24	-0.07	0.00	0.07
Departure Headway (s)	6.6	6.2	6.7	6.4	5.9	6.3
Degree Utilization, x	0.24	0.30	0.34	0.23	0.48	0.28
Capacity (veh/h)	504	541	504	527	568	518
Control Delay (s)	10.6	10.6	11.9	10.0	14.3	11.7
Approach Delay (s)	10.6		11.2		14.3	11.7
Approach LOS	B		B		B	B

Intersection Summary			
Delay	11.9		
HCM Level of Service	B		
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↰	↑↑↑	↑↑↱		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.91	0.91		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	5085	5031		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	5085	5031		1770	1583
Volume (vph)	214	636	928	72	90	227
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	233	691	1009	78	98	247
RTOR Reduction (vph)	0	0	11	0	0	202
Lane Group Flow (vph)	233	691	1076	0	98	45
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	5.1	26.9	17.8		6.7	6.7
Effective Green, g (s)	5.1	27.9	18.8		7.7	7.7
Actuated g/C Ratio	0.12	0.64	0.43		0.18	0.18
Clearance Time (s)	4.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	402	3254	2169		313	280
v/s Ratio Prot	c0.07	0.14	c0.21		c0.06	
v/s Ratio Perm						0.03
v/c Ratio	0.58	0.21	0.50		0.31	0.16
Uniform Delay, d1	18.2	3.3	9.0		15.6	15.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.0	0.0	0.2		0.6	0.3
Delay (s)	20.3	3.3	9.2		16.2	15.5
Level of Service	C	A	A		B	B
Approach Delay (s)		7.6	9.2		15.7	
Approach LOS		A	A		B	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	43.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
25: Laurel Road & Empire Avenue

2010 AM
2/4/2008

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.99		1.00	0.96		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3392		1770	3509		1770	3396		1770	3256	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3392		1770	3509		1770	3396		1770	3256	
Volume (vph)	193	385	148	50	691	42	60	80	30	70	209	239
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	214	428	164	56	768	47	67	89	33	78	232	266
RTOR Reduction (vph)	0	57	0	0	7	0	0	27	0	0	213	0
Lane Group Flow (vph)	214	535	0	56	808	0	67	95	0	78	285	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.2	21.9		3.3	17.0		2.2	10.0		3.0	10.8	
Effective Green, g (s)	8.2	21.9		3.3	17.0		2.2	10.0		3.0	10.8	
Actuated g/C Ratio	0.15	0.40		0.06	0.31		0.04	0.18		0.06	0.20	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	268	1371		108	1101		72	627		98	649	
v/s Ratio Prot	c0.12	0.16		0.03	c0.23		0.04	0.03		c0.04	c0.09	
v/s Ratio Perm												
v/c Ratio	0.80	0.39		0.52	0.73		0.93	0.15		0.80	0.44	
Uniform Delay, d1	22.2	11.4		24.7	16.6		25.9	18.5		25.3	19.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	15.2	0.2		4.2	2.6		82.0	0.1		34.6	0.5	
Delay (s)	37.4	11.6		28.8	19.2		108.0	18.7		59.9	19.5	
Level of Service	D	B		C	B		F	B		E	B	
Approach Delay (s)		18.5			19.8			50.3			25.0	
Approach LOS		B			B			D			C	

Intersection Summary

HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

26: Proj Dwy #1 & Live Oak Ave

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑	↱	↰	↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	0	509	0	0	230
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	553	0	0	250
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			768			
pX, platoon unblocked						
vC, conflicting volume	803	553			553	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	803	553			553	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	353	532			1017	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	553	0	0	250
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.33	0.00	0.00	0.15
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	0.0		0.0		0.0	
Approach LOS	A					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
27: Main Street & Proj Dwy #3

2010 AM
2/4/2008

	↗	→	←	↖	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	757	1374	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	823	1493	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1234			
pX, platoon unblocked	0.91				0.91	0.91
vC, conflicting volume	1493				1905	747
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1445				1896	626
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	424				56	390

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	411	411	747	747	0	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.24	0.24	0.44	0.44	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A
Approach Delay (s)	0.0		0.0			0.0
Approach LOS						A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		

28: Main Street & Proj Dwy #5

2/4/2008

	↗	→	←	↖	↘	↙
Movement	**EBL**	**EBT**	**WBT**	**WBR**	**SBL**	**SBR**
Lane Configurations		↑↑	↑↑	↱		↱
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	712	1278	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	774	1389	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		817	581			
pX, platoon unblocked	0.65				0.66	0.65
vC, conflicting volume	1389				1776	695
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1056				1557	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	424				68	701

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	387	387	695	695	0	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.23	0.23	0.41	0.41	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A
Approach Delay (s)	0.0		0.0			0.0
Approach LOS						A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

	↗	→	←	↖	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↑	↱	↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			
Lane Util. Factor		0.95	0.95			
Frt		1.00	1.00			
Flt Protected		1.00	1.00			
Satd. Flow (prot)		3539	3539			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		3539	3539			
Volume (vph)	0	710	1270	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	772	1380	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	772	1380	0	0	0
Turn Type	Perm			Perm		Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)		16.0	16.0			
Effective Green, g (s)		16.0	16.0			
Actuated g/C Ratio		0.40	0.40			
Clearance Time (s)		4.0	4.0			
Lane Grp Cap (vph)		1416	1416			
v/s Ratio Prot		0.22	c0.39			
v/s Ratio Perm						
v/c Ratio		0.55	0.97			
Uniform Delay, d1		9.2	11.8			
Progression Factor		1.00	1.00			
Incremental Delay, d2		1.5	18.6			
Delay (s)		10.7	30.4			
Level of Service		B	C			
Approach Delay (s)		10.7	30.4		0.0	
Approach LOS		B	C		A	

Intersection Summary			
HCM Average Control Delay	23.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

```
--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Wilbur/Minaker
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.246
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        25                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  1  0  0  1    0  1  0  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     140    5    20    10    5    20    20  100    40    10  480    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  140    5    20    10    5    20    20  100    40    10  480    10
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:   -5    0     0     0    0     0     0    0    -6     0   15     0
Initial Fut:  135    5    20    10    5    20    20  100    34    10  495    10
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   135    5    20    10    5    20    20  100    34    10  495    10
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  135    5    20    10    5    20    20  100    34    10  495    10
RTOR Reduct:    0    0    10     0    0    20     0    0     0     0    0     0
RTOR Vol:     135    5    10    10    5     0    20  100    34    10  495    10
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  135    5    10    10    5     0    20  100    34    10  495    10
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.96 0.04  1.00  0.67 0.33  1.00  1.00 1.49  0.51  1.00 1.96  0.04
Final Sat.:  1659   61  1720  1147  573  1720  1720 2567   873  1720 3372    68
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.08  0.01  0.01 0.01  0.00  0.01 0.04  0.04  0.01 0.15  0.15
Crit Volume:       140          10               20                         253
Crit Moves:       ****        ****             ****                        ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
                   CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #6 E 18th/Hillcrest
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):         0.329
Loss Time (sec):        0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:         34                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  0  1    1  0  1  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     190  100   140    40   70    40    10  140    70   180  350    30
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  190  100   140    40   70    40    10  140    70   180  350    30
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    4    5    -1     0    0     0     0    1     0    -7   40    -2
Initial Fut:  194  105   139    40   70    40    10  141    70   173  390    28
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   194  105   139    40   70    40    10  141    70   173  390    28
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  194  105   139    40   70    40    10  141    70   173  390    28
RTOR Reduct:    0    0   139     0    0    10     0    0     0     0    0     0
RTOR Vol:     194  105     0    40   70    30    10  141    70   173  390    28
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  194  105     0    40   70    30    10  141    70   173  390    28
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.34  0.66  1.00 1.87  0.13
Final Sat.:  1650 1650  1650  1650 1650  1650  1650 2205  1095  1650 3079   221
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.06  0.00  0.02 0.04  0.02  0.01 0.06  0.06  0.10 0.13  0.13
Crit Volume:  194                     70               106         173
Crit Moves:  ****                   ****              ****        ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #7 E 18th/viera
********************************************************************************
Cycle (sec):         100                 Critical Vol./Cap.(X):         0.437
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        26                 Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted        Permitted
Rights:            Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  1  0  0  1    0  0  1! 0  0    1  0  2  0  1    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     120   30    10    10   20    50    70  190    40    10  350   130
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  120   30    10    10   20    50    70  190    40    10  350   130
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0    -1    -1    1     0     0   30     8
Initial Fut:  120   30    10    10   20    49    69  191    40    10  380   138
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   120   30    10    10   20    49    69  191    40    10  380   138
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  120   30    10    10   20    49    69  191    40    10  380   138
RTOR Reduct:    0    0    10     0    0     0     0    0    40     0    0     0
RTOR Vol:     120   30     0    10   20    49    69  191     0    10  380   138
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  120   30     0    10   20    49    69  191     0    10  380   138
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.80 0.20  1.00  0.13 0.25  0.62  1.00 2.00  1.00  1.00 0.73  0.27
Final Sat.:  1440  360  1800   228  456  1116  1800 3600  1800  1800 1320   480
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.08  0.00  0.04 0.04  0.04  0.04 0.05  0.00  0.01 0.29  0.29
Crit Volume:  120                    79          69                     518
Crit Moves:  ****                  ****        ****                    ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                    River Oaks Crossing Specific Plan EIR
                        Existing + Approved Scenario
                               AM Peak Hour
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                     Level Of Service Computation Report
                 CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #8 E 18th/Phillips
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.200
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        23               Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted         Protected        Protected
Rights:          Include          Include           Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  0  1  0    2  0  0  1  0    1  0  1  1  0    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      10   10    10    20   10    30    40  210     5    10  470    30
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   10   10    10    20   10    30    40  210     5    10  470    30
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    2     0    -1   39     0
Initial Fut:   10   10    10    20   10    30    40  212     5     9  509    30
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    10   10    10    20   10    30    40  212     5     9  509    30
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   10   10    10    20   10    30    40  212     5     9  509    30
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    11
RTOR Vol:      10   10    10    20   10    30    40  212     5     9  509    19
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   10   10    10    20   10    30    40  212     5     9  509    19
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.50  0.50  2.00 0.25  0.75  1.00 1.95  0.05  1.00 2.00  1.00
Final Sat.:  1720  860   860  3127  430  1290  1720 3361    79  1720 3440  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.01  0.01  0.01 0.02  0.02  0.02 0.06  0.06  0.01 0.15  0.01
Crit Volume:   10                    40          40                     255
Crit Moves:  ****                  ****        ****                   ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #9 Main St./SR 160 SB Ramps
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):         0.402
Loss Time (sec):       12 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:         38                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  1  1  0    2  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      30   10    60   30   20    20   10  220    20  840  430    60
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   30   10    60   30   20    20   10  220    20  840  430    60
Added Vol:      0    0     0    0    0     0    0    0     0    0    0     0
PasserByVol:    0    0     1    0    0     0    0    2     0   12   41     0
Initial Fut:   30   10    61   30   20    20   10  222    20  852  471    60
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:    30   10    61   30   20    20   10  222    20  852  471    60
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   30   10    61   30   20    20   10  222    20  852  471    60
RTOR Reduct:    0    0     0    0    0     0    0    0     0    0    0    30
RTOR Vol:      30   10    61   30   20    20   10  222    20  852  471    30
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   30   10    61   30   20    20   10  222    20  852  471    30
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720 1720 1720  1720 1720 1720  1720 1720 1720  1720
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 0.91 1.00  1.00
Lanes:       1.00 0.14  0.86 1.00 0.50  0.50 1.00 1.83  0.17 2.00 2.00  1.00
Final Sat.:  1720  242  1478 1720  860   860 1720 3156   284 3127 3440  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.04  0.04 0.02 0.02  0.02 0.01 0.07  0.07 0.27 0.14  0.02
Crit Volume:         71        30                        121  426
Crit Moves:        ****      ****                       **** ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #10 Main St./SR 160 NB Ramps
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.537
Loss Time (sec):       8 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        37               Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  0  2    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      90    0   580     0    0     0     0  270    40    60 1240     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   90    0   580     0    0     0     0  270    40    60 1240     0
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0    12     0    0     0     0    3     0     1   22     0
Initial Fut:   90    0   592     0    0     0     0  273    40    61 1262     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    90    0   592     0    0     0     0  273    40    61 1262     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   90    0   592     0    0     0     0  273    40    61 1262     0
RTOR Reduct:    0    0    61     0    0     0     0    0     0     0    0     0
RTOR Vol:      90    0   531     0    0     0     0  273    40    61 1262     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   90    0   531     0    0     0     0  273    40    61 1262     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  0.91  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.00  2.00  0.00 0.00  0.00  0.00 1.74  0.26  1.00 2.00  0.00
Final Sat.:  1720    0  3127     0    0     0     0 3000   440  1720 3440     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.00  0.17  0.00 0.00  0.00  0.00 0.09  0.09  0.04 0.37  0.00
Crit Volume:             265          0           0                     631
Crit Moves:             ****                   ****                    ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #11 Main St./Bridgehead Rd./Neroly Rd.
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.421
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        49                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  1  0  0  1    1  0  1  1  0    1  0  3  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 23 Apr 2002 << 730-830
Base Vol:     200  110    50  100   50    80    60  600   190    10 1020   330
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  200  110    50  100   50    80    60  600   190    10 1020   330
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0   -4     1     1   -1     0     0   15    -1     0   22    12
Initial Fut:  200  106    51  101   49    80    60  615   189    10 1042   342
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   200  106    51  101   49    80    60  615   189    10 1042   342
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  200  106    51  101   49    80    60  615   189    10 1042   342
RTOR Reduct:    0    0     0     0    0    60     0    0     0     0    0    56
RTOR Vol:     200  106    51  101   49    20    60  615   189    10 1042   286
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  200  106    51  101   49    20    60  615   189    10 1042   286
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.68  0.32  1.35 0.65  1.00  1.00 1.53  0.47  1.00 3.00  1.00
Final Sat.:  1650 1114   536  2020 1078  1650  1650 2524   776  1650 4950  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.10  0.10  0.05 0.05  0.01  0.04 0.24  0.24  0.01 0.21  0.17
Crit Volume:  200               75                   402          10
Crit Moves:  ****             ****                  ****        ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #13 Main St./Live Oak Ln./Proj Drwy
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):        0.431
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):     xxxxxx
Optimal Cycle:        40              Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  0  1    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 23 Apr 2002 << 745-845
Base Vol:      90    0    30     0    0     0     0  710    40    30 1270     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   90    0    30     0    0     0     0  710    40    30 1270     0
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:   -2    0     3     0    0     0     0   18    -1     2   38     0
Initial Fut:   88    0    33     0    0     0     0  728    39    32 1308     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    88    0    33     0    0     0     0  728    39    32 1308     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   88    0    33     0    0     0     0  728    39    32 1308     0
RTOR Reduct:    0    0    32     0    0     0     0    0     0     0    0     0
RTOR Vol:      88    0     1     0    0     0     0  728    39    32 1308     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   88    0     1     0    0     0     0  728    39    32 1308     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.90  0.10  1.00 2.00  0.00
Final Sat.:  1720    0  1720     0    0     0     0 3265   175  1720 3440     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.00  0.00  0.00 0.00  0.00  0.00 0.22  0.22  0.02 0.38  0.00
Crit Volume:   88                   0           0                      654
Crit Moves:  ****                        ****                     ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
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                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #14 Main St./Big Break Rd.
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.469
Loss Time (sec):      12 (Y+R=4.0 sec) Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        43               Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  0  1  0    0  1  0  0  1    1  0  2  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 23 Apr 2002 << 730-830
Base Vol:      60   20    30    60   40   200    70  650    30    50 1010    60
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   60   20    30    60   40   200    70  650    30    50 1010    60
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     2    0     2     5   28     0     0   81     2
Initial Fut:   60   20    30    62   40   202    75  678    30    50 1091    62
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    60   20    30    62   40   202    75  678    30    50 1091    62
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   60   20    30    62   40   202    75  678    30    50 1091    62
RTOR Reduct:    0    0     0     0    0    75     0    0    30     0    0    62
RTOR Vol:      60   20    30    62   40   127    75  678     0    50 1091     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   60   20    30    62   40   127    75  678     0    50 1091     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.40  0.60  0.61 0.39  1.00  1.00 2.00  1.00  1.00 2.00  1.00
Final Sat.:  1720  688  1032  1045  675  1720  1720 3440  1720  1720 3440  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.03  0.03  0.06 0.06  0.07  0.04 0.20  0.00  0.03 0.32  0.00
Crit Volume:   60                         127    75                     546
Crit Moves:  ****                        ****  ****                    ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #17 Oakley Rd./Empire Ave.
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.301
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        41                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  1  0    1  0  1  0  1    1  1  0  0  1    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 24 Apr 2002 << 745-845
Base Vol:     170  280    10    40  210    60    60   10   110    20   10    20
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  170  280    10    40  210    60    60   10   110    20   10    20
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    1   42     0     0   47     2     0    0     0     0    0     0
Initial Fut:  171  322    10    40  257    62    60   10   110    20   10    20
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   171  322    10    40  257    62    60   10   110    20   10    20
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  171  322    10    40  257    62    60   10   110    20   10    20
RTOR Reduct:    0    0     0     0    0    33     0    0   110     0    0    20
RTOR Vol:     171  322    10    40  257    29    60   10     0    20   10     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  171  322    10    40  257    29    60   10     0    20   10     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.94  0.06  1.00 1.00  1.00  1.71 0.29  1.00  0.67 0.33  1.00
Final Sat.:  1650 3201    99  1650 1650  1650  2571  471  1650  1100  550  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10 0.10  0.10  0.02 0.16  0.02  0.02 0.02  0.00  0.02 0.02  0.00
Crit Volume:  171                   257          35                    30
Crit Moves:  ****                  ****        ****                  ****
********************************************************************************
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-------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
-------------------------------------------------------------------------------

                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
*******************************************************************************
Intersection #18 Empire Ave./Main St.
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.410
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        48                Level Of Service:                  A
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        2  0  1  0  1    0  1  0  0  1    1  0  2  0  1    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 24 Apr 2002 << 745-845
Base Vol:     250   10   100    20   50    40    20  600   130   130  780    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  250   10   100    20   50    40    20  600   130   130  780    10
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:   44    0    -1     0    1    -1     0   24    46     2    6     0
Initial Fut:  294   10    99    20   51    39    20  624   176   132  786    10
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   294   10    99    20   51    39    20  624   176   132  786    10
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  294   10    99    20   51    39    20  624   176   132  786    10
RTOR Reduct:    0    0    99     0    0    20     0    0   162     0    0     0
RTOR Vol:     294   10     0    20   51    19    20  624    14   132  786    10
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  294   10     0    20   51    19    20  624    14   132  786    10
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.00  1.00  0.28 0.72  1.00  1.00 2.00  1.00  1.00 1.97  0.03
Final Sat.:  3000 1650  1650   465 1185  1650  1650 3300  1650  1650 3259    41
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10 0.01  0.00  0.04 0.04  0.01  0.01 0.19  0.01  0.08 0.24  0.24
Crit Volume:  147                    71              312         132
Crit Moves:  ****                  ****             ****        ****
*******************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
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                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #19 Main/Vintage
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.393
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        38               Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Protected        Protected
Rights:           Include          Include           Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:       0  0  0  0  0    1  0  0  0  1    1  0  2  0  0    0  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0  180    0   150   70  630     0    0  750   100
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:    0    0     0  180    0   150   70  630     0    0  750   100
Added Vol:      0    0     0    0    0     0    0    0     0    0    0     0
PasserByVol:    0    0     0   -1    0     0   -1   20     0    0    6    -1
Initial Fut:    0    0     0  179    0   150   69  650     0    0  756    99
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:     0    0     0  179    0   150   69  650     0    0  756    99
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:    0    0     0  179    0   150   69  650     0    0  756    99
RTOR Reduct:    0    0     0    0    0    69    0    0     0    0    0     0
RTOR Vol:       0    0     0  179    0    81   69  650     0    0  756    99
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:    0    0     0  179    0    81   69  650     0    0  756    99
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720 1720 1720  1720 1720 1720  1720 1720 1720  1720
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       0.00 0.00  0.00 1.00 0.00  1.00 1.00 2.00  0.00 0.00 1.77  0.23
Final Sat.:     0    0     0 1720    0  1720 1720 3440     0    0 3042   398
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00 0.10 0.00  0.05 0.04 0.19  0.00 0.00 0.25  0.25
Crit Volume:         0         179              69                   428
Crit Moves:                   ****             ****                  ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #20 Main/O'Hara
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.500
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        37               Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  0  1  0   0  0  1! 0  0   1  0  1  0  1   1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      90    0    30     5    0     5     5  670    90    30  750     5
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   90    0    30     5    0     5     5  670    90    30  750     5
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   90    0    30     5    0     5     5  670    90    30  750     5
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    90    0    30     5    0     5     5  670    90    30  750     5
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   90    0    30     5    0     5     5  670    90    30  750     5
RTOR Reduct:    0    0     0     0    0     0     0    0    90     0    0     0
RTOR Vol:      90    0    30     5    0     5     5  670     0    30  750     5
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   90    0    30     5    0     5     5  670     0    30  750     5
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.00  1.00  0.50 0.00  0.50  1.00 1.00  1.00  1.00 0.99  0.01
Final Sat.:  1720    0  1720   860    0   860  1720 1720  1720  1720 1709    11
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.00  0.02  0.01 0.00  0.01  0.00 0.39  0.00  0.02 0.44  0.44
Crit Volume:   90                          10     5                  755
Crit Moves:  ****                        ****  ****                 ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #21 Empire/Cypress
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):         0.253
Loss Time (sec):        0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:         31                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:       0  0  1  1  0    1  0  2  0  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  250   100    90  270     0     0    0     0   150    0   170
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  250   100    90  270     0     0    0     0   150    0   170
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0   37    -1     1   45     0     0    0     0     2    0     4
Initial Fut:    0  287    99    91  315     0     0    0     0   152    0   174
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  287    99    91  315     0     0    0     0   152    0   174
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  287    99    91  315     0     0    0     0   152    0   174
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    91
RTOR Vol:       0  287    99    91  315     0     0    0     0   152    0    83
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0  287    99    91  315     0     0    0     0   152    0    83
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.49  0.51  1.00 2.00  0.00  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:     0 2558   882  1720 3440     0     0    0     0  1720    0  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.11  0.11  0.05 0.09  0.00  0.00 0.00  0.00  0.09 0.00  0.05
Crit Volume:             193    91                      0         152
Crit Moves:             ****  ****                              ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #22 Main/Cypress
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.355
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        35                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  2  0  1    2  0  1  1  0    1  0  1  1  0    1  0  0  1  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      30  380   110   330  350    10    40  120    60   100  140   350
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   30  380   110   330  350    10    40  120    60   100  140   350
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    8     0     3    9     0    -1   -1     0     0    0     2
Initial Fut:   30  388   110   333  359    10    39  119    60   100  140   352
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    30  388   110   333  359    10    39  119    60   100  140   352
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   30  388   110   333  359    10    39  119    60   100  140   352
RTOR Reduct:    0    0   100     0    0     0     0    0     0     0    0   183
RTOR Vol:      30  388    10   333  359    10    39  119    60   100  140   169
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   30  388    10   333  359    10    39  119    60   100  140   169
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.91
Lanes:       1.00 2.00  1.00  2.00 1.95  0.05  1.00 1.33  0.67  1.00 0.91  1.09
Final Sat.:  1650 3300  1650  3000 3211    89  1650 2194  1106  1650 1496  1640
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.12  0.01  0.11 0.11  0.11  0.02 0.05  0.05  0.06 0.09  0.10
Crit Volume:      194         167               39                         154
Crit Moves:       ****        ****             ****                        ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #24 Live Oak/Laurel
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.326
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        34                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  0  0  1    2  0  3  0  0    0  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    90    0   230   220  620     0     0  900    70
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    90    0   230   220  620     0     0  900    70
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0    -3    -6   16     0     0   28     2
Initial Fut:    0    0     0    90    0   227   214  636     0     0  928    72
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    90    0   227   214  636     0     0  928    72
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0    90    0   227   214  636     0     0  928    72
RTOR Reduct:    0    0     0     0    0   118     0    0     0     0    0     0
RTOR Vol:       0    0     0    90    0   109   214  636     0     0  928    72
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0    90    0   109   214  636     0     0  928    72
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  1.00 0.00  1.00  2.00 3.00  0.00  0.00 2.78  0.22
Final Sat.:     0    0     0  1720    0  1720  3127 5160     0     0 4788   372
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.05 0.00  0.06  0.07 0.12  0.00  0.00 0.19  0.19
Crit Volume:    0                         109   107                   333
Crit Moves:                              ****  ****                  ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #25 Empire/Laurel
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.520
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        48                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  1  0    1  0  1  1  0    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      60   70    30    50  200   220   170  390   150    50  690    40
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   60   70    30    50  200   220   170  390   150    50  690    40
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0   10     0    20    9    19    23   -5    -2     0    1     2
Initial Fut:   60   80    30    70  209   239   193  385   148    50  691    42
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    60   80    30    70  209   239   193  385   148    50  691    42
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   60   80    30    70  209   239   193  385   148    50  691    42
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      60   80    30    70  209   239   193  385   148    50  691    42
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   60   80    30    70  209   239   193  385   148    50  691    42
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.45  0.55  1.00 1.00  1.00  1.00 1.44  0.56  1.00 1.89  0.11
Final Sat.:  1650 2400   900  1650 1650  1650  1650 2384   916  1650 3111   189
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.04 0.03  0.03  0.04 0.13  0.14  0.12 0.16  0.16  0.03 0.22  0.22
Crit Volume:   60                         239   193                   367
Crit Moves:  ****                        ****  ****                  ****
********************************************************************************
```

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱			↰↑	↱		↰↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.96		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.98	1.00
Satd. Flow (prot)	1770	3384		1770	3512			1770	1583		1817	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.74	1.00		0.86	1.00
Satd. Flow (perm)	1770	3384		1770	3512			1384	1583		1598	1583
Volume (vph)	10	389	161	30	184	10	60	0	40	10	10	20
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	432	179	33	204	11	67	0	44	11	11	22
RTOR Reduction (vph)	0	44	0	0	4	0	0	0	38	0	0	19
Lane Group Flow (vph)	11	567	0	33	211	0	0	67	6	0	22	3
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	1.5	35.1		1.8	35.4			8.2	8.2		8.2	8.2
Effective Green, g (s)	1.5	35.1		1.8	35.4			8.2	8.2		8.2	8.2
Actuated g/C Ratio	0.03	0.61		0.03	0.62			0.14	0.14		0.14	0.14
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	46	2080		56	2177			199	227		229	227
v/s Ratio Prot	0.01	c0.17		c0.02	0.06							
v/s Ratio Perm								c0.05	0.00		0.01	0.00
v/c Ratio	0.24	0.27		0.59	0.10			0.34	0.03		0.10	0.01
Uniform Delay, d1	27.2	5.1		27.3	4.4			22.0	21.0		21.2	21.0
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	2.7	0.1		14.9	0.0			1.0	0.0		0.2	0.0
Delay (s)	29.9	5.2		42.1	4.4			23.0	21.1		21.4	21.0
Level of Service	C	A		D	A			C	C		C	C
Approach Delay (s)		5.6			9.4			22.2			21.2	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM Average Control Delay	9.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	57.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

2: Wilbur Avenue & Viera Avenue

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱		↰	↑	Y	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	377	122	10	163	41	10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	393	127	10	170	43	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			520		647	456
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			520		647	456
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		90	98
cM capacity (veh/h)			1046		431	604

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	520	10	170	53
Volume Left	0	10	0	43
Volume Right	127	0	0	10
cSH	1700	1046	1700	457
Volume to Capacity	0.31	0.01	0.10	0.12
Queue Length 95th (ft)	0	1	0	10
Control Delay (s)	0.0	8.5	0.0	13.9
Lane LOS		A		B
Approach Delay (s)	0.0	0.5		13.9
Approach LOS				B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Wilbur Avenue & SR 160 SB Off

2010 PM
2/4/2008

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↰	↑↑					↰		↱
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	427	90	30	113	0	0	0	0	171	0	61
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	474	100	33	126	0	0	0	0	190	0	68
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	126			574			654	717	524	717	767	63
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	126			574			654	717	524	717	767	63
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			97			100	100	100	39	100	93
cM capacity (veh/h)	1459			995			319	342	498	309	320	989

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	574	33	63	63	190	68
Volume Left	0	33	0	0	190	0
Volume Right	100	0	0	0	0	68
cSH	1700	995	1700	1700	309	989
Volume to Capacity	0.34	0.03	0.04	0.04	0.61	0.07
Queue Length 95th (ft)	0	3	0	0	95	6
Control Delay (s)	0.0	8.7	0.0	0.0	33.6	8.9
Lane LOS		A			D	A
Approach Delay (s)	0.0	1.8			27.1	
Approach LOS					D	

Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Wilbur Avenue & SR 160 NB On

2010 PM
2/4/2008

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑			↑↱		↰		↱			
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	260	338	0	0	133	101	10	0	20	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	289	376	0	0	148	112	11	0	22	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	260			376			1027	1213	188	969	1157	130
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	260			376			1027	1213	188	969	1157	130
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	78			100			93	100	97	100	100	100
cM capacity (veh/h)	1302			1180			156	140	822	168	152	896

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2
Volume Total	289	188	188	99	161	11	22
Volume Left	289	0	0	0	0	11	0
Volume Right	0	0	0	0	112	0	22
cSH	1302	1700	1700	1700	1700	156	822
Volume to Capacity	0.22	0.11	0.11	0.06	0.09	0.07	0.03
Queue Length 95th (ft)	21	0	0	0	0	6	2
Control Delay (s)	8.6	0.0	0.0	0.0	0.0	29.8	9.5
Lane LOS	A					D	A
Approach Delay (s)	3.7			0.0		16.3	
Approach LOS						C	

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	30	0	328	0	0	0	184	40	0	0	30	50
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	32	0	345	0	0	0	194	42	0	0	32	53

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	32	345	0	236	84
Volume Left (vph)	32	0	0	194	0
Volume Right (vph)	0	345	0	0	53
Hadj (s)	0.53	-0.67	0.00	0.20	-0.34
Departure Headway (s)	5.9	4.7	5.3	5.1	4.8
Degree Utilization, x	0.05	0.45	0.00	0.34	0.11
Capacity (veh/h)	583	740	619	667	683
Control Delay (s)	8.0	10.2	8.3	10.7	8.4
Approach Delay (s)	10.0		0.0	10.7	8.4
Approach LOS	A		A	B	A

Intersection Summary			
Delay	10.0		
HCM Level of Service	B		
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
6: E 18th Street & Hillcrest Avenue

2010 PM
2/4/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑	↱	↰	↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3353		1770	3490		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3353		1770	3490		1770	1863	1583	1770	1863	1583
Volume (vph)	40	424	229	332	397	40	170	150	275	62	122	30
Peak-hour factor, 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
Adj. Flow (vph)	42	442	239	346	414	42	177	156	286	65	127	31
RTOR Reduction (vph)	0	67	0	0	7	0	0	0	203	0	0	27
Lane Group Flow (vph)	42	614	0	346	449	0	177	156	83	65	127	4
Turn Type	Prot			Prot			Split		Perm	Split		Perm
Protected Phases	1	6		5	2		8	8		4	4	
Permitted Phases									8			4
Actuated Green, G (s)	2.5	19.7		18.8	36.0		13.0	13.0	13.0	8.6	8.6	8.6
Effective Green, g (s)	3.5	21.7		19.8	38.0		14.5	14.5	14.5	10.1	10.1	10.1
Actuated g/C Ratio	0.04	0.28		0.25	0.49		0.19	0.19	0.19	0.13	0.13	0.13
Clearance Time (s)	4.0	5.0		4.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	79	932		449	1698		329	346	294	229	241	205
v/s Ratio Prot	0.02	c0.18		c0.20	0.13		c0.10	0.08		0.04	c0.07	
v/s Ratio Perm									0.05			0.00
v/c Ratio	0.53	0.66		0.77	0.26		0.54	0.45	0.28	0.28	0.53	0.02
Uniform Delay, d1	36.5	24.9		27.0	11.8		28.8	28.3	27.3	30.7	31.8	29.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.7	1.7		8.0	0.1		1.7	0.9	0.5	0.7	2.1	0.0
Delay (s)	43.2	26.6		35.0	11.9		30.5	29.2	27.9	31.4	33.8	29.7
Level of Service	D	C		D	B		C	C	C	C	C	C
Approach Delay (s)		27.6			21.9			28.9			32.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	78.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
7: E 18th Street & Viera Avenue

2010 PM
2/4/2008

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↱			↰	↱		✥	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1770	3539	1583	1770	1852			1783	1583		1742	
Flt Permitted	0.35	1.00	1.00	0.40	1.00			0.67	1.00		0.87	
Satd. Flow (perm)	654	3539	1583	737	1852			1252	1583		1546	
Volume (vph)	59	599	109	11	528	22	90	10	20	62	60	71
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	62	631	115	12	556	23	95	11	21	65	63	75
RTOR Reduction (vph)	0	0	47	0	2	0	0	0	15	0	41	0
Lane Group Flow (vph)	62	631	68	12	577	0	0	106	6	0	162	0
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)	23.5	23.5	23.5	23.5	23.5			9.8	9.8		9.8	
Effective Green, g (s)	25.5	25.5	25.5	25.5	25.5			11.8	11.8		11.8	
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.59			0.27	0.27		0.27	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	385	2084	932	434	1091			341	431		421	
v/s Ratio Prot		0.18			c0.31							
v/s Ratio Perm	0.09		0.04	0.02				0.08	0.00		c0.10	
v/c Ratio	0.16	0.30	0.07	0.03	0.53			0.31	0.01		0.38	
Uniform Delay, d1	4.0	4.5	3.8	3.7	5.3			12.5	11.5		12.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.2	0.1	0.0	0.0	0.5			0.5	0.0		0.6	
Delay (s)	4.2	4.5	3.9	3.7	5.8			13.0	11.5		13.4	
Level of Service	A	A	A	A	A			B	B		B	
Approach Delay (s)		4.4			5.7			12.8			13.4	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	6.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	43.3	Sum of lost time (s)	6.0
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

8: E 18th Street & Phillips Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↱		↰↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		0.97	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.91		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3529		1770	3539	1583	1770	1686		3433	1600	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3529		1770	3539	1583	1770	1686		3433	1600	
Volume (vph)	140	511	10	10	371	120	10	10	19	130	10	160
Peak-hour factor, PHF	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Adj. Flow (vph)	152	521	10	10	379	130	10	11	19	141	11	174
RTOR Reduction (vph)	0	1	0	0	0	94	0	17	0	0	148	0
Lane Group Flow (vph)	152	530	0	10	379	36	10	13	0	141	37	0
Turn Type	Prot			Prot		Perm	Split			Split		
Protected Phases	5	2		1	6		7	7		3	3	
Permitted Phases						6						
Actuated Green, G (s)	7.1	20.3		0.7	13.9	13.9	6.1	6.1		7.6	7.6	
Effective Green, g (s)	7.1	20.3		0.7	13.9	13.9	6.1	6.1		7.6	7.6	
Actuated g/C Ratio	0.14	0.40		0.01	0.27	0.27	0.12	0.12		0.15	0.15	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	248	1413		24	970	434	213	203		515	240	
v/s Ratio Prot	c0.09	c0.15		0.01	0.11		0.01	c0.01		c0.04	0.02	
v/s Ratio Perm						0.02						
v/c Ratio	0.61	0.37		0.42	0.39	0.08	0.05	0.07		0.27	0.15	
Uniform Delay, d1	20.5	10.7		24.8	15.0	13.7	19.7	19.8		19.1	18.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.4	0.2		11.3	0.3	0.1	0.1	0.1		0.3	0.3	
Delay (s)	24.9	10.9		36.1	15.2	13.7	19.8	19.9		19.4	19.1	
Level of Service	C	B		D	B	B	B	B		B	B	
Approach Delay (s)		14.0			15.3			19.9			19.2	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	50.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰↰	↑↑	↱	↰	↱		↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		0.97	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.87		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	3392		3335	3438	1538	1719	1577		1719	1700	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.72	1.00		0.37	1.00	
Satd. Flow (perm)	1719	3392		3335	3438	1538	1308	1577		674	1700	
Volume (vph)	30	601	60	460	421	100	40	20	122	80	30	20
Peak-hour factor, 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
Adj. Flow (vph)	31	626	62	479	439	104	42	21	127	83	31	21
RTOR Reduction (vph)	0	4	0	0	0	26	0	113	0	0	19	0
Lane Group Flow (vph)	31	684	0	479	439	78	42	35	0	83	33	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8			4		
Actuated Green, G (s)	5.2	60.6		33.6	89.0	89.0	12.8	12.8		12.8	12.8	
Effective Green, g (s)	5.2	61.6		33.6	90.0	90.0	12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.04	0.51		0.28	0.75	0.75	0.11	0.11		0.11	0.11	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	4.0	4.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	74	1741		934	2579	1154	140	168		72	181	
v/s Ratio Prot	0.02	c0.20		c0.14	0.13			0.02			0.02	
v/s Ratio Perm						0.05	0.03			c0.12		
v/c Ratio	0.42	0.39		0.51	0.17	0.07	0.30	0.21		1.15	0.18	
Uniform Delay, d1	55.9	17.8		36.3	4.3	4.0	49.5	49.0		53.6	48.8	
Progression Factor	1.00	1.00		0.78	0.64	0.10	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.8	0.7		0.5	0.1	0.1	0.4	0.2		153.3	0.2	
Delay (s)	59.7	18.5		28.9	2.9	0.5	49.9	49.2		206.9	49.0	
Level of Service	E	B		C	A	A	D	D		F	D	
Approach Delay (s)		20.2			14.8			49.3			146.1	
Approach LOS		C			B			D			F	

Intersection Summary			
HCM Average Control Delay	28.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱		↰	↑↑	↰	↱↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	0.88
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3406		1719	3438	1719	2707
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3406		1719	3438	1719	2707
Volume (vph)	753	50	62	890	91	1235
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	784	52	65	927	95	1286
RTOR Reduction (vph)	4	0	0	0	0	35
Lane Group Flow (vph)	832	0	65	927	95	1251
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type			Prot			pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases						8
Actuated Green, G (s)	42.8		53.0	99.8	11.2	64.2
Effective Green, g (s)	43.8		53.0	100.8	11.2	64.2
Actuated g/C Ratio	0.36		0.44	0.84	0.09	0.54
Clearance Time (s)	5.0		4.0	5.0	4.0	4.0
Vehicle Extension (s)	4.0		3.0	4.0	2.0	3.0
Lane Grp Cap (vph)	1243		759	2888	160	1538
v/s Ratio Prot	c0.24		0.04	0.27	0.06	c0.36
v/s Ratio Perm						0.10
v/c Ratio	0.67		0.09	0.32	0.59	0.81
Uniform Delay, d1	32.0		19.4	2.1	52.2	23.0
Progression Factor	0.66		0.89	0.42	1.00	1.00
Incremental Delay, d2	2.7		0.0	0.3	3.9	3.4
Delay (s)	24.0		17.4	1.2	56.1	26.4
Level of Service	C		B	A	E	C
Approach Delay (s)	24.0			2.2	28.4	
Approach LOS	C			A	C	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

11: Main Street & Bridgehead Road

2/4/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑↑	↱	↰↰	↱		↰	↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.91	1.00	0.97	1.00		0.95	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00
Satd. Flow (prot)	1719	3332		1719	4940	1538	3335	1697		1633	1678	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00
Satd. Flow (perm)	1719	3332		1719	4940	1538	3335	1697		1633	1678	1538
Volume (vph)	90	1506	392	39	663	154	219	100	71	258	90	70
Peak-hour factor, 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
Adj. Flow (vph)	92	1537	400	40	677	157	223	102	72	263	92	71
RTOR Reduction (vph)	0	18	0	0	0	71	0	22	0	0	0	63
Lane Group Flow (vph)	92	1919	0	40	677	86	223	152	0	173	182	8
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases						6						7
Actuated Green, G (s)	11.3	71.3		4.8	64.8	64.8	13.9	13.9		13.0	13.0	13.0
Effective Green, g (s)	11.3	72.3		4.8	65.8	65.8	13.9	13.9		13.0	13.0	13.0
Actuated g/C Ratio	0.09	0.60		0.04	0.55	0.55	0.12	0.12		0.11	0.11	0.11
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	162	2008		69	2709	843	386	197		177	182	167
v/s Ratio Prot	0.05	c0.58		c0.02	0.14		0.07	c0.09		0.11	c0.11	
v/s Ratio Perm						0.06						0.01
v/c Ratio	0.57	0.96		0.58	0.25	0.10	0.58	0.77		0.98	1.00	0.05
Uniform Delay, d1	52.0	22.4		56.6	14.2	13.0	50.3	51.5		53.4	53.5	47.9
Progression Factor	0.94	1.02		0.98	0.90	0.63	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.7	8.5		7.0	0.2	0.2	1.3	15.5		60.2	66.7	0.0
Delay (s)	50.5	31.3		62.7	13.0	8.3	51.6	67.0		113.5	120.2	48.0
Level of Service	D	C		E	B	A	D	E		F	F	D
Approach Delay (s)		32.2			14.5			58.3			105.5	
Approach LOS		C			B			E			F	

Intersection Summary			
HCM Average Control Delay	39.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	92.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱		↰	↑↑	↰↱	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	1825	10	10	846	10	10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	1901	10	10	881	10	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					TWLTL	
Median storage veh)					0	
Upstream signal (ft)	1017					
pX, platoon unblocked			0.48		0.48	0.48
vC, conflicting volume			1911		2368	956
vC1, stage 1 conf vol					1906	
vC2, stage 2 conf vol					461	
vCu, unblocked vol			1814		2770	0
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)					5.9	
tF (s)			2.2		3.5	3.3
p0 queue free %			93		69	98
cM capacity (veh/h)			154		34	513

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	1267	644	10	441	441	21
Volume Left	0	0	10	0	0	10
Volume Right	0	10	0	0	0	10
cSH	1700	1700	154	1700	1700	64
Volume to Capacity	0.75	0.38	0.07	0.26	0.26	0.33
Queue Length 95th (ft)	0	0	5	0	0	30
Control Delay (s)	0.0	0.0	30.1	0.0	0.0	86.5
Lane LOS			D			F
Approach Delay (s)	0.0		0.4			86.5
Approach LOS						F

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		

13: Main Street & Live Oak Ave

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱		↰	↑↑	↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3419		1719	3438	1719	1538
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3419		1719	3438	1719	1538
Volume (vph)	1765	69	36	806	51	55
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1820	71	37	831	53	57
RTOR Reduction (vph)	1	0	0	0	0	53
Lane Group Flow (vph)	1890	0	37	831	53	4
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type			Prot			custom
Protected Phases	2		1	6		
Permitted Phases					8	8
Actuated Green, G (s)	94.3		4.8	103.1	8.9	8.9
Effective Green, g (s)	94.3		4.8	103.1	8.9	8.9
Actuated g/C Ratio	0.79		0.04	0.86	0.07	0.07
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2687		69	2954	127	114
v/s Ratio Prot	c0.55		c0.02	0.24		
v/s Ratio Perm					c0.03	0.00
v/c Ratio	0.70		0.54	0.28	0.42	0.04
Uniform Delay, d1	6.2		56.5	1.6	53.1	51.6
Progression Factor	0.07		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6		7.8	0.2	2.2	0.1
Delay (s)	1.0		64.3	1.8	55.3	51.7
Level of Service	A		E	A	E	D
Approach Delay (s)	1.0			4.5	53.4	
Approach LOS	A			A	D	

Intersection Summary			
HCM Average Control Delay	4.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↱			↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			0.98	1.00
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1719	1647			1765	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.62	1.00			0.40	1.00
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1125	1647			720	1538
Volume (vph)	281	1521	170	70	741	62	70	60	90	41	40	129
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	299	1618	181	74	788	66	74	64	96	44	43	137
RTOR Reduction (vph)	0	0	34	0	0	26	0	51	0	0	0	122
Lane Group Flow (vph)	299	1618	147	74	788	40	74	109	0	0	87	15
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		custom	Prot		custom	Perm			Perm		Perm
Protected Phases	5			1				3			7	
Permitted Phases		2	2		6	6	3			7		7
Actuated Green, G (s)	24.1	85.9	85.9	8.3	69.1	69.1	12.8	12.8			12.8	12.8
Effective Green, g (s)	25.1	86.9	86.9	8.3	70.1	70.1	12.8	12.8			12.8	12.8
Actuated g/C Ratio	0.21	0.72	0.72	0.07	0.58	0.58	0.11	0.11			0.11	0.11
Clearance Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	360	2490	1114	119	2008	898	120	176			77	164
v/s Ratio Prot	c0.17			0.04				0.07				
v/s Ratio Perm		c0.47	0.10		0.23	0.03	0.07				c0.12	0.01
v/c Ratio	0.83	0.65	0.13	0.62	0.39	0.04	0.62	0.62			1.13	0.09
Uniform Delay, d1	45.4	8.6	5.0	54.3	13.5	10.7	51.3	51.3			53.6	48.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	14.3	1.3	0.2	7.1	0.6	0.1	9.1	6.4			142.1	0.2
Delay (s)	59.7	10.0	5.3	61.4	14.0	10.7	60.3	57.6			195.7	48.6
Level of Service	E	A	A	E	B	B	E	E			F	D
Approach Delay (s)		16.6			17.6			58.5			105.7	
Approach LOS		B			B			E			F	

Intersection Summary			
HCM Average Control Delay	25.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

15: Oakley Road & Neroly Road

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	12	80	59	10	70	95	49	196	10	156	295	10
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	12	82	60	10	71	97	50	200	10	159	301	10

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	154	179	260	470
Volume Left (vph)	12	10	50	159
Volume Right (vph)	60	97	10	10
Hadj (s)	-0.18	-0.28	0.05	0.09
Departure Headway (s)	6.2	6.0	5.8	5.5
Degree Utilization, x	0.26	0.30	0.42	0.72
Capacity (veh/h)	495	508	569	633
Control Delay (s)	11.4	11.6	12.9	21.1
Approach Delay (s)	11.4	11.6	12.9	21.1
Approach LOS	B	B	B	C

Intersection Summary			
Delay	16.1		
HCM Level of Service	C		
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	18	170	30	39	129	8	30	37	29	68	88	16
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	189	33	43	143	9	33	41	32	76	98	18

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	242	196	107	191
Volume Left (vph)	20	43	33	76
Volume Right (vph)	33	9	32	18
Hadj (s)	-0.03	0.05	-0.08	0.06
Departure Headway (s)	5.0	5.1	5.3	5.3
Degree Utilization, x	0.33	0.28	0.16	0.28
Capacity (veh/h)	677	655	616	629
Control Delay (s)	10.5	10.1	9.2	10.3
Approach Delay (s)	10.5	10.1	9.2	10.3
Approach LOS	B	B	A	B

Intersection Summary			
Delay	10.1		
HCM Level of Service	B		
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↑	↱		↰↑	↱	↰	↑↑↱		↰	↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.95		1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00		0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1727	1583		1812	1583	1770	3526		1770	1863	1583
Flt Permitted	0.95	0.98	1.00		0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1727	1583		1812	1583	1770	3526		1770	1863	1583
Volume (vph)	112	40	200	50	40	60	139	408	10	140	528	72
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	43	217	54	43	65	151	443	11	152	574	78
RTOR Reduction (vph)	0	0	193	0	0	57	0	2	0	0	0	45
Lane Group Flow (vph)	80	85	24	0	97	8	151	452	0	152	574	33
Turn Type	Split		Perm	Split		Perm	Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	7.8	7.8	7.8		7.5	7.5	6.9	26.5		8.4	28.0	28.0
Effective Green, g (s)	7.8	7.8	7.8		8.5	8.5	7.9	27.5		9.4	29.0	29.0
Actuated g/C Ratio	0.11	0.11	0.11		0.12	0.12	0.11	0.40		0.14	0.42	0.42
Clearance Time (s)	4.0	4.0	4.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	189	195	178		223	194	202	1401		240	781	663
v/s Ratio Prot	0.05	c0.05			c0.05		0.09	0.13		c0.09	c0.31	
v/s Ratio Perm			0.02			0.01						0.02
v/c Ratio	0.42	0.44	0.14		0.43	0.04	0.75	0.32		0.63	0.73	0.05
Uniform Delay, d1	28.6	28.6	27.7		28.1	26.8	29.7	14.4		28.3	16.9	11.9
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.5	1.6	0.4		1.4	0.1	14.0	0.1		5.4	3.6	0.0
Delay (s)	30.1	30.2	28.0		29.5	26.8	43.7	14.5		33.6	20.5	12.0
Level of Service	C	C	C		C	C	D	B		C	C	B
Approach Delay (s)		29.0			28.4			21.8			22.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	69.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

18: Main Street & Empire Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↱		↰↰	↑	↱		↰↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.98	1.00
Satd. Flow (prot)	1719	3539	1538	1770	3531		3335	1810	1583		1791	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.98	1.00
Satd. Flow (perm)	1719	3539	1538	1770	3531		3335	1810	1583		1791	1538
Volume (vph)	51	1060	531	188	574	9	320	30	230	19	20	21
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	54	1128	565	200	611	10	340	32	245	20	21	22
RTOR Reduction (vph)	0	0	333	0	1	0	0	0	200	0	0	21
Lane Group Flow (vph)	54	1128	232	200	620	0	340	32	45	0	41	1
Heavy Vehicles (%)	5%	2%	5%	2%	2%	2%	5%	5%	2%	2%	5%	5%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	3.2	30.5	30.5	11.8	39.1		13.2	13.2	13.2		2.1	2.1
Effective Green, g (s)	4.2	31.5	31.5	12.8	40.1		14.2	14.2	14.2		2.1	2.1
Actuated g/C Ratio	0.05	0.41	0.41	0.17	0.52		0.19	0.19	0.19		0.03	0.03
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	94	1455	632	296	1848		618	336	293		49	42
v/s Ratio Prot	0.03	c0.32		c0.11	0.18		c0.10	0.02			c0.02	
v/s Ratio Perm			0.15						0.03			0.00
v/c Ratio	0.57	0.78	0.37	0.68	0.34		0.55	0.10	0.16		0.84	0.01
Uniform Delay, d1	35.3	19.5	15.6	30.0	10.5		28.3	25.9	26.2		37.1	36.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	8.2	2.7	0.4	6.0	0.1		1.1	0.1	0.2		70.1	0.1
Delay (s)	43.6	22.1	16.0	35.9	10.7		29.4	26.0	26.4		107.2	36.4
Level of Service	D	C	B	D	B		C	C	C		F	D
Approach Delay (s)		20.8			16.8			28.0			82.5	
Approach LOS		C			B			C			F	

Intersection Summary			
HCM Average Control Delay	22.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	76.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

	↗	→	←	↖	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↱		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3426		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3426		1770	1583
Volume (vph)	180	1060	624	168	178	120
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	191	1128	664	179	189	128
RTOR Reduction (vph)	0	0	27	0	0	106
Lane Group Flow (vph)	191	1128	816	0	189	22
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	9.4	38.1	24.7		9.6	9.6
Effective Green, g (s)	9.4	39.1	25.7		9.6	9.6
Actuated g/C Ratio	0.17	0.69	0.45		0.17	0.17
Clearance Time (s)	4.0	5.0	5.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	293	2440	1553		300	268
v/s Ratio Prot	c0.11	0.32	c0.24		c0.11	
v/s Ratio Perm						0.01
v/c Ratio	0.65	0.46	0.53		0.63	0.08
Uniform Delay, d1	22.1	4.0	11.1		21.9	19.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.1	0.1	0.3		4.3	0.1
Delay (s)	27.2	4.1	11.4		26.2	20.0
Level of Service	C	A	B		C	B
Approach Delay (s)		7.5	11.4		23.7	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	56.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↱		↰	↱			✥	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1861		1770	1583			1695	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.76	1.00			0.94	
Satd. Flow (perm)	1770	1863	1583	1770	1861		1409	1583			1626	
Volume (vph)	5	1066	202	21	679	5	143	0	48	1	0	1
Peak-hour factor, PHF	0.92	0.94	0.94	0.94	0.94	0.92	0.94	0.92	0.94	0.92	0.92	0.92
Adj. Flow (vph)	5	1134	215	22	722	5	152	0	51	1	0	1
RTOR Reduction (vph)	0	0	65	0	0	0	0	43	0	0	1	0
Lane Group Flow (vph)	5	1134	150	22	727	0	152	8	0	0	1	0
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)	0.8	62.6	62.6	1.6	63.4		14.2	14.2			15.2	
Effective Green, g (s)	0.8	63.6	63.6	1.6	64.4		15.2	15.2			15.2	
Actuated g/C Ratio	0.01	0.69	0.69	0.02	0.70		0.16	0.16			0.16	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		5.0	5.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	15	1282	1090	31	1297		232	260			267	
v/s Ratio Prot	0.00	c0.61		c0.01	0.39			0.01				
v/s Ratio Perm			0.09				c0.11				0.00	
v/c Ratio	0.33	0.88	0.14	0.71	0.56		0.66	0.03			0.00	
Uniform Delay, d1	45.5	11.5	5.0	45.2	7.0		36.1	32.4			32.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	12.7	7.6	0.1	54.2	0.6		6.5	0.1			0.0	
Delay (s)	58.2	19.1	5.0	99.3	7.5		42.7	32.5			32.3	
Level of Service	E	B	A	F	A		D	C			C	
Approach Delay (s)		17.0			10.2			40.1			32.3	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM Average Control Delay	16.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	92.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.96		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3395		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3395		1770	3539
Volume (vph)	118	184	429	160	232	541
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	126	196	456	170	247	576
RTOR Reduction (vph)	0	161	59	0	0	0
Lane Group Flow (vph)	126	35	567	0	247	576
Turn Type		Perm			Prot	
Protected Phases	8		2		1	6
Permitted Phases		8				
Actuated Green, G (s)	7.3	7.3	16.5		8.1	28.6
Effective Green, g (s)	8.3	8.3	17.5		8.1	29.6
Actuated g/C Ratio	0.18	0.18	0.38		0.18	0.64
Clearance Time (s)	5.0	5.0	5.0		4.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	320	286	1294		312	2282
v/s Ratio Prot	c0.07		c0.17		c0.14	0.16
v/s Ratio Perm		0.02				
v/c Ratio	0.39	0.12	0.44		0.79	0.25
Uniform Delay, d1	16.6	15.8	10.5		18.1	3.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	0.2	0.2		12.8	0.1
Delay (s)	17.4	15.9	10.8		30.9	3.5
Level of Service	B	B	B		C	A
Approach Delay (s)	16.5		10.8			11.7
Approach LOS	B		B			B

Intersection Summary

HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	45.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↱	↱	↰	↑↑	↱	↰↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	0.95	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.95		1.00	0.98	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3373		1770	1736	1504	1770	3539	1583	3433	3488	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3373		1770	1736	1504	1770	3539	1583	3433	3488	
Volume (vph)	31	134	61	101	192	289	29	362	98	525	485	52
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	34	149	68	112	213	321	32	402	109	583	539	58
RTOR Reduction (vph)	0	54	0	0	8	218	0	0	70	0	8	0
Lane Group Flow (vph)	34	163	0	112	236	72	32	402	39	583	589	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	1.8	14.8		5.1	18.1	18.1	1.8	26.0	26.0	11.1	35.3	
Effective Green, g (s)	1.8	14.8		5.1	18.1	18.1	1.8	26.0	26.0	11.1	35.3	
Actuated g/C Ratio	0.02	0.20		0.07	0.25	0.25	0.02	0.36	0.36	0.15	0.48	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	44	684		124	430	373	44	1260	564	522	1687	
v/s Ratio Prot	0.02	0.05		c0.06	c0.14		0.02	0.11		c0.17	c0.17	
v/s Ratio Perm						0.05			0.02			
v/c Ratio	0.77	0.24		0.90	0.55	0.19	0.73	0.32	0.07	1.12	0.35	
Uniform Delay, d1	35.4	24.4		33.7	23.9	21.7	35.4	17.1	15.5	30.9	11.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	57.0	0.2		51.9	1.4	0.3	45.3	0.7	0.2	75.5	0.6	
Delay (s)	92.4	24.6		85.6	25.3	21.9	80.6	17.7	15.7	106.5	12.3	
Level of Service	F	C		F	C	C	F	B	B	F	B	
Approach Delay (s)		33.7			34.3			21.0			58.8	
Approach LOS		C			C			C			E	

Intersection Summary			
HCM Average Control Delay	42.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	73.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↱			↰↑↱			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	20	192	152	80	162	43	69	39	40	52	125	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	209	165	87	176	47	75	42	43	57	136	54

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	126	270	175	135	161	247
Volume Left (vph)	22	0	87	0	75	57
Volume Right (vph)	0	165	0	47	43	54
Hadj (s)	0.12	-0.40	0.28	-0.21	-0.03	-0.05
Departure Headway (s)	6.4	5.9	6.7	6.2	6.2	6.0
Degree Utilization, x	0.23	0.44	0.33	0.23	0.28	0.41
Capacity (veh/h)	526	577	504	541	513	551
Control Delay (s)	10.1	12.3	11.7	9.9	11.6	13.2
Approach Delay (s)	11.6		10.9		11.6	13.2
Approach LOS	B		B		B	B

Intersection Summary			
Delay	11.8		
HCM Level of Service	B		
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

	↗	→	←	↖	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↰	↑↑↑	↑↑↱		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.91	0.91		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	5085	5047		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	5085	5047		1770	1583
Volume (vph)	232	929	1015	53	92	192
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	252	1010	1103	58	100	209
RTOR Reduction (vph)	0	0	8	0	0	180
Lane Group Flow (vph)	252	1010	1153	0	100	29
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	6.8	32.7	21.9		6.6	6.6
Effective Green, g (s)	6.8	32.7	21.9		6.6	6.6
Actuated g/C Ratio	0.14	0.69	0.46		0.14	0.14
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	494	3515	2337		247	221
v/s Ratio Prot	c0.07	0.20	c0.23		c0.06	
v/s Ratio Perm						0.02
v/c Ratio	0.51	0.29	0.49		0.40	0.13
Uniform Delay, d1	18.7	2.8	8.8		18.6	17.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	0.0	0.2		1.1	0.3
Delay (s)	19.6	2.9	9.0		19.6	18.1
Level of Service	B	A	A		B	B
Approach Delay (s)		6.2	9.0		18.6	
Approach LOS		A	A		B	

Intersection Summary			
HCM Average Control Delay	8.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	47.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

25: Laurel Road & Empire Avenue

2/4/2008

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.98		1.00	0.97		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3484		1770	3456		1770	3448		1770	3284	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3484		1770	3456		1770	3448		1770	3284	
Volume (vph)	235	758	88	80	641	118	149	429	89	205	300	278
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	250	806	94	85	682	126	159	456	95	218	319	296
RTOR Reduction (vph)	0	11	0	0	20	0	0	24	0	0	215	0
Lane Group Flow (vph)	250	889	0	85	788	0	159	527	0	218	400	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.0	25.6		4.7	19.3		8.7	15.3		10.7	17.3	
Effective Green, g (s)	11.0	25.6		4.7	19.3		8.7	15.3		10.7	17.3	
Actuated g/C Ratio	0.15	0.35		0.07	0.27		0.12	0.21		0.15	0.24	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	269	1234		115	923		213	730		262	786	
v/s Ratio Prot	c0.14	0.26		0.05	c0.23		0.09	c0.15		c0.12	0.12	
v/s Ratio Perm												
v/c Ratio	0.93	0.72		0.74	0.85		0.75	0.72		0.83	0.51	
Uniform Delay, d1	30.3	20.2		33.2	25.2		30.7	26.5		29.9	23.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	36.0	2.1		21.8	7.8		13.3	3.5		19.7	0.5	
Delay (s)	66.3	22.3		55.0	32.9		44.0	30.0		49.6	24.3	
Level of Service	E	C		D	C		D	C		D	C	
Approach Delay (s)		31.9			35.0			33.2			30.9	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	32.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	72.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
26: Proj Dwy #1 & Bridgehead Road

2010 PM
2/4/2008

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑	↱	↰	↑
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	0	331	0	0	414
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	360	0	0	450
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)			768			
pX, platoon unblocked						
vC, conflicting volume	810	360			360	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	810	360			360	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	349	685			1199	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	0	0	360	0	0	450
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.00	0.00	0.21	0.00	0.00	0.26
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	0.0		0.0		0.0	
Approach LOS	A					

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	25.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	1730	794	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1880	863	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1234			
pX, platoon unblocked						
vC, conflicting volume	863				1803	432
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	863				1803	432
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	775				71	572

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	940	940	432	432	0	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.55	0.55	0.25	0.25	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A
Approach Delay (s)	0.0		0.0			0.0
Approach LOS						A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		

28: Main Street & Proj Dwy #5

	↗	→	←	↖	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	1683	735	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1829	799	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		818	560			
pX, platoon unblocked	0.87				0.75	0.87
vC, conflicting volume	799				1714	399
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	625				1114	168
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	832				152	740

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	915	915	399	399	0	0
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.54	0.54	0.23	0.23	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS						A
Approach Delay (s)	0.0		0.0			0.0
Approach LOS						A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

	↗	→	←	↖	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↑	↱	↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0			
Lane Util. Factor		0.95	0.95			
Frt		1.00	1.00			
Flt Protected		1.00	1.00			
Satd. Flow (prot)		3539	3539			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		3539	3539			
Volume (vph)	0	1650	720	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1793	783	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1793	783	0	0	0
Turn Type	Perm			Perm		Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)		16.0	16.0			
Effective Green, g (s)		16.0	16.0			
Actuated g/C Ratio		0.40	0.40			
Clearance Time (s)		4.0	4.0			
Lane Grp Cap (vph)		1416	1416			
v/s Ratio Prot		c0.51	0.22			
v/s Ratio Perm						
v/c Ratio		1.27	0.55			
Uniform Delay, d1		12.0	9.2			
Progression Factor		1.00	1.00			
Incremental Delay, d2		125.6	1.6			
Delay (s)		137.6	10.8			
Level of Service		F	B			
Approach Delay (s)		137.6	10.8		0.0	
Approach LOS		F	B		A	

Intersection Summary			
HCM Average Control Delay	99.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                   CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Wilbur/Minaker
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.224
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        24                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  1  0  0  1    0  1  0  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      60    0    40    10   10    20    10  380   160    30  180    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   60    0    40    10   10    20    10  380   160    30  180    10
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    9     1     0    4     0
Initial Fut:   60    0    40    10   10    20    10  389   161    30  184    10
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    60    0    40    10   10    20    10  389   161    30  184    10
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   60    0    40    10   10    20    10  389   161    30  184    10
RTOR Reduct:    0    0    30     0    0    10     0    0     0     0    0     0
RTOR Vol:      60    0    10    10   10    10    10  389   161    30  184    10
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   60    0    10    10   10    10    10  389   161    30  184    10
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.00  1.00  0.50 0.50  1.00  1.00 1.41  0.59  1.00 1.90  0.10
Final Sat.:  1720    0  1720   860  860  1720  1720 2433  1007  1720 3263   177
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.00  0.01  0.01 0.01  0.01  0.01 0.16  0.16  0.02 0.06  0.06
Crit Volume:   60                 20                275          30
Crit Moves:  ****               ****              ****        ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #6 E 18th/Hillcrest
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.576
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        54                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  0  1    1  0  1  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     170  150   270    60  120    30    40  410   230   330  390    40
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  170  150   270    60  120    30    40  410   230   330  390    40
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     5     2    2     0     0   14    -1     2    7     0
Initial Fut:  170  150   275    62  122    30    40  424   229   332  397    40
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   170  150   275    62  122    30    40  424   229   332  397    40
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  170  150   275    62  122    30    40  424   229   332  397    40
RTOR Reduct:    0    0   275     0    0    30     0    0     0     0    0     0
RTOR Vol:     170  150     0    62  122     0    40  424   229   332  397    40
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  170  150     0    62  122     0    40  424   229   332  397    40
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.30  0.70  1.00 1.82  0.18
Final Sat.:  1650 1650  1650  1650 1650  1650  1650 2143  1157  1650 2998   302
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10 0.09  0.00  0.04 0.07  0.00  0.02 0.20  0.20  0.20 0.13  0.13
Crit Volume:  170                  122              327         332
Crit Moves:  ****                 ****             ****        ****
********************************************************************************
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                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #7 E 18th/viera
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.496
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        29                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  1  0  0  1    0  0  1! 0  0    1  0  2  0  1    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      90   10    20    60   60    70    60  580   110    10  520    20
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   90   10    20    60   60    70    60  580   110    10  520    20
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     2    0     1    -1   19    -1     1    8     2
Initial Fut:   90   10    20    62   60    71    59  599   109    11  528    22
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    90   10    20    62   60    71    59  599   109    11  528    22
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   90   10    20    62   60    71    59  599   109    11  528    22
RTOR Reduct:    0    0    11     0    0     0     0    0    90     0    0     0
RTOR Vol:      90   10     9    62   60    71    59  599    19    11  528    22
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   90   10     9    62   60    71    59  599    19    11  528    22
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.90 0.10  1.00  0.32 0.31  0.37  1.00 2.00  1.00  1.00 0.96  0.04
Final Sat.:  1620  180  1800   578  560   662  1800 3600  1800  1800 1728    72
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.06  0.01  0.11 0.11  0.11  0.03 0.17  0.01  0.01 0.31  0.31
Crit Volume:   90                    193          59                     550
Crit Moves:  ****                   ****        ****                    ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #8 E 18th/Phillips
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.294
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        26                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted       Protected        Protected
Rights:           Include          Include         Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    2  0  0  1  0    1  0  1  1  0    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      10   10    20   130   10   160   140  490    10    10  360   120
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   10   10    20   130   10   160   140  490    10    10  360   120
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0    -1     0    0     0     0   21     0     0   11     0
Initial Fut:   10   10    19   130   10   160   140  511    10    10  371   120
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    10   10    19   130   10   160   140  511    10    10  371   120
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   10   10    19   130   10   160   140  511    10    10  371   120
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    72
RTOR Vol:      10   10    19   130   10   160   140  511    10    10  371    49
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   10   10    19   130   10   160   140  511    10    10  371    49
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.34  0.66  2.00 0.06  0.94  1.00 1.96  0.04  1.00 2.00  1.00
Final Sat.:  1720  593  1127  3127  101  1619  1720 3374    66  1720 3440  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.02  0.02  0.04 0.10  0.10  0.08 0.15  0.15  0.01 0.11  0.03
Crit Volume:   10                   170         140                   186
Crit Moves:  ****                  ****        ****                  ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #9 Main St./SR 160 SB Ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.468
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        43                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  1  1  0    2  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      40   20   120    80   30    20    30  580    60   400  410   100
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   40   20   120    80   30    20    30  580    60   400  410   100
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     2     0    0     0     0   21     0    60   11     0
Initial Fut:   40   20   122    80   30    20    30  601    60   460  421   100
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    40   20   122    80   30    20    30  601    60   460  421   100
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   40   20   122    80   30    20    30  601    60   460  421   100
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    80
RTOR Vol:      40   20   122    80   30    20    30  601    60   460  421    20
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   40   20   122    80   30    20    30  601    60   460  421    20
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00
Lanes:       1.00 0.14  0.86  1.00 0.60  0.40  1.00 1.82  0.18  2.00 2.00  1.00
Final Sat.:  1720  242  1478  1720 1032   688  1720 3128   312  3127 3440  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.08  0.08  0.05 0.03  0.03  0.02 0.19  0.19  0.15 0.12  0.01
Crit Volume:        142           80                           331   230
Crit Moves:        ****         ****                          ****  ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #10 Main St./SR 160 NB Ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.645
Loss Time (sec):       8 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        48                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  0  2    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      90    0  1160     0    0     0     0  730    50    60  820     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   90    0  1160     0    0     0     0  730    50    60  820     0
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    1    0    75     0    0     0     0   23     0     2   70     0
Initial Fut:   91    0  1235     0    0     0     0  753    50    62  890     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    91    0  1235     0    0     0     0  753    50    62  890     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   91    0  1235     0    0     0     0  753    50    62  890     0
RTOR Reduct:    0    0    62     0    0     0     0    0     0     0    0     0
RTOR Vol:      91    0  1173     0    0     0     0  753    50    62  890     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   91    0  1173     0    0     0     0  753    50    62  890     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  0.91  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.00  2.00  0.00 0.00  0.00  0.00 1.88  0.12  1.00 2.00  0.00
Final Sat.:  1720    0  3127     0    0     0     0 3226   214  1720 3440     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.00  0.38  0.00 0.00  0.00  0.00 0.23  0.23  0.04 0.26  0.00
Crit Volume:             587          0                      402    62
Crit Moves:             ****                                ****  ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #11 Main St./Bridgehead Rd./Neroly Rd.
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.848
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  D
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected         Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  1  0  0  1    1  0  1  1  0    1  0  3  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 23 Apr 2002 << 430-530
Base Vol:     220  100    60   250   90    70    90 1410   390    30  590   150
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  220  100    60   250   90    70    90 1410   390    30  590   150
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:   -1    0    11     8    0     0     0   96     2     9   73     4
Initial Fut:  219  100    71   258   90    70    90 1506   392    39  663   154
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   219  100    71   258   90    70    90 1506   392    39  663   154
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  219  100    71   258   90    70    90 1506   392    39  663   154
RTOR Reduct:    0    0     0     0    0    70     0    0     0     0    0   142
RTOR Vol:     219  100    71   258   90     0    90 1506   392    39  663    12
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  219  100    71   258   90     0    90 1506   392    39  663    12
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.58  0.42  1.48 0.52  1.00  1.00 1.59  0.41  1.00 3.00  1.00
Final Sat.:  1650  965   685  2224  853  1650  1650 2618   682  1650 4950  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.10  0.10  0.12 0.11  0.00  0.05 0.58  0.58  0.02 0.13  0.01
Crit Volume:  219              174                   949          39
Crit Moves:  ****             ****                  ****        ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #13 Main St./Live Oak Ln./Proj Drwy
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.584
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        55                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  0  1    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 23 Apr 2002 << 430-530
Base Vol:      50    0    40     0    0     0     0 1650    70    20  720     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   50    0    40     0    0     0     0 1650    70    20  720     0
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    1    0    15     0    0     0     0  115    -1    16   86     0
Initial Fut:   51    0    55     0    0     0     0 1765    69    36  806     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    51    0    55     0    0     0     0 1765    69    36  806     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   51    0    55     0    0     0     0 1765    69    36  806     0
RTOR Reduct:    0    0    36     0    0     0     0    0     0     0    0     0
RTOR Vol:      51    0    19     0    0     0     0 1765    69    36  806     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   51    0    19     0    0     0     0 1765    69    36  806     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.00  1.00  0.00 0.00  0.00  0.00 1.92  0.08  1.00 2.00  0.00
Final Sat.:  1720    0  1720     0    0     0     0 3311   129  1720 3440     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.00  0.01  0.00 0.00  0.00  0.00 0.53  0.53  0.02 0.23  0.00
Crit Volume:   51                     0              917          36
Crit Moves:  ****                                   ****        ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 PM Peak Hour
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                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #14 Main St./Big Break Rd.
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.594
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        56                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    0  1  0  0  1    1  0  2  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 23 Apr 2002 << 430-530
Base Vol:      70   60    90    40   40   120   270 1250   170    70  550    60
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   70   60    90    40   40   120   270 1250   170    70  550    60
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     1    0     9    11  271     0     0  191     2
Initial Fut:   70   60    90    41   40   129   281 1521   170    70  741    62
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    70   60    90    41   40   129   281 1521   170    70  741    62
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   70   60    90    41   40   129   281 1521   170    70  741    62
RTOR Reduct:    0    0     0     0    0   129     0    0    70     0    0    41
RTOR Vol:      70   60    90    41   40     0   281 1521   100    70  741    21
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   70   60    90    41   40     0   281 1521   100    70  741    21
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.40  0.60  0.51 0.49  1.00  1.00 2.00  1.00  1.00 2.00  1.00
Final Sat.:  1720  688  1032   871  849  1720  1720 3440  1720  1720 3440  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.04 0.09  0.09  0.05 0.05  0.00  0.16 0.44  0.06  0.04 0.22  0.01
Crit Volume:       150          41                   761          70
Crit Moves:       ****        ****                  ****        ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #17 Oakley Rd./Empire Ave.
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):        0.509
Loss Time (sec):      16 (Y+R=4.0 sec) Average Delay (sec/veh):    xxxxxx
Optimal Cycle:        58              Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  1  1  0   1  0  1  0  1   1  1  0  0  1   0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 24 Apr 2002 << 445-545
Base Vol:     140  290    10  140  390    70  110   40   200   50   40    60
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  140  290    10  140  390    70  110   40   200   50   40    60
Added Vol:      0    0     0    0    0     0    0    0     0    0    0     0
PasserByVol:   -1  118     0    0  138     2    2    0     0    0    0     0
Initial Fut:  139  408    10  140  528    72  112   40   200   50   40    60
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:   139  408    10  140  528    72  112   40   200   50   40    60
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  139  408    10  140  528    72  112   40   200   50   40    60
RTOR Reduct:    0    0     0    0    0    62    0    0   139    0    0    60
RTOR Vol:     139  408    10  140  528    10  112   40    61   50   40     0
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:  139  408    10  140  528    10  112   40    61   50   40     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650 1650 1650  1650 1650 1650  1650 1650 1650  1650
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 0.91 1.00  1.00 1.00 1.00  1.00
Lanes:       1.00 1.95  0.05 1.00 1.00  1.00 1.47 0.53  1.00 0.56 0.44  1.00
Final Sat.:  1650 3221    79 1650 1650  1650 2210  868  1650  917  733  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.13  0.13 0.08 0.32  0.01 0.05 0.05  0.04 0.05 0.05  0.00
Crit Volume:  139                  528         76                   90
Crit Moves:  ****                 ****       ****                 ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #18 Empire Ave./Main St.
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.565
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       65                 Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        2  0  1  0  1    0  1  0  0  1    1  0  2  0  1    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 24 Apr 2002 << 430-530
Base Vol:     200   30   230    20   20    20    50  920   390   190  460    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  200   30   230    20   20    20    50  920   390   190  460    10
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:  120    0     0    -1    0     1     1  140   141    -2  114    -1
Initial Fut:  320   30   230    19   20    21    51 1060   531   188  574     9
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   320   30   230    19   20    21    51 1060   531   188  574     9
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  320   30   230    19   20    21    51 1060   531   188  574     9
RTOR Reduct:    0    0   188     0    0    21     0    0   176     0    0     0
RTOR Vol:     320   30    42    19   20     0    51 1060   355   188  574     9
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  320   30    42    19   20     0    51 1060   355   188  574     9
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.00  1.00  0.49 0.51  1.00  1.00 2.00  1.00  1.00 1.97  0.03
Final Sat.:  3000 1650  1650   804  846  1650  1650 3300  1650  1650 3249    51
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.11 0.02  0.03  0.02 0.02  0.00  0.03 0.32  0.22  0.11 0.18  0.18
Crit Volume:  160                    39              530         188
Crit Moves:  ****                  ****             ****        ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                    River Oaks Crossing Specific Plan EIR
                        Existing + Approved Scenario
                               PM Peak Hour
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                     Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #19 Main/Vintage
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.438
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        41                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  0  0  0   1  0  0  0  1   1  0  2  0  0   0  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0  180    0   120  180  920     0     0  510   170
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0  180    0   120  180  920     0     0  510   170
Added Vol:      0    0     0    0    0     0    0    0     0     0    0     0
PasserByVol:    0    0     0   -2    0     0    0  140     0     0  114    -2
Initial Fut:    0    0     0  178    0   120  180 1060     0     0  624   168
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0  178    0   120  180 1060     0     0  624   168
Reduct Vol:     0    0     0    0    0     0    0    0     0     0    0     0
Reduced Vol:    0    0     0  178    0   120  180 1060     0     0  624   168
RTOR Reduct:    0    0     0    0    0   120    0    0     0     0    0     0
RTOR Vol:       0    0     0  178    0     0  180 1060     0     0  624   168
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0  178    0     0  180 1060     0     0  624   168
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720 1720 1720  1720 1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00 1.00 0.00  1.00 1.00 2.00  0.00  0.00 1.58  0.42
Final Sat.:     0    0     0 1720    0  1720 1720 3440     0     0 2710   730
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00 0.10 0.00  0.00 0.10 0.31  0.00  0.00 0.23  0.23
Crit Volume:         0         178              180                   396
Crit Moves:                   ****             ****                  ****
********************************************************************************
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                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 PM Peak Hour
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                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #20 Main/O'Hara
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):         0.716
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        66              Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    0  0  1! 0  0    1  0  1  0  1    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     130    0    50     1    0     1     5  930   200    20  580     5
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  130    0    50     1    0     1     5  930   200    20  580     5
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:   13    0    -2     0    0     0     0  136     2     1   99     0
Initial Fut:  143    0    48     1    0     1     5 1066   202    21  679     5
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   143    0    48     1    0     1     5 1066   202    21  679     5
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  143    0    48     1    0     1     5 1066   202    21  679     5
RTOR Reduct:    0    0     0     0    0     0     0    0   143     0    0     0
RTOR Vol:     143    0    48     1    0     1     5 1066    59    21  679     5
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  143    0    48     1    0     1     5 1066    59    21  679     5
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.00  1.00  0.50 0.00  0.50  1.00 1.00  1.00  1.00 0.99  0.01
Final Sat.:  1720    0  1720   860    0   860  1720 1720  1720  1720 1707    13
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.00  0.03  0.00 0.00  0.00  0.00 0.62  0.03  0.01 0.40  0.40
Crit Volume:  143                           2       1066          21
Crit Moves:  ****                        ****       ****        ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #21 Empire/Cypress
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.375
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        36               Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1  1  0    1  0  2  0  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  340   160   190  460     0     0    0     0   120    0   160
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  340   160   190  460     0     0    0     0   120    0   160
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0   89     0    42   81     0     0    0     0    -2    0    24
Initial Fut:    0  429   160   232  541     0     0    0     0   118    0   184
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  429   160   232  541     0     0    0     0   118    0   184
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  429   160   232  541     0     0    0     0   118    0   184
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0   184
RTOR Vol:       0  429   160   232  541     0     0    0     0   118    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0  429   160   232  541     0     0    0     0   118    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.46  0.54  1.00 2.00  0.00  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:     0 2506   934  1720 3440     0     0    0     0  1720    0  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.17  0.17  0.13 0.16  0.00  0.00 0.00  0.00  0.07 0.00  0.00
Crit Volume:       295         232                     0         118
Crit Moves:       ****        ****                              ****
********************************************************************************
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-------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                PM Peak Hour
-------------------------------------------------------------------------------

                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #22 Main/Cypress
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):        0.420
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):     xxxxxx
Optimal Cycle:        39               Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  2  0  1    2  0  1  1  0    1  0  1  1  0    1  0  0  1  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      30  310   100   470  420    50    30  130    60   100  190   250
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   30  310   100   470  420    50    30  130    60   100  190   250
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:   -1   52    -2    55   65     2     1    4     1     1    2    39
Initial Fut:   29  362    98   525  485    52    31  134    61   101  192   289
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    29  362    98   525  485    52    31  134    61   101  192   289
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   29  362    98   525  485    52    31  134    61   101  192   289
RTOR Reduct:    0    0    98     0    0     0     0    0     0     0    0   289
RTOR Vol:      29  362     0   525  485    52    31  134    61   101  192     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   29  362     0   525  485    52    31  134    61   101  192     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.91
Lanes:       1.00 2.00  1.00  2.00 1.81  0.19  1.00 1.37  0.63  1.00 1.00  1.00
Final Sat.:  1650 3300  1650  3000 2980   320  1650 2268  1032  1650 1650  1500
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.11  0.00  0.18 0.16  0.16  0.02 0.06  0.06  0.06 0.12  0.00
Crit Volume:       181         263               31                     192
Crit Moves:       ****        ****              ****                   ****
********************************************************************************
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-------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 PM Peak Hour
-------------------------------------------------------------------------------

                      Level Of Service Computation Report
                   CCTALOS Method (Future Volume Alternative)
*******************************************************************************
Intersection #24 Live Oak/Laurel
*******************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):        0.335
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        34              Level Of Service:                 A
*******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  0  0  0  0    1  0  0  0  1    2  0  3  0  0    0  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   90    0   190   230  900     0     0  980    50
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   90    0   190   230  900     0     0  980    50
Added Vol:      0    0     0    0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0    2    0     2     2   29     0     0   35     3
Initial Fut:    0    0     0   92    0   192   232  929     0     0 1015    53
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   92    0   192   232  929     0     0 1015    53
Reduct Vol:     0    0     0    0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   92    0   192   232  929     0     0 1015    53
RTOR Reduct:    0    0     0    0    0   128     0    0     0     0    0     0
RTOR Vol:       0    0     0   92    0    64   232  929     0     0 1015    53
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0   92    0    64   232  929     0     0 1015    53
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  1.00 0.00  1.00  2.00 3.00  0.00  0.00 2.85  0.15
Final Sat.:     0    0     0  1720    0  1720  3127 5160     0     0 4904   256
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.05 0.00  0.04  0.07 0.18  0.00  0.00 0.21  0.21
Crit Volume:        0           92               116                   356
Crit Moves:                   ****              ****                  ****
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                     River Oaks Crossing Specific Plan EIR
                         Existing + Approved Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #25 Empire/Laurel
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.654
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        66                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  1  0    1  0  1  1  0    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     150  410    90   190  270   240   200  760    90    80  640    90
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  150  410    90   190  270   240   200  760    90    80  640    90
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:   -1   19    -1    15   30    38    35   -2    -2     0    1    28
Initial Fut:  149  429    89   205  300   278   235  758    88    80  641   118
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   149  429    89   205  300   278   235  758    88    80  641   118
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  149  429    89   205  300   278   235  758    88    80  641   118
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     149  429    89   205  300   278   235  758    88    80  641   118
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  149  429    89   205  300   278   235  758    88    80  641   118
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.66  0.34  1.00 1.04  0.96  1.00 1.79  0.21  1.00 1.69  0.31
Final Sat.:  1650 2733   567  1650 1713  1587  1650 2957   343  1650 2787   513
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.09 0.16  0.16  0.12 0.18  0.18  0.14 0.26  0.26  0.05 0.23  0.23
Crit Volume:       259         205              235                   380
Crit Moves:       ****        ****             ****                  ****
********************************************************************************
```

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱			↰↑	↱		↰↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.97		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.97	1.00
Satd. Flow (prot)	1770	3423		1770	3529			1777	1583		1803	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.72	1.00		0.83	1.00
Satd. Flow (perm)	1770	3423		1770	3529			1346	1583		1552	1583
Volume (vph)	20	120	34	10	511	10	135	5	20	10	5	20
Peak-hour factor, 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
Adj. Flow (vph)	21	125	35	10	532	10	141	5	21	10	5	21
RTOR Reduction (vph)	0	16	0	0	1	0	0	0	16	0	0	16
Lane Group Flow (vph)	21	144	0	10	541	0	0	146	5	0	15	5
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	1.4	27.8		1.3	27.7			11.3	11.3		11.3	11.3
Effective Green, g (s)	1.4	27.8		1.3	27.7			11.3	11.3		11.3	11.3
Actuated g/C Ratio	0.03	0.53		0.02	0.53			0.22	0.22		0.22	0.22
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	47	1816		44	1866			290	341		335	341
v/s Ratio Prot	c0.01	0.04		0.01	c0.15							
v/s Ratio Perm								c0.11	0.00		0.01	0.00
v/c Ratio	0.45	0.08		0.23	0.29			0.50	0.01		0.04	0.01
Uniform Delay, d1	25.1	6.0		25.1	6.9			18.1	16.2		16.3	16.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	6.6	0.0		2.6	0.1			1.4	0.0		0.1	0.0
Delay (s)	31.7	6.0		27.7	7.0			19.5	16.2		16.3	16.2
Level of Service	C	A		C	A			B	B		B	B
Approach Delay (s)		9.0			7.3			19.0			16.2	
Approach LOS		A			A			B			B	

Intersection Summary

HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱		↰	↑	Y	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	159	20	14	468	79	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	173	22	15	509	86	26
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			195		723	184
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			195		723	184
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		78	97
cM capacity (veh/h)			1379		389	859

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	195	15	509	112
Volume Left	0	15	0	86
Volume Right	22	0	0	26
cSH	1700	1379	1700	446
Volume to Capacity	0.11	0.01	0.30	0.25
Queue Length 95th (ft)	0	1	0	25
Control Delay (s)	0.0	7.6	0.0	15.8
Lane LOS		A		C
Approach Delay (s)	0.0	0.2		15.8
Approach LOS				C

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↰	↑↑					↰		↱
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	163	40	10	364	0	0	0	0	79	0	158
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	168	41	10	375	0	0	0	0	81	0	163
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	375			209			397	585	189	585	605	188
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	375			209			397	585	189	585	605	188
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	79	100	80
cM capacity (veh/h)	1180			1359			428	418	821	392	407	822

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	209	10	188	188	81	163
Volume Left	0	10	0	0	81	0
Volume Right	41	0	0	0	0	163
cSH	1700	1359	1700	1700	392	822
Volume to Capacity	0.12	0.01	0.11	0.11	0.21	0.20
Queue Length 95th (ft)	0	1	0	0	19	18
Control Delay (s)	0.0	7.7	0.0	0.0	16.6	10.5
Lane LOS		A			C	B
Approach Delay (s)	0.0	0.2			12.5	
Approach LOS					B	

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		

4: Wilbur Avenue & SR 160 NB On

2/4/2008

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑			↑↱		↰		↱			
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	30	212	0	0	335	135	39	0	20	0	0	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	32	226	0	0	356	144	41	0	21	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	500			226			468	789	113	605	718	250
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	500			226			468	789	113	605	718	250
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			91	100	98	100	100	100
cM capacity (veh/h)	1060			1340			468	312	919	364	343	750

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2
Volume Total	32	113	113	238	262	41	21
Volume Left	32	0	0	0	0	41	0
Volume Right	0	0	0	0	144	0	21
cSH	1060	1700	1700	1700	1700	468	919
Volume to Capacity	0.03	0.07	0.07	0.14	0.15	0.09	0.02
Queue Length 95th (ft)	2	0	0	0	0	7	2
Control Delay (s)	8.5	0.0	0.0	0.0	0.0	13.4	9.0
Lane LOS	A					B	A
Approach Delay (s)	1.1			0.0		11.9	
Approach LOS						B	

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		

5: Wilbur Avenue & Bridgehead Road

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	30	0	202	0	0	0	450	30	0	0	30	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	0	220	0	0	0	489	33	0	0	33	22

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	33	220	0	522	54
Volume Left (vph)	33	0	0	489	0
Volume Right (vph)	0	220	0	0	22
Hadj (s)	0.53	-0.67	0.00	0.22	-0.21
Departure Headway (s)	6.5	5.3	5.9	4.9	5.1
Degree Utilization, x	0.06	0.32	0.00	0.71	0.08
Capacity (veh/h)	515	631	539	716	651
Control Delay (s)	8.7	9.6	8.9	18.9	8.5
Approach Delay (s)	9.5		0.0	18.9	8.5
Approach LOS	A		A	C	A

Intersection Summary			
Delay	15.3		
HCM Level of Service	C		
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑	↱	↰	↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3378		1770	3505		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3378		1770	3505		1770	1863	1583	1770	1863	1583
Volume (vph)	10	161	70	189	406	28	194	105	159	40	70	40
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	179	78	210	451	31	216	117	177	44	78	44
RTOR Reduction (vph)	0	50	0	0	4	0	0	0	142	0	0	38
Lane Group Flow (vph)	11	207	0	210	478	0	216	117	35	44	78	6
Turn Type	Prot			Prot			Split		Perm	Split		Perm
Protected Phases	1	6		5	2		8	8		4	4	
Permitted Phases									8			4
Actuated Green, G (s)	0.3	16.0		9.0	25.2		10.4	10.4	10.4	6.4	6.4	6.4
Effective Green, g (s)	1.3	18.0		10.5	27.2		11.9	11.9	11.9	7.9	7.9	7.9
Actuated g/C Ratio	0.02	0.30		0.17	0.45		0.20	0.20	0.20	0.13	0.13	0.13
Clearance Time (s)	4.0	5.0		4.5	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	38	1008		308	1581		349	368	312	232	244	207
v/s Ratio Prot	0.01	0.06		c0.12	c0.14		c0.12	0.06		0.02	c0.04	
v/s Ratio Perm									0.02			0.00
v/c Ratio	0.29	0.21		0.68	0.30		0.62	0.32	0.11	0.19	0.32	0.03
Uniform Delay, d1	29.0	15.8		23.3	10.5		22.1	20.7	19.9	23.3	23.8	22.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.2	0.1		6.1	0.1		3.3	0.5	0.2	0.4	0.8	0.1
Delay (s)	33.2	15.9		29.4	10.6		25.4	21.2	20.0	23.7	24.5	22.9
Level of Service	C	B		C	B		C	C	C	C	C	C
Approach Delay (s)		16.6			16.3			22.6			23.9	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	19.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	60.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

7: E 18th Street & Viera Avenue

2/4/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↱			↰	↱		✥	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.96			1.00	0.85		0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.99	
Satd. Flow (prot)	1770	3539	1583	1770	1791			1791	1583		1704	
Flt Permitted	0.34	1.00	1.00	0.59	1.00			0.78	1.00		0.93	
Satd. Flow (perm)	634	3539	1583	1099	1791			1444	1583		1594	
Volume (vph)	69	236	40	10	417	144	120	30	10	18	20	49
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	77	262	44	11	463	160	133	33	11	20	22	54
RTOR Reduction (vph)	0	0	16	0	17	0	0	0	8	0	41	0
Lane Group Flow (vph)	77	262	28	11	606	0	0	166	3	0	55	0
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)	30.0	30.0	30.0	30.0	30.0			10.7	10.7		10.7	
Effective Green, g (s)	31.0	31.0	31.0	31.0	31.0			11.7	11.7		11.7	
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.64			0.24	0.24		0.24	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	404	2253	1008	700	1140			347	380		383	
v/s Ratio Prot		0.07			c0.34							
v/s Ratio Perm	0.12		0.02	0.01				c0.11	0.00		0.03	
v/c Ratio	0.19	0.12	0.03	0.02	0.53			0.48	0.01		0.14	
Uniform Delay, d1	3.7	3.5	3.3	3.2	4.9			15.9	14.1		14.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.2	0.0	0.0	0.0	0.5			1.0	0.0		0.2	
Delay (s)	3.9	3.5	3.3	3.3	5.3			16.9	14.1		14.7	
Level of Service	A	A	A	A	A			B	B		B	
Approach Delay (s)		3.6			5.3			16.7			14.7	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	7.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	48.7	Sum of lost time (s)	6.0
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

8: E 18th Street & Phillips Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↱		↰↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		0.97	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.93		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3529		1770	3539	1583	1770	1723		3433	1653	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3529		1770	3539	1583	1770	1723		3433	1653	
Volume (vph)	40	284	5	9	568	30	10	10	10	20	10	30
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.92	0.90	0.92	0.90	0.92	0.92	0.92
Adj. Flow (vph)	43	316	6	10	631	33	11	11	11	22	11	33
RTOR Reduction (vph)	0	1	0	0	0	23	0	9	0	0	28	0
Lane Group Flow (vph)	43	321	0	10	631	10	11	13	0	22	16	0
Turn Type	Prot			Prot		Perm	Split			Split		
Protected Phases	5	2		1	6		7	7		3	3	
Permitted Phases						6						
Actuated Green, G (s)	1.8	14.9		0.6	13.7	13.7	6.3	6.3		6.5	6.5	
Effective Green, g (s)	1.8	14.9		0.6	13.7	13.7	6.3	6.3		6.5	6.5	
Actuated g/C Ratio	0.04	0.34		0.01	0.31	0.31	0.14	0.14		0.15	0.15	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	72	1187		24	1094	490	252	245		504	243	
v/s Ratio Prot	c0.02	0.09		0.01	c0.18		0.01	c0.01		0.01	c0.01	
v/s Ratio Perm						0.01						
v/c Ratio	0.60	0.27		0.42	0.58	0.02	0.04	0.05		0.04	0.07	
Uniform Delay, d1	20.9	10.7		21.7	12.9	10.6	16.4	16.4		16.2	16.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	12.6	0.1		11.3	0.7	0.0	0.1	0.1		0.0	0.1	
Delay (s)	33.5	10.9		33.0	13.6	10.7	16.5	16.5		16.3	16.4	
Level of Service	C	B		C	B	B	B	B		B	B	
Approach Delay (s)		13.5			13.7			16.5			16.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	44.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

9: E 18th Street & SR 160 SB Off

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰↰	↑↑	↱	↰	↱		↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		0.97	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.87		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	3406		3335	3438	1538	1719	1572		1719	1674	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.73	1.00		0.67	1.00	
Satd. Flow (perm)	1719	3406		3335	3438	1538	1320	1572		1206	1674	
Volume (vph)	10	294	20	927	530	60	30	10	71	30	20	20
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	11	313	21	986	564	64	32	11	76	32	21	21
RTOR Reduction (vph)	0	4	0	0	0	12	0	71	0	0	20	0
Lane Group Flow (vph)	11	330	0	986	564	52	32	16	0	32	22	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8			4		
Actuated Green, G (s)	0.8	38.8		42.2	80.2	80.2	6.0	6.0		6.0	6.0	
Effective Green, g (s)	0.8	39.8		42.2	81.2	81.2	6.0	6.0		6.0	6.0	
Actuated g/C Ratio	0.01	0.40		0.42	0.81	0.81	0.06	0.06		0.06	0.06	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	4.0	4.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	14	1356		1407	2792	1249	79	94		72	100	
v/s Ratio Prot	c0.01	c0.10		c0.30	0.16			0.01			0.01	
v/s Ratio Perm						0.03	0.02			c0.03		
v/c Ratio	0.79	0.24		0.70	0.20	0.04	0.41	0.17		0.44	0.22	
Uniform Delay, d1	49.5	20.1		23.7	2.1	1.8	45.3	44.6		45.4	44.8	
Progression Factor	1.00	1.00		0.52	0.28	0.05	1.00	1.00		1.00	1.00	
Incremental Delay, d2	130.6	0.4		1.4	0.1	0.1	1.2	0.3		1.6	0.4	
Delay (s)	180.1	20.5		13.7	0.7	0.1	46.5	44.9		47.0	45.2	
Level of Service	F	C		B	A	A	D	D		D	D	
Approach Delay (s)		25.6			8.6			45.4			46.0	
Approach LOS		C			A			D			D	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

10: Main Street & SR 160 NB On

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱		↰	↑↑	↰	↱↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	0.88
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3386		1719	3438	1719	2707
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3386		1719	3438	1719	2707
Volume (vph)	356	40	69	1397	90	684
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	391	44	76	1535	99	752
RTOR Reduction (vph)	6	0	0	0	0	359
Lane Group Flow (vph)	429	0	76	1535	99	393
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type			Prot			pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases						8
Actuated Green, G (s)	53.4		24.0	82.4	8.6	32.6
Effective Green, g (s)	54.4		25.0	83.4	8.6	33.6
Actuated g/C Ratio	0.54		0.25	0.83	0.09	0.34
Clearance Time (s)	5.0		5.0	5.0	4.0	5.0
Vehicle Extension (s)	4.0		3.0	4.0	2.0	3.0
Lane Grp Cap (vph)	1842		430	2867	148	1018
v/s Ratio Prot	0.13		0.04	c0.45	c0.06	0.10
v/s Ratio Perm						0.05
v/c Ratio	0.23		0.18	0.54	0.67	0.39
Uniform Delay, d1	11.9		29.4	2.5	44.3	25.3
Progression Factor	0.16		1.17	0.79	1.00	1.00
Incremental Delay, d2	0.3		0.2	0.6	8.6	0.2
Delay (s)	2.2		34.7	2.6	52.9	25.6
Level of Service	A		C	A	D	C
Approach Delay (s)	2.2			4.1	28.8	
Approach LOS	A			A	C	

Intersection Summary			
HCM Average Control Delay	11.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑↑	↱	↰↰	↱		↰	↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.91	1.00	0.97	1.00		0.95	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	1.00
Satd. Flow (prot)	1719	3334		1719	4940	1538	3335	1736		1633	1698	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.99	1.00
Satd. Flow (perm)	1719	3334		1719	4940	1538	3335	1736		1633	1698	1538
Volume (vph)	108	742	189	10	1145	354	200	135	51	116	73	120
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	807	205	11	1245	385	217	147	55	126	79	130
RTOR Reduction (vph)	0	15	0	0	0	201	0	17	0	0	0	114
Lane Group Flow (vph)	117	997	0	11	1245	184	217	185	0	100	105	16
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		8	8		7	7	
Permitted Phases						6						7
Actuated Green, G (s)	10.0	55.7		1.2	46.9	46.9	14.1	14.1		12.0	12.0	12.0
Effective Green, g (s)	10.0	56.7		1.2	47.9	47.9	14.1	14.1		12.0	12.0	12.0
Actuated g/C Ratio	0.10	0.57		0.01	0.48	0.48	0.14	0.14		0.12	0.12	0.12
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	172	1890		21	2366	737	470	245		196	204	185
v/s Ratio Prot	c0.07	c0.30		0.01	0.25		0.07	c0.11		0.06	c0.06	
v/s Ratio Perm						0.12						0.01
v/c Ratio	0.68	0.53		0.52	0.53	0.25	0.46	0.75		0.51	0.51	0.08
Uniform Delay, d1	43.5	13.4		49.1	18.1	15.4	39.5	41.3		41.2	41.3	39.1
Progression Factor	0.91	0.85		1.24	0.62	0.71	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.8	1.0		8.3	0.7	0.6	0.3	11.1		0.9	0.9	0.1
Delay (s)	47.3	12.4		69.4	12.0	11.6	39.7	52.4		42.2	42.2	39.2
Level of Service	D	B		E	B	B	D	D		D	D	D
Approach Delay (s)		16.0			12.3			45.8			41.0	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	20.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↑	↱	↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3432		1719	3438	1583	1719	1863	1538	1770	1603	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3432		1719	3438	1583	1719	1863	1538	1770	1603	
Volume (vph)	45	853	10	10	1464	54	10	3	10	50	3	36
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.92	0.90	0.92	0.90	0.92	0.92	0.92
Adj. Flow (vph)	49	948	11	11	1627	59	11	3	11	54	3	39
RTOR Reduction (vph)	0	0	0	0	0	15	0	0	10	0	37	0
Lane Group Flow (vph)	49	959	0	11	1627	44	11	3	1	54	5	0
Heavy Vehicles (%)	2%	5%	5%	5%	5%	2%	5%	2%	5%	2%	2%	2%
Turn Type	Prot			Prot		Perm	Prot		custom	Prot		
Protected Phases	5	2		1	6		3			7		
Permitted Phases						6		8	3		4	
Actuated Green, G (s)	5.5	70.3		1.5	66.3	66.3	4.5	1.2	4.5	9.0	4.7	
Effective Green, g (s)	5.5	71.3		1.5	67.3	67.3	5.5	1.2	5.5	10.0	5.7	
Actuated g/C Ratio	0.06	0.71		0.02	0.67	0.67	0.06	0.01	0.06	0.10	0.06	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	5.0	4.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	97	2447		26	2314	1065	95	22	85	177	91	
v/s Ratio Prot	0.03	c0.28		0.01	c0.47		0.01			c0.03		
v/s Ratio Perm						0.03		c0.00	0.00		0.00	
v/c Ratio	0.51	0.39		0.42	0.70	0.04	0.12	0.14	0.01	0.31	0.06	
Uniform Delay, d1	45.9	5.7		48.8	10.1	5.5	44.9	48.9	44.7	41.8	44.6	
Progression Factor	0.92	0.84		1.31	0.11	0.13	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.6	0.4		9.1	1.5	0.1	0.5	2.8	0.0	1.0	0.3	
Delay (s)	45.8	5.2		72.9	2.7	0.8	45.5	51.7	44.7	42.8	44.9	
Level of Service	D	A		E	A	A	D	D	D	D	D	
Approach Delay (s)		7.2			3.1			45.9			43.7	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM Average Control Delay	6.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

13: Main Street & Live Oak Ave

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↑↱		↰↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3408		1719	3438	1583	1719	3416		3433	3444	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3408		1719	3438	1583	1719	3416		3433	3444	
Volume (vph)	44	838	51	39	1433	66	102	167	40	56	134	29
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.92	0.90	0.92	0.90	0.92	0.92	0.92
Adj. Flow (vph)	48	931	57	43	1592	72	113	182	44	61	146	32
RTOR Reduction (vph)	0	3	0	0	0	28	0	23	0	0	20	0
Lane Group Flow (vph)	48	985	0	43	1592	44	113	203	0	61	158	0
Heavy Vehicles (%)	2%	5%	5%	5%	5%	2%	5%	2%	5%	2%	2%	2%
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases					6	6						
Actuated Green, G (s)	4.0	56.3		3.6	55.9	55.9	12.4	19.1		4.0	9.7	
Effective Green, g (s)	4.0	57.3		3.6	56.9	56.9	13.4	19.1		4.0	9.7	
Actuated g/C Ratio	0.04	0.57		0.04	0.57	0.57	0.13	0.19		0.04	0.10	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	5.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	71	1953		62	1956	901	230	652		137	334	
v/s Ratio Prot	0.03	c0.29		0.03	c0.46		c0.07	0.06		0.02	c0.05	
v/s Ratio Perm						0.03						
v/c Ratio	0.68	0.50		0.69	0.81	0.05	0.49	0.31		0.45	0.47	
Uniform Delay, d1	47.4	12.8		47.7	17.3	9.6	40.1	34.8		46.9	42.7	
Progression Factor	0.81	0.75		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	22.0	0.9		28.5	3.8	0.1	1.7	0.3		2.3	1.1	
Delay (s)	60.5	10.6		76.2	21.1	9.7	41.8	35.1		49.2	43.8	
Level of Service	E	B		E	C	A	D	D		D	D	
Approach Delay (s)		12.9			22.0			37.3			45.2	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM Average Control Delay	22.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

14: Main Street & Big Break Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↱			↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			0.97	1.00
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1719	1647			1756	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.60	1.00			0.78	1.00
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1077	1647			1414	1538
Volume (vph)	86	833	30	50	1284	62	60	20	30	62	40	212
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	96	926	33	56	1427	69	67	22	33	69	44	236
RTOR Reduction (vph)	0	0	11	0	0	23	0	28	0	0	0	204
Lane Group Flow (vph)	96	926	22	56	1427	46	67	27	0	0	113	32
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		custom	Prot		custom	Perm			Perm		Perm
Protected Phases	5			1				3			7	
Permitted Phases		2	2		6	6	3			7		7
Actuated Green, G (s)	11.2	66.6	66.6	6.7	62.1	62.1	12.7	12.7			12.7	12.7
Effective Green, g (s)	11.2	67.6	67.6	6.7	63.1	63.1	13.7	13.7			13.7	13.7
Actuated g/C Ratio	0.11	0.68	0.68	0.07	0.63	0.63	0.14	0.14			0.14	0.14
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	5.0	5.0			5.0	5.0
Vehicle Extension (s)	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)	193	2324	1040	115	2169	970	148	226			194	211
v/s Ratio Prot	c0.06			0.03				0.02				
v/s Ratio Perm		0.27	0.01		c0.42	0.03	0.06				c0.08	0.02
v/c Ratio	0.50	0.40	0.02	0.49	0.66	0.05	0.45	0.12			0.58	0.15
Uniform Delay, d1	41.8	7.2	5.3	45.0	11.6	7.0	39.7	37.8			40.5	38.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	2.0	0.5	0.0	1.2	1.6	0.1	0.8	0.1			2.9	0.1
Delay (s)	43.8	7.7	5.4	46.2	13.2	7.1	40.5	37.9			43.3	38.2
Level of Service	D	A	A	D	B	A	D	D			D	D
Approach Delay (s)		10.9			14.1			39.3			39.8	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	16.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	37	20	10	78	116	60	284	20	53	150	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	11	41	22	11	86	127	66	312	22	58	165	11

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	74	224	400	234
Volume Left (vph)	11	11	66	58
Volume Right (vph)	22	127	22	11
Hadj (s)	-0.12	-0.30	0.03	0.06
Departure Headway (s)	5.9	5.4	5.2	5.4
Degree Utilization, x	0.12	0.34	0.57	0.35
Capacity (veh/h)	505	599	662	619
Control Delay (s)	9.7	11.2	14.9	11.3
Approach Delay (s)	9.7	11.2	14.9	11.3
Approach LOS	A	B	B	B

Intersection Summary			
Delay	12.7		
HCM Level of Service	B		
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	14	70	10	50	144	61	41	195	20	45	140	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	16	78	11	56	160	68	46	217	22	50	156	14

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	104	283	284	220
Volume Left (vph)	16	56	46	50
Volume Right (vph)	11	68	22	14
Hadj (s)	0.00	-0.07	0.02	0.04
Departure Headway (s)	5.8	5.4	5.4	5.5
Degree Utilization, x	0.17	0.43	0.43	0.34
Capacity (veh/h)	538	615	616	600
Control Delay (s)	10.0	12.4	12.4	11.3
Approach Delay (s)	10.0	12.4	12.4	11.3
Approach LOS	B	B	B	B

Intersection Summary			
Delay	11.9		
HCM Level of Service	B		
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↑	↱		↰↑	↱	↰	↑↱		↰	↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.95		1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00		0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1708	1583		1803	1583	1770	3525		1770	1863	1583
Flt Permitted	0.95	0.97	1.00		0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1708	1583		1803	1583	1770	3525		1770	1863	1583
Volume (vph)	60	10	145	20	10	20	214	356	10	40	284	62
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	11	158	22	11	22	233	387	11	43	309	67
RTOR Reduction (vph)	0	0	146	0	0	20	0	2	0	0	0	41
Lane Group Flow (vph)	37	39	12	0	33	2	233	396	0	43	309	26
Turn Type	Split		Perm	Split		Perm	Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	4.8	4.8	4.8		4.0	4.0	11.1	32.0		1.7	22.6	22.6
Effective Green, g (s)	4.8	4.8	4.8		5.0	5.0	12.1	33.0		2.7	23.6	23.6
Actuated g/C Ratio	0.08	0.08	0.08		0.08	0.08	0.20	0.54		0.04	0.38	0.38
Clearance Time (s)	4.0	4.0	4.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	131	133	124		147	129	348	1891		78	715	607
v/s Ratio Prot	0.02	c0.02			c0.02		c0.13	0.11		0.02	c0.17	
v/s Ratio Perm			0.01			0.00						0.02
v/c Ratio	0.28	0.29	0.10		0.22	0.01	0.67	0.21		0.55	0.43	0.04
Uniform Delay, d1	26.7	26.7	26.3		26.4	26.0	22.9	7.4		28.8	14.0	11.9
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.2	1.2	0.4		0.8	0.0	4.8	0.1		8.2	0.4	0.0
Delay (s)	27.9	28.0	26.7		27.2	26.0	27.7	7.5		37.0	14.4	11.9
Level of Service	C	C	C		C	C	C	A		D	B	B
Approach Delay (s)		27.1			26.7			14.9			16.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	61.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↱		↰↰	↑	↱		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.99	1.00
Satd. Flow (prot)	1719	3539	1538	1770	3534		3335	1810	1583		1799	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.99	1.00
Satd. Flow (perm)	1719	3539	1538	1770	3534		3335	1810	1583		1799	1538
Volume (vph)	20	742	203	132	929	10	328	10	99	20	51	39
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	824	226	147	1032	11	364	11	110	22	57	43
RTOR Reduction (vph)	0	0	142	0	1	0	0	0	86	0	0	41
Lane Group Flow (vph)	22	824	84	147	1042	0	364	11	24	0	79	2
Heavy Vehicles (%)	5%	2%	5%	2%	2%	2%	5%	5%	2%	2%	5%	5%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	1.3	21.4	21.4	5.0	25.1		12.1	12.1	12.1		2.8	2.8
Effective Green, g (s)	2.3	22.4	22.4	6.0	26.1		13.1	13.1	13.1		2.8	2.8
Actuated g/C Ratio	0.04	0.37	0.37	0.10	0.43		0.22	0.22	0.22		0.05	0.05
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	66	1315	571	176	1530		725	393	344		84	71
v/s Ratio Prot	0.01	0.23		c0.08	c0.29		c0.11	0.01			c0.04	
v/s Ratio Perm			0.05						0.02			0.00
v/c Ratio	0.33	0.63	0.15	0.84	0.68		0.50	0.03	0.07		0.94	0.03
Uniform Delay, d1	28.3	15.5	12.6	26.7	13.8		20.7	18.6	18.8		28.7	27.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.0	0.9	0.1	27.5	1.3		0.5	0.0	0.1		78.1	0.2
Delay (s)	31.2	16.5	12.7	54.2	15.0		21.3	18.6	18.8		106.8	27.6
Level of Service	C	B	B	D	B		C	B	B		F	C
Approach Delay (s)		16.0			19.9			20.7			78.9	
Approach LOS		B			B			C			E	

Intersection Summary			
HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	60.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

19: Main Street & Vintage Parkway

2/4/2008

	↗	→	←	↖	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↱		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3486		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3486		1770	1583
Volume (vph)	75	762	892	99	179	157
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	83	847	991	110	199	174
RTOR Reduction (vph)	0	0	11	0	0	136
Lane Group Flow (vph)	83	847	1090	0	199	38
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	2.8	29.3	22.5		10.7	10.7
Effective Green, g (s)	2.8	30.3	23.5		10.7	10.7
Actuated g/C Ratio	0.06	0.62	0.48		0.22	0.22
Clearance Time (s)	4.0	5.0	5.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	101	2188	1672		387	346
v/s Ratio Prot	c0.05	0.24	c0.31		c0.11	
v/s Ratio Perm						0.02
v/c Ratio	0.82	0.39	0.65		0.51	0.11
Uniform Delay, d1	22.9	4.7	9.7		16.9	15.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	39.3	0.1	0.9		1.2	0.1
Delay (s)	62.1	4.8	10.6		18.0	15.5
Level of Service	E	A	B		B	B
Approach Delay (s)		9.9	10.6		16.8	
Approach LOS		A	B		B	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	49.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↱			✥	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1861		1770	1583			1695	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.75	1.00			0.91	
Satd. Flow (perm)	1770	1863	1583	1770	1861		1399	1583			1580	
Volume (vph)	5	754	118	30	854	5	122	0	30	5	0	5
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.92	0.90	0.92	0.90	0.92	0.92	0.92
Adj. Flow (vph)	5	838	131	33	949	5	136	0	33	5	0	5
RTOR Reduction (vph)	0	0	44	0	0	0	0	28	0	0	4	0
Lane Group Flow (vph)	5	838	87	33	954	0	136	5	0	0	6	0
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)	0.9	50.1	50.1	1.8	51.0		11.8	11.8			12.3	
Effective Green, g (s)	0.9	51.1	51.1	1.8	52.0		12.3	12.3			12.3	
Actuated g/C Ratio	0.01	0.66	0.66	0.02	0.67		0.16	0.16			0.16	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		4.5	4.5			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	21	1233	1048	41	1254		223	252			252	
v/s Ratio Prot	0.00	0.45		c0.02	c0.51			0.00				
v/s Ratio Perm			0.05				c0.10				0.00	
v/c Ratio	0.24	0.68	0.08	0.80	0.76		0.61	0.02			0.02	
Uniform Delay, d1	37.8	8.0	4.7	37.5	8.4		30.2	27.4			27.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	5.8	1.5	0.0	69.0	2.8		4.7	0.0			0.0	
Delay (s)	43.6	9.5	4.7	106.5	11.2		34.9	27.4			27.4	
Level of Service	D	A	A	F	B		C	C			C	
Approach Delay (s)		9.1			14.4			33.4			27.4	
Approach LOS		A			B			C			C	

Intersection Summary			
HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	77.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.97		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3418		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3418		1770	3539
Volume (vph)	152	205	334	99	115	353
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	169	228	371	110	128	392
RTOR Reduction (vph)	0	180	41	0	0	0
Lane Group Flow (vph)	169	48	440	0	128	392
Turn Type		Perm			Prot	
Protected Phases	8		2		1	6
Permitted Phases		8				
Actuated Green, G (s)	8.8	8.8	17.2		4.5	25.7
Effective Green, g (s)	9.3	9.3	18.2		4.5	26.7
Actuated g/C Ratio	0.21	0.21	0.41		0.10	0.61
Clearance Time (s)	4.5	4.5	5.0		4.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	374	335	1414		181	2148
v/s Ratio Prot	c0.10		c0.13		c0.07	0.11
v/s Ratio Perm		0.03				
v/c Ratio	0.45	0.14	0.31		0.71	0.18
Uniform Delay, d1	15.1	14.1	8.7		19.1	3.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	0.2	0.1		11.9	0.0
Delay (s)	16.0	14.3	8.8		31.0	3.9
Level of Service	B	B	A		C	A
Approach Delay (s)	15.0		8.8			10.5
Approach LOS	B		A			B

Intersection Summary			
HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	44.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↱	↱	↰	↑↑	↱	↰↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	0.95	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.95		1.00	0.94	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3369		1770	1668	1504	1770	3539	1583	3433	3527	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3369		1770	1668	1504	1770	3539	1583	3433	3527	
Volume (vph)	39	128	60	100	150	382	30	462	110	357	419	10
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	43	142	67	111	167	424	33	513	122	397	466	11
RTOR Reduction (vph)	0	52	0	0	30	237	0	0	88	0	2	0
Lane Group Flow (vph)	43	157	0	111	240	84	33	513	34	397	475	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	1.9	13.5		4.5	16.1	16.1	1.6	17.2	17.2	10.4	26.0	
Effective Green, g (s)	1.9	13.5		4.5	16.1	16.1	1.6	17.2	17.2	10.4	26.0	
Actuated g/C Ratio	0.03	0.22		0.07	0.26	0.26	0.03	0.28	0.28	0.17	0.42	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	55	738		129	436	393	46	988	442	580	1489	
v/s Ratio Prot	0.02	0.05		c0.06	c0.14		0.02	c0.14		c0.12	0.13	
v/s Ratio Perm						0.06			0.02			
v/c Ratio	0.78	0.21		0.86	0.55	0.21	0.72	0.52	0.08	0.68	0.32	
Uniform Delay, d1	29.6	19.7		28.2	19.6	17.8	29.8	18.7	16.4	24.1	11.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	50.5	0.1		40.6	1.5	0.3	41.5	0.5	0.1	3.3	0.1	
Delay (s)	80.1	19.8		68.8	21.1	18.1	71.3	19.2	16.4	27.4	12.0	
Level of Service	F	B		E	C	B	E	B	B	C	B	
Approach Delay (s)		30.1			27.3			21.2			19.0	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↱			↰↑↱			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	31	191	74	70	212	115	106	148	50	167	62	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	34	208	80	76	230	125	115	161	54	182	67	22

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	138	184	191	240	330	271
Volume Left (vph)	34	0	76	0	115	182
Volume Right (vph)	0	80	0	125	54	22
Hadj (s)	0.16	-0.27	0.23	-0.33	0.01	0.12
Departure Headway (s)	7.8	7.3	7.6	7.0	6.9	7.1
Degree Utilization, x	0.30	0.37	0.41	0.47	0.63	0.54
Capacity (veh/h)	428	445	445	473	495	462
Control Delay (s)	12.8	13.4	14.5	14.9	20.7	18.1
Approach Delay (s)	13.1		14.8		20.7	18.1
Approach LOS	B		B		C	C

Intersection Summary			
Delay	16.5		
HCM Level of Service	C		
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
24: Laurel Road & Live Oak Avenue

2010 & Proj AM
2/4/2008

	↗	→	←	↖	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↰	↑↑↑	↑↑↱		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.91	0.91		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	5085	5018		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	5085	5018		1770	1583
Volume (vph)	306	636	928	90	105	302
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	333	691	1009	98	114	328
RTOR Reduction (vph)	0	0	16	0	0	188
Lane Group Flow (vph)	333	691	1091	0	114	140
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	5.1	24.6	15.5		9.3	9.3
Effective Green, g (s)	5.1	25.6	16.5		10.3	10.3
Actuated g/C Ratio	0.12	0.58	0.38		0.23	0.23
Clearance Time (s)	4.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	399	2965	1886		415	371
v/s Ratio Prot	c0.10	0.14	c0.22		0.06	
v/s Ratio Perm						c0.09
v/c Ratio	0.83	0.23	0.58		0.27	0.38
Uniform Delay, d1	19.0	4.4	10.9		13.7	14.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	14.0	0.0	0.4		0.4	0.6
Delay (s)	32.9	4.5	11.4		14.1	14.8
Level of Service	C	A	B		B	B
Approach Delay (s)		13.7	11.4		14.6	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	43.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

25: Laurel Road & Empire Avenue

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.99		1.00	0.97		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3396		1770	3509		1770	3438		1770	3278	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3396		1770	3509		1770	3438		1770	3278	
Volume (vph)	193	400	148	50	709	43	60	126	30	71	247	239
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	214	444	164	56	788	48	67	140	33	79	274	266
RTOR Reduction (vph)	0	54	0	0	7	0	0	27	0	0	210	0
Lane Group Flow (vph)	214	554	0	56	829	0	67	146	0	79	330	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	8.2	22.0		3.3	17.1		2.2	10.7		3.0	11.5	
Effective Green, g (s)	8.2	22.0		3.3	17.1		2.2	10.7		3.0	11.5	
Actuated g/C Ratio	0.15	0.40		0.06	0.31		0.04	0.19		0.05	0.21	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	264	1358		106	1091		71	669		97	685	
v/s Ratio Prot	c0.12	0.16		0.03	c0.24		0.04	0.04		c0.04	c0.10	
v/s Ratio Perm												
v/c Ratio	0.81	0.41		0.53	0.76		0.94	0.22		0.81	0.48	
Uniform Delay, d1	22.6	11.8		25.1	17.1		26.3	18.6		25.7	19.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.9	0.2		4.7	3.1		86.8	0.2		38.7	0.5	
Delay (s)	39.6	12.0		29.8	20.2		113.1	18.8		64.5	19.7	
Level of Service	D	B		C	C		F	B		E	B	
Approach Delay (s)		19.2			20.8			45.1			25.4	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM Average Control Delay	23.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
26: Proj Dwy & Bridgehead Road

Movement	WBL	WBR	NBT	NBR	SBL	SBT
	↙	↖	↑	↗	↘	↓
Lane Configurations	↰	↱	↑	↱	↰	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Volume (vph)	64	39	521	77	48	245
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	42	566	84	52	266
RTOR Reduction (vph)	0	38	0	28	0	0
Lane Group Flow (vph)	70	4	566	56	52	266
Turn Type		Perm		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	6.6	6.6	41.9	41.9	2.4	48.3
Effective Green, g (s)	6.6	6.6	42.9	42.9	2.4	49.3
Actuated g/C Ratio	0.10	0.10	0.67	0.67	0.04	0.77
Clearance Time (s)	4.0	4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	183	164	1251	1063	66	1437
v/s Ratio Prot	c0.04		c0.30		c0.03	0.14
v/s Ratio Perm		0.00		0.04		
v/c Ratio	0.38	0.03	0.45	0.05	0.79	0.19
Uniform Delay, d1	26.7	25.8	5.0	3.6	30.5	1.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.1	0.3	0.0	44.9	0.1
Delay (s)	28.1	25.8	5.2	3.6	75.4	2.0
Level of Service	C	C	A	A	E	A
Approach Delay (s)	27.2		5.0			14.0
Approach LOS	C		A			B

Intersection Summary			
HCM Average Control Delay	10.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	63.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
27: Main Street & Proj Dwy Center

2010 & Proj AM
2/4/2008

	↗	→	←	↖	↘	↙
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↑	↱	↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	1770	1583
Volume (vph)	29	875	1483	58	48	24
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	951	1612	63	52	26
RTOR Reduction (vph)	0	0	0	16	0	24
Lane Group Flow (vph)	32	951	1612	47	52	2
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	5.0	83.9	74.4	74.4	7.1	7.1
Effective Green, g (s)	5.5	84.4	74.9	74.9	7.6	7.6
Actuated g/C Ratio	0.06	0.84	0.75	0.75	0.08	0.08
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	97	2987	2651	1186	135	120
v/s Ratio Prot	0.02	c0.27	c0.46		c0.03	
v/s Ratio Perm				0.03		0.00
v/c Ratio	0.33	0.32	0.61	0.04	0.39	0.02
Uniform Delay, d1	45.5	1.7	5.8	3.2	44.0	42.7
Progression Factor	1.08	1.14	0.18	0.07	1.00	1.00
Incremental Delay, d2	1.9	0.3	0.7	0.0	1.8	0.1
Delay (s)	50.9	2.2	1.7	0.3	45.8	42.8
Level of Service	D	A	A	A	D	D
Approach Delay (s)		3.8	1.6		44.8	
Approach LOS		A	A		D	

Intersection Summary			
HCM Average Control Delay	3.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

28: Main Street & Proj Dwy East

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱		↰	↱		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583		1770	1583		1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.74	1.00		0.73	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583		1378	1583		1368	1583
Volume (vph)	32	853	23	73	1443	38	32	0	31	25	0	32
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	927	25	79	1568	41	35	0	34	27	0	35
RTOR Reduction (vph)	0	0	8	0	0	10	0	0	32	0	0	33
Lane Group Flow (vph)	35	927	17	79	1568	31	0	35	2	0	27	2
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	5.1	69.9	69.9	12.2	76.0	76.0		6.9	6.9		6.9	6.9
Effective Green, g (s)	5.6	70.4	70.4	12.2	77.0	77.0		6.9	6.9		6.9	6.9
Actuated g/C Ratio	0.06	0.69	0.69	0.12	0.76	0.76		0.07	0.07		0.07	0.07
Clearance Time (s)	4.5	4.5	4.5	4.0	5.0	5.0		4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	98	2455	1098	213	2685	1201		94	108		93	108
v/s Ratio Prot	0.02	c0.26		0.04	c0.44							
v/s Ratio Perm			0.01			0.02		c0.03	0.00		0.02	0.00
v/c Ratio	0.36	0.38	0.02	0.37	0.58	0.03		0.37	0.02		0.29	0.02
Uniform Delay, d1	46.2	6.5	4.8	41.1	5.3	3.0		45.2	44.1		45.0	44.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	2.2	0.4	0.0	1.1	0.9	0.0		2.5	0.1		1.7	0.1
Delay (s)	48.4	6.9	4.8	42.2	6.2	3.1		47.7	44.2		46.7	44.2
Level of Service	D	A	A	D	A	A		D	D		D	D
Approach Delay (s)		8.3			7.9			46.0			45.3	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	101.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

29: Proj Dwy & Live Oak Ave

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱	↰	↑	↰↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0
Lane Util. Factor		1.00	1.00		0.97	1.00
Frt		0.85	1.00		1.00	0.85
Flt Protected		1.00	0.95		0.95	1.00
Satd. Flow (prot)		1583	1770		3433	1583
Flt Permitted		1.00	0.76		0.95	1.00
Satd. Flow (perm)		1583	1410		3433	1583
Volume (vph)	0	168	51	0	214	62
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	183	55	0	233	67
RTOR Reduction (vph)	0	141	0	0	0	33
Lane Group Flow (vph)	0	42	55	0	233	34
Turn Type		Perm	Perm			custom
Protected Phases	4			8		
Permitted Phases		4	8		2	2
Actuated Green, G (s)		7.0	7.0		15.8	15.8
Effective Green, g (s)		7.0	7.0		15.8	15.8
Actuated g/C Ratio		0.23	0.23		0.51	0.51
Clearance Time (s)		4.0	4.0		4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		360	320		1761	812
v/s Ratio Prot						
v/s Ratio Perm		0.03	c0.04		c0.07	0.02
v/c Ratio		0.12	0.17		0.13	0.04
Uniform Delay, d1		9.4	9.6		3.9	3.7
Progression Factor		1.00	1.00		1.00	1.00
Incremental Delay, d2		0.1	0.3		0.0	0.0
Delay (s)		9.6	9.8		4.0	3.8
Level of Service		A	A		A	A
Approach Delay (s)	9.6			9.8	3.9	
Approach LOS	A			A	A	

Intersection Summary			
HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	30.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	20.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Wilbur/Minaker
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.250
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        25                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  1  0  0  1    0  1  0  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     140    5    20    10    5    20    20  100    40    10  480    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  140    5    20    10    5    20    20  100    40    10  480    10
Added Vol:      0    0     0     0    0     0     0   20     0     0   16     0
PasserByVol:   -5    0     0     0    0     0     0    0    -6     0   15     0
Initial Fut:  135    5    20    10    5    20    20  120    34    10  511    10
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   135    5    20    10    5    20    20  120    34    10  511    10
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  135    5    20    10    5    20    20  120    34    10  511    10
RTOR Reduct:    0    0    10     0    0    20     0    0     0     0    0     0
RTOR Vol:     135    5    10    10    5     0    20  120    34    10  511    10
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  135    5    10    10    5     0    20  120    34    10  511    10
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.96 0.04  1.00  0.67 0.33  1.00  1.00 1.56  0.44  1.00 1.96  0.04
Final Sat.:  1659   61  1720  1147  573  1720  1720 2681   759  1720 3374    66
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.08  0.01  0.01 0.01  0.00  0.01 0.04  0.04  0.01 0.15  0.15
Crit Volume:       140          10               20                         261
Crit Moves:       ****        ****             ****                        ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #6 E 18th/Hillcrest
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):         0.331
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):     xxxxxx
Optimal Cycle:        28              Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  1  0  1   1  0  1  0  1   1  0  1  1  0   1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     190  100   140    40   70    40    10  140    70   180  350    30
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  190  100   140    40   70    40    10  140    70   180  350    30
Added Vol:      0    0    20     0    0     0     0   20     0    16   16     0
PasserByVol:    4    5    -1     0    0     0     0    1     0    -7   40    -2
Initial Fut:  194  105   159    40   70    40    10  161    70   189  406    28
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   194  105   159    40   70    40    10  161    70   189  406    28
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  194  105   159    40   70    40    10  161    70   189  406    28
RTOR Reduct:    0    0   159     0    0    10     0    0     0     0    0     0
RTOR Vol:     194  105     0    40   70    30    10  161    70   189  406    28
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  194  105     0    40   70    30    10  161    70   189  406    28
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.39  0.61  1.00 1.87  0.13
Final Sat.:  1720 1720  1720  1720 1720  1720  1720 2398  1042  1720 3218   222
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.11 0.06  0.00  0.02 0.04  0.02  0.01 0.07  0.07  0.11 0.13  0.13
Crit Volume:  194                    70                    116   189
Crit Moves:  ****                  ****                  ****  ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #7 E 18th/viera
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.465
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        27                Level Of Service:                  A
********************************************************************************
Approach:      North Bound       South Bound        East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  1  0  0  1    0  0  1! 0  0    1  0  2  0  1    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     120   30    10    10   20    50    70  190    40    10  350   130
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  120   30    10    10   20    50    70  190    40    10  350   130
Added Vol:      0    0     0     8    0     0     0   45     0     0   37     6
PasserByVol:    0    0     0     0    0    -1    -1    1     0     0   30     8
Initial Fut:  120   30    10    18   20    49    69  236    40    10  417   144
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   120   30    10    18   20    49    69  236    40    10  417   144
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  120   30    10    18   20    49    69  236    40    10  417   144
RTOR Reduct:    0    0    10     0    0     0     0    0    40     0    0     0
RTOR Vol:     120   30     0    18   20    49    69  236     0    10  417   144
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  120   30     0    18   20    49    69  236     0    10  417   144
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.80 0.20  1.00  0.21 0.23  0.56  1.00 2.00  1.00  1.00 0.74  0.26
Final Sat.:  1440  360  1800   372  414  1014  1800 3600  1800  1800 1338   462
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.08 0.08  0.00  0.05 0.05  0.05  0.04 0.07  0.00  0.01 0.31  0.31
Crit Volume:  120                    87          69                  561
Crit Moves:  ****                  ****        ****                 ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #8 E 18th/Phillips
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.227
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        29                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    2  0  0  1  0    1  0  1  1  0    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      10   10    10    20   10    30    40  210     5    10  470    30
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   10   10    10    20   10    30    40  210     5    10  470    30
Added Vol:      0    0     0     0    0     0     0   72     0     0   59     0
PasserByVol:    0    0     0     0    0     0     0    2     0    -1   39     0
Initial Fut:   10   10    10    20   10    30    40  284     5     9  568    30
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    10   10    10    20   10    30    40  284     5     9  568    30
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   10   10    10    20   10    30    40  284     5     9  568    30
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    11
RTOR Vol:      10   10    10    20   10    30    40  284     5     9  568    19
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   10   10    10    20   10    30    40  284     5     9  568    19
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.50  0.50  2.00 0.25  0.75  1.00 1.97  0.03  1.00 2.00  1.00
Final Sat.:  1650  825   825  3000  413  1238  1650 3243    57  1650 3300  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.01  0.01  0.01 0.02  0.02  0.02 0.09  0.09  0.01 0.17  0.01
Crit Volume:   10                    40          40                  284
Crit Moves:  ****                  ****        ****                  ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #9 Main St./SR 160 SB Ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.452
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        42                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  1  1  0    2  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      30   10    60    30   20    20    10  220    20   840  430    60
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   30   10    60    30   20    20    10  220    20   840  430    60
Added Vol:      0    0    10     0    0     0     0   72     0    75   59     0
PasserByVol:    0    0     1     0    0     0     0    2     0    12   41     0
Initial Fut:   30   10    71    30   20    20    10  294    20   927  530    60
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    30   10    71    30   20    20    10  294    20   927  530    60
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   30   10    71    30   20    20    10  294    20   927  530    60
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    30
RTOR Vol:      30   10    71    30   20    20    10  294    20   927  530    30
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   30   10    71    30   20    20    10  294    20   927  530    30
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00
Lanes:       1.00 0.12  0.88  1.00 0.50  0.50  1.00 1.87  0.13  2.00 2.00  1.00
Final Sat.:  1720  212  1508  1720  860   860  1720 3221   219  3127 3440  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.05  0.05  0.02 0.02  0.02  0.01 0.09  0.09  0.30 0.15  0.02
Crit Volume:              81    30                           157   464
Crit Moves:             ****  ****                          ****  ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #10 Main St./SR 160 NB Ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.603
Loss Time (sec):       8 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        43                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  0  0  2    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      90    0   580     0    0     0     0  270    40    60 1240     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   90    0   580     0    0     0     0  270    40    60 1240     0
Added Vol:      0    0    92     0    0     0     0   83     0     8  135     0
PasserByVol:    0    0    12     0    0     0     0    3     0     1   22     0
Initial Fut:   90    0   684     0    0     0     0  356    40    69 1397     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    90    0   684     0    0     0     0  356    40    69 1397     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   90    0   684     0    0     0     0  356    40    69 1397     0
RTOR Reduct:    0    0    69     0    0     0     0    0     0     0    0     0
RTOR Vol:      90    0   615     0    0     0     0  356    40    69 1397     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   90    0   615     0    0     0     0  356    40    69 1397     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  0.91  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.00  2.00  0.00 0.00  0.00  0.00 1.80  0.20  1.00 2.00  0.00
Final Sat.:  1720    0  3127     0    0     0     0 3093   347  1720 3440     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.00  0.20  0.00 0.00  0.00  0.00 0.12  0.12  0.04 0.41  0.00
Crit Volume:             308           0           0                   699
Crit Moves:             ****                   ****                  ****
********************************************************************************
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--------------------------------------------------------------------------------
                    River Oaks Crossing Specific Plan EIR
                   Existing + Approved + Project Scenario
                                AM Peak Hour
--------------------------------------------------------------------------------

                     Level Of Service Computation Report
                 CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #11 Main St./Bridgehead Rd./Neroly Rd.
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):          0.481
Loss Time (sec):      16 (Y+R=4.0 sec) Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        55              Level Of Service:                   A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  0  1  0    1  1  0  0  1    1  0  1  1  0    1  0  3  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 23 Apr 2002 << 730-830
Base Vol:     200  110    50  100   50    80   60  600   190   10 1020   330
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  200  110    50  100   50    80   60  600   190   10 1020   330
Added Vol:      0   29     0   15   24    40   48  127     0    0  103    12
PasserByVol:    0   -4     1    1   -1     0    0   15    -1    0   22    12
Initial Fut:  200  135    51  116   73   120  108  742   189   10 1145   354
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:   200  135    51  116   73   120  108  742   189   10 1145   354
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  200  135    51  116   73   120  108  742   189   10 1145   354
RTOR Reduct:    0    0     0    0    0   108    0    0     0    0    0    64
RTOR Vol:     200  135    51  116   73    12  108  742   189   10 1145   290
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:  200  135    51  116   73    12  108  742   189   10 1145   290
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650 1650 1650  1650 1650 1650  1650 1650 1650  1650
Adjustment:  1.00 1.00  1.00 0.91 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       1.00 0.73  0.27 1.23 0.77  1.00 1.00 1.59  0.41 1.00 3.00  1.00
Final Sat.:  1650 1198   452 1841 1275  1650 1650 2630   670 1650 4950  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.11  0.11 0.06 0.06  0.01 0.07 0.28  0.28 0.01 0.23  0.18
Crit Volume:  200              95              108                    382
Crit Moves:  ****             ****             ****                   ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
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                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #13 Main St./Live Oak Ln./Proj Drwy
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.572
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        53                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  1  1  0    2  0  1  1  0    1  0  1  1  0    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 23 Apr 2002 << 745-845
Base Vol:      90    0    30     0    0     0     0  710    40    30 1270     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   90    0    30     0    0     0     0  710    40    30 1270     0
Added Vol:     14  167     7    56  134    29    44  110    12     7  125    66
PasserByVol:   -2    0     3     0    0     0     0   18    -1     2   38     0
Initial Fut:  102  167    40    56  134    29    44  838    51    39 1433    66
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   102  167    40    56  134    29    44  838    51    39 1433    66
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  102  167    40    56  134    29    44  838    51    39 1433    66
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    31
RTOR Vol:     102  167    40    56  134    29    44  838    51    39 1433    35
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  102  167    40    56  134    29    44  838    51    39 1433    35
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.61  0.39  2.00 1.64  0.36  1.00 1.89  0.11  1.00 2.00  1.00
Final Sat.:  1650 2662   638  3000 2713   587  1650 3111   189  1650 3300  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.06  0.06  0.02 0.05  0.05  0.03 0.27  0.27  0.02 0.43  0.02
Crit Volume:  102                          82    44                   717
Crit Moves:  ****                        ****  ****                  ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
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                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #14 Main St./Big Break Rd.
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):        0.531
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):     xxxxxx
Optimal Cycle:        49                Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
-------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:      0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    0  1  0  0  1    1  0  2  0  1    1  0  2  0  1
-------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 23 Apr 2002 << 730-830
Base Vol:       60   20    30    60   40   200    70  650    30    50 1010    60
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    60   20    30    60   40   200    70  650    30    50 1010    60
Added Vol:       0    0     0     0    0    10    11  155     0     0  193     0
PasserByVol:     0    0     0     2    0     2     5   28     0     0   81     2
Initial Fut:    60   20    30    62   40   212    86  833    30    50 1284    62
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     60   20    30    62   40   212    86  833    30    50 1284    62
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    60   20    30    62   40   212    86  833    30    50 1284    62
RTOR Reduct:     0    0     0     0    0    86     0    0    30     0    0    62
RTOR Vol:       60   20    30    62   40   126    86  833     0    50 1284     0
PCE Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    60   20    30    62   40   126    86  833     0    50 1284     0
-------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:     1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:        1.00 0.40  0.60  0.61 0.39  1.00  1.00 2.00  1.00  1.00 2.00  1.00
Final Sat.:   1720  688  1032  1045  675  1720  1720 3440  1720  1720 3440  1720
-------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      0.03 0.03  0.03  0.06 0.06  0.07  0.05 0.24  0.00  0.03 0.37  0.00
Crit Volume:    60                         126    86                   642
Crit Moves:   ****                        ****  ****                  ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
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                      Level Of Service Computation Report
                   CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #17 Oakley Rd./Empire Ave.
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.343
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        43                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  1  0    1  0  1  0  1    1  1  0  0  1    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 24 Apr 2002 << 745-845
Base Vol:     170  280    10    40  210    60    60   10   110    20   10    20
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  170  280    10    40  210    60    60   10   110    20   10    20
Added Vol:     43   34     0     0   27     0     0    0    35     0    0     0
PasserByVol:    1   42     0     0   47     2     0    0     0     0    0     0
Initial Fut:  214  356    10    40  284    62    60   10   145    20   10    20
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   214  356    10    40  284    62    60   10   145    20   10    20
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  214  356    10    40  284    62    60   10   145    20   10    20
RTOR Reduct:    0    0     0     0    0    33     0    0   145     0    0    20
RTOR Vol:     214  356    10    40  284    29    60   10     0    20   10     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  214  356    10    40  284    29    60   10     0    20   10     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.95  0.05  1.00 1.00  1.00  1.71 0.29  1.00  0.67 0.33  1.00
Final Sat.:  1650 3210    90  1650 1650  1650  2571  471  1650  1100  550  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.11  0.11  0.02 0.17  0.02  0.02 0.02  0.00  0.02 0.02  0.00
Crit Volume:  214                    284          35                      30
Crit Moves:  ****                   ****        ****                    ****
********************************************************************************
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--------------------------------------------------------------------------------
                    River Oaks Crossing Specific Plan EIR
                   Existing + Approved + Project Scenario
                                AM Peak Hour
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                     Level Of Service Computation Report
                 CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #18 Empire Ave./Main St.
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.457
Loss Time (sec):      16 (Y+R=4.0 sec) Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        52               Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        2  0  1  0  1   0  1  0  0  1   1  0  2  0  1   1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 24 Apr 2002 << 745-845
Base Vol:     250   10   100   20   50    40   20  600   130  130  780    10
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:  250   10   100   20   50    40   20  600   130  130  780    10
Added Vol:     34    0     0    0    0     0    0  118    27    0  143     0
PasserByVol:   44    0    -1    0    1    -1    0   24    46    2    6     0
Initial Fut:  328   10    99   20   51    39   20  742   203  132  929    10
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:   328   10    99   20   51    39   20  742   203  132  929    10
Reduct Vol:     0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:  328   10    99   20   51    39   20  742   203  132  929    10
RTOR Reduct:    0    0    99    0    0    20    0    0   180    0    0     0
RTOR Vol:     328   10     0   20   51    19   20  742    23  132  929    10
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:  328   10     0   20   51    19   20  742    23  132  929    10
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650 1650 1650  1650 1650 1650  1650 1650 1650  1650
Adjustment:  0.91 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       2.00 1.00  1.00 0.28 0.72  1.00 1.00 2.00  1.00 1.00 1.98  0.02
Final Sat.:  3000 1650  1650  465 1185  1650 1650 3300  1650 1650 3265    35
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.11 0.01  0.00 0.04 0.04  0.01 0.01 0.22  0.01 0.08 0.28  0.28
Crit Volume:  164                   71               371         132
Crit Moves:  ****                 ****              ****        ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #19 Main/Vintage
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.436
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        40                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  0  0  1    1  0  2  0  0    0  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   180    0   150    70  630     0     0  750   100
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   180    0   150    70  630     0     0  750   100
Added Vol:      0    0     0     0    0     7     6  112     0     0  136     0
PasserByVol:    0    0     0    -1    0     0    -1   20     0     0    6    -1
Initial Fut:    0    0     0   179    0   157    75  762     0     0  892    99
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   179    0   157    75  762     0     0  892    99
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   179    0   157    75  762     0     0  892    99
RTOR Reduct:    0    0     0     0    0    75     0    0     0     0    0     0
RTOR Vol:       0    0     0   179    0    82    75  762     0     0  892    99
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0   179    0    82    75  762     0     0  892    99
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  1.00 0.00  1.00  1.00 2.00  0.00  0.00 1.80  0.20
Final Sat.:     0    0     0  1720    0  1720  1720 3440     0     0 3096   344
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.10 0.00  0.05  0.04 0.22  0.00  0.00 0.29  0.29
Crit Volume:         0         179               75                   496
Crit Moves:                   ****             ****                  ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #20 Main/O'Hara
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.579
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        44                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound        West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    0  0  1! 0  0    1  0  1  0  1    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      90    0    30     5    0     5     5  670    90    30  750     5
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   90    0    30     5    0     5     5  670    90    30  750     5
Added Vol:     32    0     0     0    0     0     0   84    28     0  104     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:  122    0    30     5    0     5     5  754   118    30  854     5
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   122    0    30     5    0     5     5  754   118    30  854     5
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  122    0    30     5    0     5     5  754   118    30  854     5
RTOR Reduct:    0    0     0     0    0     0     0    0   118     0    0     0
RTOR Vol:     122    0    30     5    0     5     5  754     0    30  854     5
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  122    0    30     5    0     5     5  754     0    30  854     5
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.00  1.00  0.50 0.00  0.50  1.00 1.00  1.00  1.00 0.99  0.01
Final Sat.:  1720    0  1720   860    0   860  1720 1720  1720  1720 1710    10
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.07 0.00  0.02  0.01 0.00  0.01  0.00 0.44  0.00  0.02 0.50  0.50
Crit Volume:  122                          10     5                          859
Crit Moves:  ****                        ****  ****                         ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
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                      Level Of Service Computation Report
                   CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #21 Empire/Cypress
********************************************************************************
Cycle (sec):          100                Critical Vol./Cap.(X):        0.281
Loss Time (sec):        0 (Y+R=4.0 sec)  Average Delay (sec/veh):     xxxxxx
Optimal Cycle:         32                Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0     0     0     0     0     0     0     0     0     0     0     0
Lanes:        0  0  1  1  0    1  0  2  0  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  250   100    90  270     0     0    0     0   150    0   170
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  250   100    90  270     0     0    0     0   150    0   170
Added Vol:      0   47     0    24   38     0     0    0     0     0    0    31
PasserByVol:    0   37    -1     1   45     0     0    0     0     2    0     4
Initial Fut:    0  334    99   115  353     0     0    0     0   152    0   205
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  334    99   115  353     0     0    0     0   152    0   205
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  334    99   115  353     0     0    0     0   152    0   205
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0   115
RTOR Vol:       0  334    99   115  353     0     0    0     0   152    0    90
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0  334    99   115  353     0     0    0     0   152    0    90
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.54  0.46  1.00 2.00  0.00  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:     0 2653   787  1720 3440     0     0    0     0  1720    0  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.13  0.13  0.07 0.10  0.00  0.00 0.00  0.00  0.09 0.00  0.05
Crit Volume:             217   115                      0         152
Crit Moves:             ****  ****                              ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
                   CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #22 Main/Cypress
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.395
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        38               Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        1  0  2  0  1    2  0  1  1  0    1  0  1  1  0    1  0  0  1  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      30  380   110   330  350    10    40  120    60   100  140   350
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   30  380   110   330  350    10    40  120    60   100  140   350
Added Vol:      0   74     0    24   60     0     0    9     0     0   10    30
PasserByVol:    0    8     0     3    9     0    -1   -1     0     0    0     2
Initial Fut:   30  462   110   357  419    10    39  128    60   100  150   382
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    30  462   110   357  419    10    39  128    60   100  150   382
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   30  462   110   357  419    10    39  128    60   100  150   382
RTOR Reduct:    0    0   100     0    0     0     0    0     0     0    0   196
RTOR Vol:      30  462    10   357  419    10    39  128    60   100  150   186
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   30  462    10   357  419    10    39  128    60   100  150   186
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.91
Lanes:       1.00 2.00  1.00  2.00 1.95  0.05  1.00 1.36  0.64  1.00 0.89  1.11
Final Sat.:  1650 3300  1650  3000 3223    77  1650 2247  1053  1650 1475  1659
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.14  0.01  0.12 0.13  0.13  0.02 0.06  0.06  0.06 0.10  0.11
Crit Volume:       231         179               39                         168
Crit Moves:       ****        ****             ****                        ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #24 Live Oak/Laurel
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.373
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        36                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  0  0  1    2  0  3  0  0    0  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    90    0   230   220  620     0     0  900    70
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    90    0   230   220  620     0     0  900    70
Added Vol:      0    0     0    15    0    75    92    0     0     0    0    18
PasserByVol:    0    0     0     0    0    -3    -6   16     0     0   28     2
Initial Fut:    0    0     0   105    0   302   306  636     0     0  928    90
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   105    0   302   306  636     0     0  928    90
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   105    0   302   306  636     0     0  928    90
RTOR Reduct:    0    0     0     0    0   168     0    0     0     0    0     0
RTOR Vol:       0    0     0   105    0   134   306  636     0     0  928    90
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0   105    0   134   306  636     0     0  928    90
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  1.00 0.00  1.00  2.00 3.00  0.00  0.00 2.73  0.27
Final Sat.:     0    0     0  1720    0  1720  3127 5160     0     0 4704   456
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.06 0.00  0.08  0.10 0.12  0.00  0.00 0.20  0.20
Crit Volume:    0                          134   153                   339
Crit Moves:                               ****  ****                  ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
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                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #25 Empire/Laurel
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.528
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        48                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  1  0    1  0  1  1  0    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      60   70    30    50  200   220   170  390   150    50  690    40
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   60   70    30    50  200   220   170  390   150    50  690    40
Added Vol:      0   46     0     1   38     0     0   15     0     0   18     1
PasserByVol:    0   10     0    20    9    19    23   -5    -2     0    1     2
Initial Fut:   60  126    30    71  247   239   193  400   148    50  709    43
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    60  126    30    71  247   239   193  400   148    50  709    43
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   60  126    30    71  247   239   193  400   148    50  709    43
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      60  126    30    71  247   239   193  400   148    50  709    43
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   60  126    30    71  247   239   193  400   148    50  709    43
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.62  0.38  1.00 1.02  0.98  1.00 1.46  0.54  1.00 1.89  0.11
Final Sat.:  1650 2665   635  1650 1677  1623  1650 2409   891  1650 3111   189
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.04 0.05  0.05  0.04 0.15  0.15  0.12 0.17  0.17  0.03 0.23  0.23
Crit Volume:   60                  243         193                  376
Crit Moves:  ****                  ****        ****                  ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                    River Oaks Crossing Specific Plan EIR
                   Existing + Approved + Project Scenario
                                AM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
                 CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #26 Project Dwy 1/Bridgehead Rd.
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.368
Loss Time (sec):       8 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        27                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Protected       Split Phase      Split Phase
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:       0  0  1  0  1    1  0  1  0  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0  500     0    0  230     0    0    0     0    0    0     0
Growth Adj:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse:   0  500     0    0  230     0    0    0     0    0    0     0
Added Vol:     0   12    77   48   15     0    0    0     0   64    0    39
PasserByVol:   0    9     0    0    0     0    0    0     0    0    0     0
Initial Fut:   0  521    77   48  245     0    0    0     0   64    0    39
User Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:    0  521    77   48  245     0    0    0     0   64    0    39
Reduct Vol:    0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol:   0  521    77   48  245     0    0    0     0   64    0    39
RTOR Reduct:   0    0    64    0    0     0    0    0     0    0    0    39
RTOR Vol:      0  521    13   48  245     0    0    0     0   64    0     0
PCE Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume:   0  521    13   48  245     0    0    0     0   64    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720 1720 1720  1720 1720 1720  1720 1720 1720  1720
Adjustment:  1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:       0.00 1.00  1.00 1.00 1.00  0.00 0.00 0.00  0.00 1.00 0.00  1.00
Final Sat.:    0 1720  1720 1720 1720     0    0    0     0 1720    0  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.30  0.01 0.03 0.14  0.00 0.00 0.00  0.00 0.04 0.00  0.00
Crit Volume:       521          48                     0          64
Crit Moves:        ****       ****                               ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #27 Main St./Proj Drwy 4
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.476
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        44                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:      0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  0  0  1    1  0  2  0  0    0  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0  740     0     0 1350     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0     0     0  740     0     0 1350     0
Added Vol:      0    0     0    48    0    24    29  118     0     0  109    58
PasserByVol:    0    0     0     0    0     0     0   17     0     0   24     0
Initial Fut:    0    0     0    48    0    24    29  875     0     0 1483    58
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0    48    0    24    29  875     0     0 1483    58
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0    48    0    24    29  875     0     0 1483    58
RTOR Reduct:    0    0     0     0    0    24     0    0     0     0    0    48
RTOR Vol:       0    0     0    48    0     0    29  875     0     0 1483    10
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0    48    0     0    29  875     0     0 1483    10
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  1.00 0.00  1.00  1.00 2.00  0.00  0.00 2.00  1.00
Final Sat.:     0    0     0  1720    0  1720  1720 3440     0     0 3440  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.03 0.00  0.00  0.02 0.25  0.00  0.00 0.43  0.01
Crit Volume:        0           48               29                742
Crit Moves:                   ****             ****                 ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 AM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #28 Main St/Proj Dwy 6
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.457
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        34                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  1  0  0  1    0  1  0  0  1    1  0  2  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0  710     0     0 1270     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0     0     0  710     0     0 1270     0
Added Vol:      0    0     0    25    0    32    32  141     0     0  165    38
PasserByVol:   32    0    31     0    0     0     0    2    23    73    8     0
Initial Fut:   32    0    31    25    0    32    32  853    23    73 1443    38
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    32    0    31    25    0    32    32  853    23    73 1443    38
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   32    0    31    25    0    32    32  853    23    73 1443    38
RTOR Reduct:    0    0    31     0    0    32     0    0    23     0    0    25
RTOR Vol:      32    0     0    25    0     0    32  853     0    73 1443    13
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   32    0     0    25    0     0    32  853     0    73 1443    13
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.00  1.00  1.00 0.00  1.00  1.00 2.00  1.00  1.00 2.00  1.00
Final Sat.:  1720    0  1720  1720    0  1720  1720 3440  1720  1720 3440  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.00  0.00  0.01 0.00  0.00  0.02 0.25  0.00  0.04 0.42  0.01
Crit Volume:   32                   0          32                  722
Crit Moves:  ****                  ****        ****                 ****
********************************************************************************
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1: Wilbur Avenue & Minaker Drive

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱			↰↑	↱		↰↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.96		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.98	1.00
Satd. Flow (prot)	1770	3395		1770	3517			1770	1583		1817	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.74	1.00		0.86	1.00
Satd. Flow (perm)	1770	3395		1770	3517			1384	1583		1594	1583
Volume (vph)	10	430	161	30	225	10	60	0	40	10	10	20
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	478	179	33	250	11	67	0	44	11	11	22
RTOR Reduction (vph)	0	37	0	0	3	0	0	0	38	0	0	19
Lane Group Flow (vph)	11	620	0	33	258	0	0	67	6	0	22	3
Turn Type	Prot			Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		4
Actuated Green, G (s)	1.5	35.3		1.8	35.6			8.0	8.0		8.0	8.0
Effective Green, g (s)	1.5	35.3		1.8	35.6			8.0	8.0		8.0	8.0
Actuated g/C Ratio	0.03	0.62		0.03	0.62			0.14	0.14		0.14	0.14
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	46	2099		56	2193			194	222		223	222
v/s Ratio Prot	0.01	c0.18		c0.02	0.07							
v/s Ratio Perm								c0.05	0.00		0.01	0.00
v/c Ratio	0.24	0.30		0.59	0.12			0.35	0.03		0.10	0.01
Uniform Delay, d1	27.2	5.1		27.3	4.4			22.2	21.2		21.4	21.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	2.7	0.1		14.9	0.0			1.1	0.1		0.2	0.0
Delay (s)	29.9	5.2		42.1	4.4			23.3	21.2		21.6	21.2
Level of Service	C	A		D	A			C	C		C	C
Approach Delay (s)		5.6			8.6			22.5			21.4	
Approach LOS		A			A			C			C	

Intersection Summary

HCM Average Control Delay	8.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	57.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

2: Wilbur Avenue & Viera Avenue

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↱		↰	↑	↰↱	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	436	122	19	222	41	19
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	454	127	20	231	43	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			581		789	518
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			581		789	518
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		88	96
cM capacity (veh/h)			993		353	558

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	581	20	231	62
Volume Left	0	20	0	43
Volume Right	127	0	0	20
cSH	1700	993	1700	399
Volume to Capacity	0.34	0.02	0.14	0.16
Queue Length 95th (ft)	0	2	0	14
Control Delay (s)	0.0	8.7	0.0	15.7
Lane LOS		A		C
Approach Delay (s)	0.0	0.7		15.7
Approach LOS				C

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	40.5%	ICU Level of Service	A
Analysis Period (min)	15		

3: Wilbur Avenue & SR 160 SB Off

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱		↰	↑↑					↰		↱
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	495	90	30	181	0	0	0	0	231	0	61
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	550	100	33	201	0	0	0	0	257	0	68
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	201			650			767	868	600	868	918	101
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	201			650			767	868	600	868	918	101
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			100	100	100	0	100	93
cM capacity (veh/h)	1368			932			263	279	444	240	261	935

Direction, Lane #	EB 1	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	650	33	101	101	257	68
Volume Left	0	33	0	0	257	0
Volume Right	100	0	0	0	0	68
cSH	1700	932	1700	1700	240	935
Volume to Capacity	0.38	0.04	0.06	0.06	1.07	0.07
Queue Length 95th (ft)	0	3	0	0	273	6
Control Delay (s)	0.0	9.0	0.0	0.0	122.5	9.1
Lane LOS		A			F	A
Approach Delay (s)	0.0	1.3			98.8	
Approach LOS					F	

Intersection Summary			
Average Delay	26.8		
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

4: Wilbur Avenue & SR 160 NB On

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑			↑↱		↰		↱			
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	260	466	0	0	201	162	10	0	20	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	289	518	0	0	223	180	11	0	22	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	403			518			1207	1499	259	1150	1409	202
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	403			518			1207	1499	259	1150	1409	202
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	75			100			90	100	97	100	100	100
cM capacity (veh/h)	1152			1044			112	91	740	120	103	806

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	NB 2
Volume Total	289	259	259	149	254	11	22
Volume Left	289	0	0	0	0	11	0
Volume Right	0	0	0	0	180	0	22
cSH	1152	1700	1700	1700	1700	112	740
Volume to Capacity	0.25	0.15	0.15	0.09	0.15	0.10	0.03
Queue Length 95th (ft)	25	0	0	0	0	8	2
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	40.6	10.0
Lane LOS	A					E	B
Approach Delay (s)	3.3			0.0		20.2	
Approach LOS						C	

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	30	0	456	0	0	0	313	40	0	0	30	50
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	32	0	480	0	0	0	329	42	0	0	32	53

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	32	480	0	372	84
Volume Left (vph)	32	0	0	329	0
Volume Right (vph)	0	480	0	0	53
Hadj (s)	0.53	-0.67	0.00	0.21	-0.34
Departure Headway (s)	6.3	5.1	6.2	5.6	5.6
Degree Utilization, x	0.06	0.69	0.00	0.58	0.13
Capacity (veh/h)	543	673	514	611	579
Control Delay (s)	8.5	17.4	9.2	16.0	9.4
Approach Delay (s)	16.8		0.0	16.0	9.4
Approach LOS	C		A	C	A

Intersection Summary			
Delay	15.8		
HCM Level of Service	C		
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

6: E 18th Street & Hillcrest Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑	↱	↰	↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3364		1770	3494		1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3364		1770	3494		1770	1863	1583	1770	1863	1583
Volume (vph)	40	465	229	373	438	40	170	150	316	62	122	30
Peak-hour factor, 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
Adj. Flow (vph)	42	484	239	389	456	42	177	156	329	65	127	31
RTOR Reduction (vph)	0	57	0	0	6	0	0	0	235	0	0	27
Lane Group Flow (vph)	42	666	0	389	492	0	177	156	94	65	127	4
Turn Type	Prot			Prot			Split		Perm	Split		Perm
Protected Phases	1	6		5	2		8	8		4	4	
Permitted Phases									8			4
Actuated Green, G (s)	2.6	21.2		21.0	39.6		13.4	13.4	13.4	8.9	8.9	8.9
Effective Green, g (s)	3.6	23.2		22.0	41.6		14.9	14.9	14.9	10.4	10.4	10.4
Actuated g/C Ratio	0.04	0.28		0.27	0.50		0.18	0.18	0.18	0.13	0.13	0.13
Clearance Time (s)	4.0	5.0		4.0	5.0		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	77	946		472	1762		320	336	286	223	235	200
v/s Ratio Prot	0.02	c0.20		c0.22	0.14		c0.10	0.08		0.04	c0.07	
v/s Ratio Perm									0.06			0.00
v/c Ratio	0.55	0.70		0.82	0.28		0.55	0.46	0.33	0.29	0.54	0.02
Uniform Delay, d1	38.6	26.6		28.4	11.8		30.8	30.2	29.4	32.7	33.8	31.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.7	2.4		11.2	0.1		2.1	1.0	0.7	0.7	2.5	0.0
Delay (s)	46.3	29.0		39.6	11.9		32.8	31.2	30.1	33.4	36.3	31.6
Level of Service	D	C		D	B		C	C	C	C	D	C
Approach Delay (s)		29.9			24.0			31.1			34.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	28.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	82.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↱			↰	↱		✥	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1770	3539	1583	1770	1847			1783	1583		1745	
Flt Permitted	0.28	1.00	1.00	0.35	1.00			0.65	1.00		0.85	
Satd. Flow (perm)	515	3539	1583	647	1847			1209	1583		1512	
Volume (vph)	59	692	109	11	622	38	90	10	20	78	60	71
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	62	728	115	12	655	40	95	11	21	82	63	75
RTOR Reduction (vph)	0	0	46	0	3	0	0	0	15	0	35	0
Lane Group Flow (vph)	62	728	69	12	692	0	0	106	6	0	185	0
Turn Type	Perm		Perm	Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2		2	6		
Actuated Green, G (s)	26.4	26.4	26.4	26.4	26.4			10.8	10.8		10.8	
Effective Green, g (s)	28.4	28.4	28.4	28.4	28.4			12.8	12.8		12.8	
Actuated g/C Ratio	0.60	0.60	0.60	0.60	0.60			0.27	0.27		0.27	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	310	2129	952	389	1111			328	429		410	
v/s Ratio Prot		0.21			c0.37							
v/s Ratio Perm	0.12		0.04	0.02				0.09	0.00		c0.12	
v/c Ratio	0.20	0.34	0.07	0.03	0.62			0.32	0.01		0.45	
Uniform Delay, d1	4.3	4.7	3.9	3.8	6.0			13.7	12.6		14.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.3	0.1	0.0	0.0	1.1			0.6	0.0		0.8	
Delay (s)	4.6	4.8	3.9	3.8	7.1			14.3	12.6		15.1	
Level of Service	A	A	A	A	A			B	B		B	
Approach Delay (s)		4.7			7.0			14.0			15.1	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	7.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	47.2	Sum of lost time (s)	6.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

8: E 18th Street & Phillips Lane

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↱		↰↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		0.97	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.91		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3531		1770	3539	1583	1770	1686		3433	1600	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3531		1770	3539	1583	1770	1686		3433	1600	
Volume (vph)	140	660	10	10	521	120	10	10	19	130	10	160
Peak-hour factor, PHF	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Adj. Flow (vph)	152	673	10	10	532	130	10	11	19	141	11	174
RTOR Reduction (vph)	0	1	0	0	0	90	0	17	0	0	149	0
Lane Group Flow (vph)	152	682	0	10	532	40	10	13	0	141	36	0
Turn Type	Prot			Prot		Perm	Split			Split		
Protected Phases	5	2		1	6		7	7		3	3	
Permitted Phases						6						
Actuated Green, G (s)	7.1	22.9		0.7	16.5	16.5	6.2	6.2		7.7	7.7	
Effective Green, g (s)	7.1	22.9		0.7	16.5	16.5	6.2	6.2		7.7	7.7	
Actuated g/C Ratio	0.13	0.43		0.01	0.31	0.31	0.12	0.12		0.14	0.14	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	235	1511		23	1091	488	205	195		494	230	
v/s Ratio Prot	c0.09	c0.19		0.01	0.15		0.01	c0.01		c0.04	0.02	
v/s Ratio Perm						0.03						
v/c Ratio	0.65	0.45		0.43	0.49	0.08	0.05	0.07		0.29	0.16	
Uniform Delay, d1	22.0	10.8		26.2	15.1	13.1	21.0	21.1		20.4	20.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.0	0.2		12.6	0.3	0.1	0.1	0.1		0.3	0.3	
Delay (s)	28.0	11.1		38.8	15.4	13.2	21.1	21.2		20.8	20.4	
Level of Service	C	B		D	B	B	C	C		C	C	
Approach Delay (s)		14.1			15.3			21.2			20.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	53.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰↰	↑↑	↱	↰	↱		↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		0.97	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.87		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	3400		3335	3438	1538	1719	1572		1719	1700	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.72	1.00		0.32	1.00	
Satd. Flow (perm)	1719	3400		3335	3438	1538	1308	1572		583	1700	
Volume (vph)	30	750	60	652	571	100	40	20	143	80	30	20
Peak-hour factor, 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
Adj. Flow (vph)	31	781	62	679	595	104	42	21	149	83	31	21
RTOR Reduction (vph)	0	3	0	0	0	28	0	132	0	0	19	0
Lane Group Flow (vph)	31	840	0	679	595	76	42	38	0	83	33	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot			Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases						6	8			4		
Actuated Green, G (s)	6.6	59.5		33.5	86.4	86.4	14.0	14.0		14.0	14.0	
Effective Green, g (s)	6.6	60.5		33.5	87.4	87.4	14.0	14.0		14.0	14.0	
Actuated g/C Ratio	0.05	0.50		0.28	0.73	0.73	0.12	0.12		0.12	0.12	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	4.0	4.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	95	1714		931	2504	1120	153	183		68	198	
v/s Ratio Prot	0.02	c0.25		c0.20	0.17			0.02			0.02	
v/s Ratio Perm						0.05	0.03			c0.14		
v/c Ratio	0.33	0.49		0.73	0.24	0.07	0.27	0.21		1.22	0.17	
Uniform Delay, d1	54.6	19.6		39.1	5.4	4.7	48.4	48.0		53.0	47.8	
Progression Factor	1.00	1.00		0.84	0.41	0.11	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	1.0		2.6	0.2	0.1	0.4	0.2		180.0	0.1	
Delay (s)	56.6	20.6		35.7	2.4	0.6	48.7	48.2		233.0	47.9	
Level of Service	E	C		D	A	A	D	D		F	D	
Approach Delay (s)		21.9			18.7			48.3			161.7	
Approach LOS		C			B			D			F	

Intersection Summary				
HCM Average Control Delay	29.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	68.9%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↱		↰	↑↑	↰	↱↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	0.88
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3412		1719	3438	1719	2707
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3412		1719	3438	1719	2707
Volume (vph)	923	50	83	1232	91	1425
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	961	52	86	1283	95	1484
RTOR Reduction (vph)	3	0	0	0	0	19
Lane Group Flow (vph)	1010	0	86	1283	95	1465
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type			Prot			pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases						8
Actuated Green, G (s)	40.5		57.0	101.5	9.5	66.5
Effective Green, g (s)	41.5		57.0	102.5	9.5	66.5
Actuated g/C Ratio	0.35		0.48	0.85	0.08	0.55
Clearance Time (s)	5.0		4.0	5.0	4.0	4.0
Vehicle Extension (s)	4.0		3.0	4.0	2.0	3.0
Lane Grp Cap (vph)	1180		817	2937	136	1590
v/s Ratio Prot	c0.30		0.05	0.37	0.06	c0.44
v/s Ratio Perm						0.10
v/c Ratio	0.86		0.11	0.44	0.70	0.92
Uniform Delay, d1	36.5		17.4	2.0	53.9	24.4
Progression Factor	0.85		0.68	0.30	1.00	1.00
Incremental Delay, d2	7.4		0.1	0.4	11.9	9.2
Delay (s)	38.2		12.0	1.0	65.8	33.6
Level of Service	D		B	A	E	C
Approach Delay (s)	38.2			1.7	35.5	
Approach LOS	D			A	D	

Intersection Summary			
HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

11: Main Street & Bridgehead Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑↑	↱	↰↰	↱		↰	↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.91	1.00	0.97	1.00		0.95	0.95	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00
Satd. Flow (prot)	1719	3344		1719	4940	1538	3335	1726		1633	1691	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.98	1.00
Satd. Flow (perm)	1719	3344		1719	4940	1538	3335	1726		1633	1691	1538
Volume (vph)	188	1767	392	39	924	185	219	160	71	288	151	172
Peak-hour factor, 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
Adj. Flow (vph)	192	1803	400	40	943	189	223	163	72	294	154	176
RTOR Reduction (vph)	0	15	0	0	0	78	0	13	0	0	0	58
Lane Group Flow (vph)	192	2188	0	40	943	111	223	222	0	218	230	118
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot			Prot		pm+ov	Split			Split		pm+ov
Protected Phases	5	2		1	6	7	8	8		7	7	5
Permitted Phases						6						7
Actuated Green, G (s)	16.9	67.6		4.8	55.5	69.5	16.6	16.6		14.0	14.0	30.9
Effective Green, g (s)	16.9	68.6		4.8	56.5	70.5	16.6	16.6		14.0	14.0	30.9
Actuated g/C Ratio	0.14	0.57		0.04	0.47	0.59	0.14	0.14		0.12	0.12	0.26
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	4.0		2.0	4.0	2.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	242	1912		69	2326	904	461	239		191	197	447
v/s Ratio Prot	0.11	c0.65		0.02	c0.19	0.01	0.07	c0.13		0.13	c0.14	0.04
v/s Ratio Perm						0.06						0.04
v/c Ratio	0.79	1.14		0.58	0.41	0.12	0.48	0.93		1.14	1.17	0.26
Uniform Delay, d1	49.9	25.7		56.6	20.8	11.0	47.7	51.1		53.0	53.0	35.5
Progression Factor	0.97	0.91		0.58	0.15	0.13	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.9	67.9		6.3	0.5	0.0	0.3	38.4		108.3	116.6	0.1
Delay (s)	55.5	91.2		39.4	3.5	1.4	48.0	89.5		161.3	169.6	35.6
Level of Service	E	F		D	A	A	D	F		F	F	D
Approach Delay (s)		88.3			4.4			69.3			128.9	
Approach LOS		F			A			E			F	

Intersection Summary			
HCM Average Control Delay	70.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	104.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↱		↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.92		1.00	0.86	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3436		1719	3438	1583	1719	1680		1770	1599	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3436		1719	3438	1583	1719	1680		1770	1599	
Volume (vph)	160	1957	10	10	1013	144	10	7	10	194	7	125
Peak-hour factor, PHF	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Adj. Flow (vph)	174	2039	10	10	1055	157	10	8	10	211	8	136
RTOR Reduction (vph)	0	0	0	0	0	76	0	10	0	0	117	0
Lane Group Flow (vph)	174	2049	0	10	1055	81	10	8	0	211	27	0
Heavy Vehicles (%)	2%	5%	5%	5%	5%	2%	5%	2%	5%	2%	2%	2%
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						
Actuated Green, G (s)	23.2	83.6		0.8	61.2	61.2	0.8	4.6		13.0	15.8	
Effective Green, g (s)	23.2	84.6		0.8	62.2	62.2	1.8	4.6		14.0	16.8	
Actuated g/C Ratio	0.19	0.70		0.01	0.52	0.52	0.02	0.04		0.12	0.14	
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	5.0	4.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	342	2422		11	1782	821	26	64		207	224	
v/s Ratio Prot	0.10	c0.60		0.01	c0.31		0.01	0.00		c0.12	c0.02	
v/s Ratio Perm						0.05						
v/c Ratio	0.51	0.85		0.91	0.59	0.10	0.38	0.13		1.02	0.12	
Uniform Delay, d1	43.3	12.9		59.6	20.1	14.7	58.6	55.8		53.0	45.1	
Progression Factor	0.63	0.10		1.19	0.62	1.23	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.4		205.1	1.3	0.2	9.2	0.9		67.7	0.2	
Delay (s)	27.5	1.7		275.9	13.8	18.3	67.8	56.7		120.7	45.4	
Level of Service	C	A		F	B	B	E	E		F	D	
Approach Delay (s)		3.7			16.5			60.7			90.1	
Approach LOS		A			B			E			F	

Intersection Summary			
HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑	↱	↰	↑↱		↰↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		0.97	0.95	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.97		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3413		1719	3438	1583	1719	3434		3433	3403	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3413		1719	3438	1583	1719	3434		3433	3403	
Volume (vph)	147	1976	100	53	1031	179	79	343	69	198	341	117
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	152	2037	103	55	1063	185	81	354	71	204	352	121
RTOR Reduction (vph)	0	3	0	0	0	93	0	14	0	0	29	0
Lane Group Flow (vph)	152	2137	0	55	1063	92	81	411	0	204	444	0
Heavy Vehicles (%)	2%	5%	5%	5%	5%	2%	5%	2%	5%	2%	2%	2%
Turn Type	Prot			Prot		Perm	Prot			Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases						6						
Actuated Green, G (s)	18.0	73.8		4.0	59.8	59.8	7.9	18.2		8.0	18.3	
Effective Green, g (s)	18.0	73.8		4.0	59.8	59.8	7.9	18.2		8.0	18.3	
Actuated g/C Ratio	0.15	0.61		0.03	0.50	0.50	0.07	0.15		0.07	0.15	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	266	2099		57	1713	789	113	521		229	519	
v/s Ratio Prot	0.09	c0.63		c0.03	0.31		0.05	c0.12		0.06	c0.13	
v/s Ratio Perm						0.06						
v/c Ratio	0.57	1.02		0.96	0.62	0.12	0.72	0.79		0.89	0.86	
Uniform Delay, d1	47.4	23.1		57.9	21.9	16.0	55.0	49.0		55.6	49.6	
Progression Factor	0.81	0.59		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.9	20.5		105.7	1.7	0.3	19.4	7.7		32.0	13.0	
Delay (s)	40.2	34.1		163.6	23.6	16.3	74.3	56.8		87.6	62.6	
Level of Service	D	C		F	C	B	E	E		F	E	
Approach Delay (s)		34.5			28.4			59.6			70.1	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM Average Control Delay	40.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↱			↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			0.98	1.00
Satd. Flow (prot)	1719	3438	1538	1719	3438	1538	1719	1647			1765	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.63	1.00			0.43	1.00
Satd. Flow (perm)	1719	3438	1538	1719	3438	1538	1132	1647			773	1538
Volume (vph)	308	1915	170	70	1137	62	70	60	90	41	40	150
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	328	2037	181	74	1210	66	74	64	96	44	43	160
RTOR Reduction (vph)	0	0	34	0	0	23	0	49	0	0	0	142
Lane Group Flow (vph)	328	2037	147	74	1210	43	74	111	0	0	87	18
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot		custom	Prot		custom	Perm			Perm		Perm
Protected Phases	5			1				3			7	
Permitted Phases		2	2		6	6	3			7		7
Actuated Green, G (s)	35.8	85.6	85.6	8.1	56.9	56.9	13.3	13.3			13.3	13.3
Effective Green, g (s)	36.8	86.6	86.6	8.1	57.9	57.9	13.3	13.3			13.3	13.3
Actuated g/C Ratio	0.31	0.72	0.72	0.07	0.48	0.48	0.11	0.11			0.11	0.11
Clearance Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	527	2481	1110	116	1659	742	125	183			86	170
v/s Ratio Prot	0.19			0.04				0.07				
v/s Ratio Perm		c0.59	0.10		c0.35	0.03	0.07				c0.11	0.01
v/c Ratio	0.62	0.82	0.13	0.64	0.73	0.06	0.59	0.61			1.01	0.10
Uniform Delay, d1	35.6	11.4	5.1	54.5	24.8	16.5	50.8	50.9			53.4	48.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	1.7	3.2	0.2	8.2	2.9	0.1	7.3	5.6			100.3	0.3
Delay (s)	37.3	14.6	5.4	62.7	27.7	16.7	58.1	56.5			153.6	48.3
Level of Service	D	B	A	E	C	B	E	E			F	D
Approach Delay (s)		16.9			29.0			57.0			85.4	
Approach LOS		B			C			E			F	

Intersection Summary			
HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

15: Oakley Road & Neroly Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	12	94	59	10	84	102	49	250	10	163	349	10
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	12	96	60	10	86	104	50	255	10	166	356	10

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	168	200	315	533
Volume Left (vph)	12	10	50	166
Volume Right (vph)	60	104	10	10
Hadj (s)	-0.17	-0.27	0.05	0.08
Departure Headway (s)	6.9	6.7	6.3	5.9
Degree Utilization, x	0.32	0.37	0.55	0.88
Capacity (veh/h)	475	493	532	533
Control Delay (s)	13.1	13.5	16.7	36.7
Approach Delay (s)	13.1	13.5	16.7	36.7
Approach LOS	B	B	C	E

Intersection Summary			
Delay	24.4		
HCM Level of Service	C		
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

16: Oakley Road & Live Oak Ave

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	35	170	30	39	129	97	30	316	29	158	369	34
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	39	189	33	43	143	108	33	351	32	176	410	38

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	261	294	417	623
Volume Left (vph)	39	43	33	176
Volume Right (vph)	33	108	32	38
Hadj (s)	-0.01	-0.16	0.00	0.05
Departure Headway (s)	8.5	8.2	7.8	7.8
Degree Utilization, x	0.62	0.67	0.90	1.35
Capacity (veh/h)	398	411	451	470
Control Delay (s)	24.1	26.4	48.7	192.9
Approach Delay (s)	24.1	26.4	48.7	192.9
Approach LOS	C	D	E	F

Intersection Summary			
Delay	96.9		
HCM Level of Service	F		
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↑	↱		↰↑	↱	↰	↑↑↱		↰	↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.95		1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00		0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1727	1583		1812	1583	1770	3528		1770	1863	1583
Flt Permitted	0.95	0.98	1.00		0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1727	1583		1812	1583	1770	3528		1770	1863	1583
Volume (vph)	112	40	290	50	40	60	228	478	10	140	596	72
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	43	315	54	43	65	248	520	11	152	648	78
RTOR Reduction (vph)	0	0	282	0	0	58	0	1	0	0	0	47
Lane Group Flow (vph)	80	85	33	0	97	7	248	530	0	152	648	31
Turn Type	Split		Perm	Split		Perm	Prot			Prot		Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	8.1	8.1	8.1		7.9	7.9	13.5	34.1		9.4	30.0	30.0
Effective Green, g (s)	8.1	8.1	8.1		8.9	8.9	14.5	35.1		10.4	31.0	31.0
Actuated g/C Ratio	0.10	0.10	0.10		0.11	0.11	0.18	0.45		0.13	0.39	0.39
Clearance Time (s)	4.0	4.0	4.0		5.0	5.0	5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	173	178	163		205	179	327	1577		234	736	625
v/s Ratio Prot	0.05	c0.05			c0.05		c0.14	0.15		0.09	c0.35	
v/s Ratio Perm			0.02			0.00						0.02
v/c Ratio	0.46	0.48	0.20		0.47	0.04	0.76	0.34		0.65	0.88	0.05
Uniform Delay, d1	33.1	33.2	32.2		32.6	31.0	30.3	14.1		32.3	22.0	14.7
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.0	2.0	0.6		1.7	0.1	9.7	0.1		6.1	11.9	0.0
Delay (s)	35.1	35.2	32.8		34.3	31.1	40.0	14.2		38.4	33.9	14.7
Level of Service	D	D	C		C	C	D	B		D	C	B
Approach Delay (s)		33.6			33.0			22.5			33.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	29.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	78.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↱		↰↰	↑	↱		↰↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.98	1.00
Satd. Flow (prot)	1719	3539	1538	1770	3534		3335	1810	1583		1791	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.98	1.00
Satd. Flow (perm)	1719	3539	1538	1770	3534		3335	1810	1583		1791	1538
Volume (vph)	51	1359	599	188	867	9	390	30	230	19	20	21
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	54	1446	637	200	922	10	415	32	245	20	21	22
RTOR Reduction (vph)	0	0	334	0	0	0	0	0	168	0	0	21
Lane Group Flow (vph)	54	1446	303	200	932	0	415	32	77	0	41	1
Heavy Vehicles (%)	5%	2%	5%	2%	2%	2%	5%	5%	2%	2%	5%	5%
Turn Type	Prot		Perm	Prot			Split		Perm	Split		Perm
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases			4						2			6
Actuated Green, G (s)	3.3	36.6	36.6	10.8	44.1		15.8	15.8	15.8		2.2	2.2
Effective Green, g (s)	4.3	37.6	37.6	11.8	45.1		16.8	16.8	16.8		2.2	2.2
Actuated g/C Ratio	0.05	0.45	0.45	0.14	0.53		0.20	0.20	0.20		0.03	0.03
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	88	1577	685	247	1888		664	360	315		47	40
v/s Ratio Prot	0.03	c0.41		c0.11	0.26		c0.12	0.02			c0.02	
v/s Ratio Perm			0.20						0.05			0.00
v/c Ratio	0.61	0.92	0.44	0.81	0.49		0.62	0.09	0.24		0.87	0.01
Uniform Delay, d1	39.2	21.9	16.2	35.2	12.4		30.9	27.6	28.5		41.0	40.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	12.0	8.7	0.5	17.5	0.2		1.8	0.1	0.4		84.1	0.1
Delay (s)	51.3	30.7	16.6	52.7	12.6		32.8	27.7	28.9		125.1	40.2
Level of Service	D	C	B	D	B		C	C	C		F	D
Approach Delay (s)		27.0			19.7			31.1			95.4	
Approach LOS		C			B			C			F	

Intersection Summary			
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	84.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↱		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3456		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3456		1770	1583
Volume (vph)	195	1344	903	168	178	135
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	207	1430	961	179	189	144
RTOR Reduction (vph)	0	0	19	0	0	116
Lane Group Flow (vph)	207	1430	1121	0	189	28
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	10.2	37.8	23.6		11.3	11.3
Effective Green, g (s)	10.2	38.8	24.6		11.3	11.3
Actuated g/C Ratio	0.18	0.67	0.42		0.19	0.19
Clearance Time (s)	4.0	5.0	5.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	311	2363	1463		344	308
v/s Ratio Prot	0.12	c0.40	c0.32		c0.11	
v/s Ratio Perm						0.02
v/c Ratio	0.67	0.61	0.77		0.55	0.09
Uniform Delay, d1	22.4	5.4	14.3		21.1	19.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.3	0.4	2.5		1.8	0.1
Delay (s)	27.7	5.8	16.8		22.9	19.3
Level of Service	C	A	B		C	B
Approach Delay (s)		8.6	16.8		21.4	
Approach LOS		A	B		C	

Intersection Summary			
HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
20: Main Street & O'Hara Avenue

2010 & Proj PM
2/4/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↱			↰↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.85			0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)	1770	1863	1583	1770	1861		1770	1583			1695	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.76	1.00			0.95	
Satd. Flow (perm)	1770	1863	1583	1770	1861		1409	1583			1642	
Volume (vph)	5	1279	273	21	892	5	208	0	48	1	0	1
Peak-hour factor, PHF	0.92	0.94	0.94	0.94	0.94	0.92	0.94	0.92	0.94	0.92	0.92	0.92
Adj. Flow (vph)	5	1361	290	22	949	5	221	0	51	1	0	1
RTOR Reduction (vph)	0	0	70	0	0	0	0	42	0	0	1	0
Lane Group Flow (vph)	5	1361	220	22	954	0	221	9	0	0	1	0
Turn Type	Prot		Perm	Prot			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4				2			6		
Actuated Green, G (s)	0.8	76.5	76.5	1.6	77.3		18.4	18.4			19.4	
Effective Green, g (s)	0.8	77.5	77.5	1.6	78.3		19.4	19.4			19.4	
Actuated g/C Ratio	0.01	0.70	0.70	0.01	0.71		0.18	0.18			0.18	
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0		5.0	5.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	13	1307	1110	26	1319		247	278			288	
v/s Ratio Prot	0.00	c0.73		c0.01	0.51			0.01				
v/s Ratio Perm			0.14				c0.16				0.00	
v/c Ratio	0.38	1.04	0.20	0.85	0.72		0.89	0.03			0.00	
Uniform Delay, d1	54.6	16.5	5.7	54.3	9.6		44.6	37.8			37.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	17.9	36.3	0.1	109.6	2.0		30.9	0.0			0.0	
Delay (s)	72.5	52.8	5.8	164.0	11.6		75.4	37.8			37.6	
Level of Service	E	D	A	F	B		E	D			D	
Approach Delay (s)		44.7			15.0			68.4			37.6	
Approach LOS		D			B			E			D	

Intersection Summary			
HCM Average Control Delay	36.9	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	110.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↱		↰	↑↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.97		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3416		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3416		1770	3539
Volume (vph)	118	247	526	160	293	638
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	126	263	560	170	312	679
RTOR Reduction (vph)	0	219	42	0	0	0
Lane Group Flow (vph)	126	44	688	0	312	679
Turn Type		Perm			Prot	
Protected Phases	8		2		1	6
Permitted Phases		8				
Actuated Green, G (s)	7.3	7.3	16.0		12.6	32.6
Effective Green, g (s)	8.3	8.3	17.0		12.6	33.6
Actuated g/C Ratio	0.17	0.17	0.34		0.25	0.67
Clearance Time (s)	5.0	5.0	5.0		4.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	294	263	1164		447	2383
v/s Ratio Prot	c0.07		c0.20		c0.18	0.19
v/s Ratio Perm		0.03				
v/c Ratio	0.43	0.17	0.59		0.70	0.28
Uniform Delay, d1	18.7	17.8	13.6		16.9	3.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.0	0.3	0.8		4.7	0.1
Delay (s)	19.7	18.1	14.4		21.6	3.4
Level of Service	B	B	B		C	A
Approach Delay (s)	18.6		14.4			9.1
Approach LOS	B		B			A

Intersection Summary			
HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	49.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↱	↱	↰	↑↑	↱	↰↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	0.95	1.00	0.95	1.00	0.97	0.95	
Frt	1.00	0.96		1.00	0.98	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3389		1770	1731	1504	1770	3539	1583	3433	3499	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	3389		1770	1731	1504	1770	3539	1583	3433	3499	
Volume (vph)	31	156	61	101	212	351	29	514	98	585	638	52
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	34	173	68	112	236	390	32	571	109	650	709	58
RTOR Reduction (vph)	0	52	0	0	8	269	0	0	74	0	5	0
Lane Group Flow (vph)	34	189	0	112	268	81	32	571	35	650	762	0
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Actuated Green, G (s)	2.7	15.3		6.1	18.7	18.7	1.8	26.2	26.2	17.4	41.8	
Effective Green, g (s)	2.7	15.3		6.1	18.7	18.7	1.8	26.2	26.2	17.4	41.8	
Actuated g/C Ratio	0.03	0.19		0.08	0.23	0.23	0.02	0.32	0.32	0.21	0.52	
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	59	640		133	400	347	39	1145	512	737	1806	
v/s Ratio Prot	0.02	0.06		c0.06	c0.15		0.02	c0.16		c0.19	0.22	
v/s Ratio Perm						0.05			0.02			
v/c Ratio	0.58	0.30		0.84	0.67	0.23	0.82	0.50	0.07	0.88	0.42	
Uniform Delay, d1	38.6	28.2		37.0	28.3	25.3	39.4	22.1	19.0	30.8	12.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	12.9	0.3		35.7	4.4	0.3	76.9	1.6	0.3	12.0	0.7	
Delay (s)	51.5	28.5		72.7	32.7	25.7	116.4	23.7	19.2	42.8	12.8	
Level of Service	D	C		E	C	C	F	C	B	D	B	
Approach Delay (s)		31.3			35.4			27.1			26.6	
Approach LOS		C			D			C			C	

Intersection Summary

HCM Average Control Delay	29.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

23: Neroly Road & Live Oak Ave

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↱			↰↑↱			✣			✣	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	20	219	166	80	189	242	83	93	40	253	180	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	238	180	87	205	263	90	101	43	275	196	54

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	141	299	190	366	235	525
Volume Left (vph)	22	0	87	0	90	275
Volume Right (vph)	0	180	0	263	43	54
Hadj (s)	0.11	-0.39	0.26	-0.47	0.00	0.08
Departure Headway (s)	8.7	8.2	8.6	7.9	8.6	7.9
Degree Utilization, x	0.34	0.68	0.45	0.80	0.56	1.15
Capacity (veh/h)	406	427	410	448	400	449
Control Delay (s)	14.8	25.5	17.4	34.6	21.8	115.7
Approach Delay (s)	22.1		28.7		21.8	115.7
Approach LOS	C		D		C	F

Intersection Summary			
Delay	52.2		
HCM Level of Service	F		
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

24: Laurel Road & Live Oak Avenue

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↰	↑↑↑	↑↑↱		↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	0.97	0.91	0.91		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	3433	5085	5023		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	3433	5085	5023		1770	1583
Volume (vph)	422	929	1015	90	129	384
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	459	1010	1103	98	140	417
RTOR Reduction (vph)	0	0	17	0	0	333
Lane Group Flow (vph)	459	1010	1184	0	140	84
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	10.7	31.2	16.5		9.9	9.9
Effective Green, g (s)	10.7	31.2	16.5		9.9	9.9
Actuated g/C Ratio	0.22	0.64	0.34		0.20	0.20
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	748	3231	1688		357	319
v/s Ratio Prot	c0.13	0.20	c0.24		c0.08	
v/s Ratio Perm						0.05
v/c Ratio	0.61	0.31	0.70		0.39	0.26
Uniform Delay, d1	17.3	4.1	14.2		17.0	16.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.5	0.1	1.3		0.7	0.4
Delay (s)	18.8	4.1	15.5		17.7	17.0
Level of Service	B	A	B		B	B
Approach Delay (s)		8.7	15.5		17.2	
Approach LOS		A	B		B	

Intersection Summary

HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	49.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.98		1.00	0.98		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3486		1770	3459		1770	3462		1770	3320	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3486		1770	3459		1770	3462		1770	3320	
Volume (vph)	235	795	88	80	678	120	149	524	89	207	396	278
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	250	846	94	85	721	128	159	557	95	220	421	296
RTOR Reduction (vph)	0	11	0	0	19	0	0	19	0	0	173	0
Lane Group Flow (vph)	250	929	0	85	830	0	159	633	0	220	544	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.0	26.1		4.7	19.8		8.8	16.8		10.8	18.8	
Effective Green, g (s)	11.0	26.1		4.7	19.8		8.8	16.8		10.8	18.8	
Actuated g/C Ratio	0.15	0.35		0.06	0.27		0.12	0.23		0.15	0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	262	1223		112	921		209	782		257	839	
v/s Ratio Prot	c0.14	0.27		0.05	c0.24		0.09	c0.18		c0.12	0.16	
v/s Ratio Perm												
v/c Ratio	0.95	0.76		0.76	0.90		0.76	0.81		0.86	0.65	
Uniform Delay, d1	31.5	21.4		34.3	26.4		31.8	27.3		31.0	24.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	42.8	2.8		25.1	11.8		15.0	6.2		23.3	1.7	
Delay (s)	74.3	24.1		59.4	38.2		46.8	33.5		54.3	26.6	
Level of Service	E	C		E	D		D	C		D	C	
Approach Delay (s)		34.7			40.1			36.1			33.1	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM Average Control Delay	35.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	74.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑	↱	↰	↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	1863	1583	1770	1863
Volume (vph)	163	99	362	158	98	444
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	177	108	393	172	107	483
RTOR Reduction (vph)	0	88	0	88	0	0
Lane Group Flow (vph)	177	20	393	84	107	483
Turn Type		Perm		Perm	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Actuated Green, G (s)	9.5	9.5	24.5	24.5	5.0	33.5
Effective Green, g (s)	9.5	9.5	25.5	25.5	5.0	34.5
Actuated g/C Ratio	0.18	0.18	0.49	0.49	0.10	0.66
Clearance Time (s)	4.0	4.0	5.0	5.0	4.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	323	289	914	776	170	1236
v/s Ratio Prot	c0.10		c0.21		c0.06	0.26
v/s Ratio Perm		0.01		0.05		
v/c Ratio	0.55	0.07	0.43	0.11	0.63	0.39
Uniform Delay, d1	19.3	17.6	8.6	7.1	22.6	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.1	0.3	0.1	7.1	0.2
Delay (s)	21.2	17.7	8.9	7.2	29.7	4.2
Level of Service	C	B	A	A	C	A
Approach Delay (s)	19.9		8.4			8.8
Approach LOS	B		A			A

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	52.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

27: Main Street & Proj Dwy Center

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↑↑	↑↑	↱	↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	1770	1583
Volume (vph)	126	1930	1012	152	189	93
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	2098	1100	165	205	101
RTOR Reduction (vph)	0	0	0	62	0	85
Lane Group Flow (vph)	137	2098	1100	103	205	16
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Actuated Green, G (s)	13.9	92.6	74.2	74.2	18.4	18.4
Effective Green, g (s)	14.4	93.1	74.7	74.7	18.9	18.9
Actuated g/C Ratio	0.12	0.78	0.62	0.62	0.16	0.16
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	212	2746	2203	985	279	249
v/s Ratio Prot	0.08	c0.59	0.31		c0.12	
v/s Ratio Perm				0.06		0.01
v/c Ratio	0.65	0.76	0.50	0.10	0.73	0.06
Uniform Delay, d1	50.4	7.4	12.4	9.1	48.2	43.0
Progression Factor	1.15	0.40	0.57	0.42	1.00	1.00
Incremental Delay, d2	3.9	1.2	0.6	0.2	9.6	0.1
Delay (s)	61.6	4.1	7.6	4.0	57.8	43.1
Level of Service	E	A	A	A	E	D
Approach Delay (s)		7.7	7.2		52.9	
Approach LOS		A	A		D	

Intersection Summary			
HCM Average Control Delay	11.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

28: Main Street & Proj Dwy East

	⤴	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱		↰↑	↱		↰↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583		1770	1583		1770	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.55	1.00		0.59	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583		1032	1583		1103	1583
Volume (vph)	99	2007	97	185	1062	90	87	0	249	97	0	94
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	2182	105	201	1154	98	95	0	271	105	0	102
RTOR Reduction (vph)	0	0	28	0	0	30	0	0	158	0	0	90
Lane Group Flow (vph)	108	2182	77	201	1154	68	0	95	113	0	105	12
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8		8	4		4
Actuated Green, G (s)	12.3	82.5	82.5	16.0	86.2	86.2		14.5	14.5		14.5	14.5
Effective Green, g (s)	12.3	82.5	82.5	16.0	86.2	86.2		14.5	14.5		14.5	14.5
Actuated g/C Ratio	0.10	0.66	0.66	0.13	0.69	0.69		0.12	0.12		0.12	0.12
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	174	2336	1045	227	2440	1092		120	184		128	184
v/s Ratio Prot	0.06	c0.62		c0.11	c0.33							
v/s Ratio Perm			0.05			0.04		0.09	0.07		c0.10	0.01
v/c Ratio	0.62	0.93	0.07	0.89	0.47	0.06		0.79	0.61		0.82	0.06
Uniform Delay, d1	54.1	18.8	7.6	53.6	8.9	6.3		53.8	52.6		54.0	49.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	6.7	8.5	0.1	30.9	0.7	0.1		29.0	5.9		32.6	0.1
Delay (s)	60.8	27.3	7.7	84.5	9.6	6.4		82.8	58.5		86.6	49.4
Level of Service	E	C	A	F	A	A		F	E		F	D
Approach Delay (s)		28.0			19.7			64.8			68.2	
Approach LOS		C			B			E			E	

Intersection Summary			
HCM Average Control Delay	30.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱	↰	↑	↰↰	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1583	1770	1863	3433	1583
Flt Permitted	1.00	1.00	0.74	1.00	0.95	1.00
Satd. Flow (perm)	1863	1583	1384	1863	3433	1583
Volume (vph)	20	506	150	20	521	149
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	550	163	22	566	162
RTOR Reduction (vph)	0	367	0	0	0	100
Lane Group Flow (vph)	22	183	163	22	566	62
Turn Type		Perm	Perm			custom
Protected Phases	4			8		
Permitted Phases		4	8		2	2
Actuated Green, G (s)	9.4	9.4	9.4	9.4	10.9	10.9
Effective Green, g (s)	9.4	9.4	9.4	9.4	10.9	10.9
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.39	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	619	526	460	619	1322	610
v/s Ratio Prot	0.01			0.01		
v/s Ratio Perm		0.12	c0.12		c0.16	0.04
v/c Ratio	0.04	0.35	0.35	0.04	0.43	0.10
Uniform Delay, d1	6.4	7.1	7.2	6.4	6.4	5.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	0.4	0.5	0.0	0.2	0.1
Delay (s)	6.4	7.5	7.6	6.4	6.6	5.6
Level of Service	A	A	A	A	A	A
Approach Delay (s)	7.5			7.5	6.4	
Approach LOS	A			A	A	

Intersection Summary			
HCM Average Control Delay	7.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	28.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
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                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Wilbur/Minaker
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):        0.236
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):     xxxxxx
Optimal Cycle:        24              Level Of Service:                 A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted        Protected        Protected
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:        0  1  0  0  1    0  1  0  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      60    0    40    10   10    20    10  380   160    30  180    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   60    0    40    10   10    20    10  380   160    30  180    10
Added Vol:      0    0     0     0    0     0     0   41     0     0   41     0
PasserByVol:    0    0     0     0    0     0     0    9     1     0    4     0
Initial Fut:   60    0    40    10   10    20    10  430   161    30  225    10
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    60    0    40    10   10    20    10  430   161    30  225    10
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   60    0    40    10   10    20    10  430   161    30  225    10
RTOR Reduct:    0    0    30     0    0    10     0    0     0     0    0     0
RTOR Vol:      60    0    10    10   10    10    10  430   161    30  225    10
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   60    0    10    10   10    10    10  430   161    30  225    10
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.00  1.00  0.50 0.50  1.00  1.00 1.46  0.54  1.00 1.91  0.09
Final Sat.:  1720    0  1720   860  860  1720  1720 2503   937  1720 3294   146
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.00  0.01  0.01 0.01  0.01  0.01 0.17  0.17  0.02 0.07  0.07
Crit Volume:   60                   20               296         30
Crit Moves:  ****                 ****              ****        ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #6 E 18th/Hillcrest
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.588
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        45                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  0  1    1  0  1  0  1    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     170  150   270    60  120    30    40  410   230   330  390    40
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  170  150   270    60  120    30    40  410   230   330  390    40
Added Vol:      0    0    41     0    0     0     0   41     0    41   41     0
PasserByVol:    0    0     5     2    2     0     0   14    -1     2    7     0
Initial Fut:  170  150   316    62  122    30    40  465   229   373  438    40
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   170  150   316    62  122    30    40  465   229   373  438    40
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  170  150   316    62  122    30    40  465   229   373  438    40
RTOR Reduct:    0    0   316     0    0    30     0    0     0     0    0     0
RTOR Vol:     170  150     0    62  122     0    40  465   229   373  438    40
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  170  150     0    62  122     0    40  465   229   373  438    40
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.34  0.66  1.00 1.83  0.17
Final Sat.:  1720 1720  1720  1720 1720  1720  1720 2305  1135  1720 3152   288
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10 0.09  0.00  0.04 0.07  0.00  0.02 0.20  0.20  0.22 0.14  0.14
Crit Volume:  170                  122                   347   373
Crit Moves:  ****                 ****                  ****  ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
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                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #7 E 18th/viera
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):          0.566
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):       xxxxxx
Optimal Cycle:        33                Level Of Service:                   A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  1  0  0  1    0  0  1! 0  0    1  0  2  0  1    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      90   10    20    60   60    70    60  580   110    10  520    20
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   90   10    20    60   60    70    60  580   110    10  520    20
Added Vol:      0    0     0    16    0     0     0   93     0     0   94    16
PasserByVol:    0    0     0     2    0     1    -1   19    -1     1    8     2
Initial Fut:   90   10    20    78   60    71    59  692   109    11  622    38
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    90   10    20    78   60    71    59  692   109    11  622    38
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   90   10    20    78   60    71    59  692   109    11  622    38
RTOR Reduct:    0    0    11     0    0     0     0    0    90     0    0     0
RTOR Vol:      90   10     9    78   60    71    59  692    19    11  622    38
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   90   10     9    78   60    71    59  692    19    11  622    38
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1800 1800  1800  1800 1800  1800  1800 1800  1800  1800 1800  1800
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.90 0.10  1.00  0.37 0.29  0.34  1.00 2.00  1.00  1.00 0.94  0.06
Final Sat.:  1620  180  1800   672  517   611  1800 3600  1800  1800 1696   104
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.06 0.06  0.01  0.12 0.12  0.12  0.03 0.19  0.01  0.01 0.37  0.37
Crit Volume:   90                          209    59                         660
Crit Moves:  ****                         ****  ****                        ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #8 E 18th/Phillips
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.352
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        35                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    2  0  0  1  0    1  0  1  1  0    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      10   10    20   130   10   160   140  490    10    10  360   120
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   10   10    20   130   10   160   140  490    10    10  360   120
Added Vol:      0    0     0     0    0     0     0  149     0     0  150     0
PasserByVol:    0    0    -1     0    0     0     0   21     0     0   11     0
Initial Fut:   10   10    19   130   10   160   140  660    10    10  521   120
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    10   10    19   130   10   160   140  660    10    10  521   120
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   10   10    19   130   10   160   140  660    10    10  521   120
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    72
RTOR Vol:      10   10    19   130   10   160   140  660    10    10  521    49
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   10   10    19   130   10   160   140  660    10    10  521    49
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.34  0.66  2.00 0.06  0.94  1.00 1.97  0.03  1.00 2.00  1.00
Final Sat.:  1650  569  1081  3000   97  1553  1650 3251    49  1650 3300  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.02  0.02  0.04 0.10  0.10  0.08 0.20  0.20  0.01 0.16  0.03
Crit Volume:   10                   170         140                   261
Crit Moves:  ****                  ****        ****                  ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #9 Main St./SR 160 SB Ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.585
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        55                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  1  1  0    2  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      40   20   120    80   30    20    30  580    60   400  410   100
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   40   20   120    80   30    20    30  580    60   400  410   100
Added Vol:      0    0    21     0    0     0     0  149     0   192  150     0
PasserByVol:    0    0     2     0    0     0     0   21     0    60   11     0
Initial Fut:   40   20   143    80   30    20    30  750    60   652  571   100
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    40   20   143    80   30    20    30  750    60   652  571   100
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   40   20   143    80   30    20    30  750    60   652  571   100
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0    80
RTOR Vol:      40   20   143    80   30    20    30  750    60   652  571    20
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   40   20   143    80   30    20    30  750    60   652  571    20
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00
Lanes:       1.00 0.12  0.88  1.00 0.60  0.40  1.00 1.85  0.15  2.00 2.00  1.00
Final Sat.:  1720  211  1509  1720 1032   688  1720 3185   255  3127 3440  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.09  0.09  0.05 0.03  0.03  0.02 0.24  0.24  0.21 0.17  0.01
Crit Volume:       163          80                        405   326
Crit Moves:       ****        ****                       ****  ****
********************************************************************************
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--------------------------------------------------------------------------------
                    River Oaks Crossing Specific Plan EIR
                   Existing + Approved + Project Scenario
                                PM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
                 CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #10 Main St./SR 160 NB Ramps
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.787
Loss Time (sec):       8 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        81                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  0  2    0  0  0  0  0    0  0  1  1  0    1  0  2  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      90    0  1160     0    0     0     0  730    50    60  820     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   90    0  1160     0    0     0     0  730    50    60  820     0
Added Vol:      0    0   190     0    0     0     0  170     0    21  342     0
PasserByVol:    1    0    75     0    0     0     0   23     0     2   70     0
Initial Fut:   91    0  1425     0    0     0     0  923    50    83 1232     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    91    0  1425     0    0     0     0  923    50    83 1232     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   91    0  1425     0    0     0     0  923    50    83 1232     0
RTOR Reduct:    0    0    83     0    0     0     0    0     0     0    0     0
RTOR Vol:      91    0  1342     0    0     0     0  923    50    83 1232     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   91    0  1342     0    0     0     0  923    50    83 1232     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  0.91  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.00  2.00  0.00 0.00  0.00  0.00 1.90  0.10  1.00 2.00  0.00
Final Sat.:  1720    0  3127     0    0     0     0 3263   177  1720 3440     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.00  0.43  0.00 0.00  0.00  0.00 0.28  0.28  0.05 0.36  0.00
Crit Volume:             671          0           0                      616
Crit Moves:             ****               ****                     ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                   River Oaks Crossing Specific Plan EIR
                  Existing + Approved + Project Scenario
                               PM Peak Hour
--------------------------------------------------------------------------------
                    Level Of Service Computation Report
                 CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #11 Main St./Bridgehead Rd./Neroly Rd.
********************************************************************************
Cycle (sec):        100                Critical Vol./Cap.(X):         0.964
Loss Time (sec):     16 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:      180                Level Of Service:                  E
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  1  0  0  1    1  0  1  1  0    1  0  3  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 23 Apr 2002 << 430-530
Base Vol:     220  100    60   250   90    70    90 1410   390    30  590   150
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  220  100    60   250   90    70    90 1410   390    30  590   150
Added Vol:      0   60     0    30   61   102    98  261     0     0  261    31
PasserByVol:   -1    0    11     8    0     0     0   96     2     9   73     4
Initial Fut:  219  160    71   288  151   172   188 1767   392    39  924   185
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   219  160    71   288  151   172   188 1767   392    39  924   185
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  219  160    71   288  151   172   188 1767   392    39  924   185
RTOR Reduct:    0    0     0     0    0   172     0    0     0     0    0   158
RTOR Vol:     219  160    71   288  151     0   188 1767   392    39  924    27
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  219  160    71   288  151     0   188 1767   392    39  924    27
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.69  0.31  1.31 0.69  1.00  1.00 1.64  0.36  1.00 3.00  1.00
Final Sat.:  1650 1143   507  1968 1135  1650  1650 2701   599  1650 4950  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.14  0.14  0.15 0.13  0.00  0.11 0.65  0.65  0.02 0.19  0.02
Crit Volume:        231         219                          1080    39
Crit Moves:        ****        ****                          ****  ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                    River Oaks Crossing Specific Plan EIR
                   Existing + Approved + Project Scenario
                                PM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #12 Main St./Sandy Ln./Proj Drwy 3
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):        0.730
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        84              Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  1  1  0    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 30 Oct 2003 << 430-530
Base Vol:      10    0    10     0    0     0     0 1710    10    10  760     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   10    0    10     0    0     0     0 1710    10    10  760     0
Added Vol:      0    7     0   126    7    93    92  200     0     0  199   112
PasserByVol:    0    0     0    68    0    32    68   47     0     0   54    32
Initial Fut:   10    7    10   194    7   125   160 1957    10    10 1013   144
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    10    7    10   194    7   125   160 1957    10    10 1013   144
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   10    7    10   194    7   125   160 1957    10    10 1013   144
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0   144
RTOR Vol:      10    7    10   194    7   125   160 1957    10    10 1013     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   10    7    10   194    7   125   160 1957    10    10 1013     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.41  0.59  1.00 0.05  0.95  1.00 1.99  0.01  1.00 2.00  1.00
Final Sat.:  1650  679   971  1650   88  1563  1650 3283    17  1650 3300  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.01  0.01  0.12 0.08  0.08  0.10 0.60  0.60  0.01 0.31  0.00
Crit Volume:         17        194                     984          10
Crit Moves:        ****       ****                    ****        ****
********************************************************************************
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--------------------------------------------------------------------------------
                    River Oaks Crossing Specific Plan EIR
                   Existing + Approved + Project Scenario
                                PM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #13 Main St./Live Oak Ln./Proj Drwy
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):        0.852
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       154              Level Of Service:                 D
********************************************************************************
Approach:       North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Protected         Protected         Protected
Rights:           Include           Include           Include           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  1  0    2  0  1  1  0    1  0  1  1  0    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 23 Apr 2002 << 430-530
Base Vol:      50    0    40     0    0     0     0 1650    70    20  720     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   50    0    40     0    0     0     0 1650    70    20  720     0
Added Vol:     28  343    14   141  341    73    90  268    31    17  269   135
PasserByVol:    1    0    15    57    0    44    57   58    -1    16   42    44
Initial Fut:   79  343    69   198  341   117   147 1976   100    53 1031   179
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    79  343    69   198  341   117   147 1976   100    53 1031   179
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   79  343    69   198  341   117   147 1976   100    53 1031   179
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0   109
RTOR Vol:      79  343    69   198  341   117   147 1976   100    53 1031    70
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   79  343    69   198  341   117   147 1976   100    53 1031    70
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.67  0.33  2.00 1.49  0.51  1.00 1.90  0.10  1.00 2.00  1.00
Final Sat.:  1650 2747   553  3000 2457   843  1650 3141   159  1650 3300  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.12  0.12  0.07 0.14  0.14  0.09 0.63  0.63  0.03 0.31  0.04
Crit Volume:             206    99                  1038          53
Crit Moves:             ****  ****                  ****        ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #14 Main St./Big Break Rd.
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.708
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        78                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted       Protected        Protected
Rights:            Include          Include           Include          Include
Min. Green:      0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    0  1  0  0  1    1  0  2  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 23 Apr 2002 << 430-530
Base Vol:       70   60    90    40   40   120   270 1250   170    70  550    60
Growth Adj:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    70   60    90    40   40   120   270 1250   170    70  550    60
Added Vol:       0    0     0     0    0    21    27  394     0     0  396     0
PasserByVol:     0    0     0     1    0     9    11  271     0     0  191     2
Initial Fut:    70   60    90    41   40   150   308 1915   170    70 1137    62
User Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     70   60    90    41   40   150   308 1915   170    70 1137    62
Reduct Vol:      0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    70   60    90    41   40   150   308 1915   170    70 1137    62
RTOR Reduct:     0    0     0     0    0   150     0    0    70     0    0    41
RTOR Vol:       70   60    90    41   40     0   308 1915   100    70 1137    21
PCE Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:      1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    70   60    90    41   40     0   308 1915   100    70 1137    21
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:     1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:   1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:        1.00 0.40  0.60  0.51 0.49  1.00  1.00 2.00  1.00  1.00 2.00  1.00
Final Sat.:   1720  688  1032   871  849  1720  1720 3440  1720  1720 3440  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:      0.04 0.09  0.09  0.05 0.05  0.00  0.18 0.56  0.06  0.04 0.33  0.01
Crit Volume:       150          41                   957         70
Crit Moves:       ****        ****                  ****        ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #17 Oakley Rd./Empire Ave.
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.605
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        72                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  1  0    1  0  1  0  1    1  1  0  0  1    0  1  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 24 Apr 2002 << 445-545
Base Vol:     140  290    10   140  390    70   110   40   200    50   40    60
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  140  290    10   140  390    70   110   40   200    50   40    60
Added Vol:     89   70     0     0   68     0     0    0    90     0    0     0
PasserByVol:   -1  118     0     0  138     2     2    0     0     0    0     0
Initial Fut:  228  478    10   140  596    72   112   40   290    50   40    60
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   228  478    10   140  596    72   112   40   290    50   40    60
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  228  478    10   140  596    72   112   40   290    50   40    60
RTOR Reduct:    0    0     0     0    0    62     0    0   228     0    0    60
RTOR Vol:     228  478    10   140  596    10   112   40    62    50   40     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  228  478    10   140  596    10   112   40    62    50   40     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.96  0.04  1.00 1.00  1.00  1.47 0.53  1.00  0.56 0.44  1.00
Final Sat.:  1650 3232    68  1650 1650  1650  2210  868  1650   917  733  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.14 0.15  0.15  0.08 0.36  0.01  0.05 0.05  0.04  0.05 0.05  0.00
Crit Volume:  228                  596          76                    90
Crit Moves:  ****                 ****        ****                  ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #18 Empire Ave./Main St.
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.679
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        89                Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        2  0  1  0  1    0  1  0  0  1    1  0  2  0  1    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 24 Apr 2002 << 430-530
Base Vol:     200   30   230    20   20    20    50  920   390   190  460    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  200   30   230    20   20    20    50  920   390   190  460    10
Added Vol:     70    0     0     0    0     0     0  299    68     0  293     0
PasserByVol:  120    0     0    -1    0     1     1  140   141    -2  114    -1
Initial Fut:  390   30   230    19   20    21    51 1359   599   188  867     9
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   390   30   230    19   20    21    51 1359   599   188  867     9
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  390   30   230    19   20    21    51 1359   599   188  867     9
RTOR Reduct:    0    0   188     0    0    21     0    0   215     0    0     0
RTOR Vol:     390   30    42    19   20     0    51 1359   385   188  867     9
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  390   30    42    19   20     0    51 1359   385   188  867     9
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       2.00 1.00  1.00  0.49 0.51  1.00  1.00 2.00  1.00  1.00 1.98  0.02
Final Sat.:  3000 1650  1650   804  846  1650  1650 3300  1650  1650 3266    34
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.13 0.02  0.03  0.02 0.02  0.00  0.03 0.41  0.23  0.11 0.27  0.27
Crit Volume:  195                    39              680         188
Crit Moves:  ****                  ****             ****        ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #19 Main/Vintage
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.528
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        48                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  0  0  1    1  0  2  0  0    0  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0   180    0   120   180  920     0     0  510   170
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0   180    0   120   180  920     0     0  510   170
Added Vol:      0    0     0     0    0    15    15  284     0     0  279     0
PasserByVol:    0    0     0    -2    0     0     0  140     0     0  114    -2
Initial Fut:    0    0     0   178    0   135   195 1344     0     0  903   168
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   178    0   135   195 1344     0     0  903   168
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   178    0   135   195 1344     0     0  903   168
RTOR Reduct:    0    0     0     0    0   135     0    0     0     0    0     0
RTOR Vol:       0    0     0   178    0     0   195 1344     0     0  903   168
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0   178    0     0   195 1344     0     0  903   168
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  1.00 0.00  1.00  1.00 2.00  0.00  0.00 1.69  0.31
Final Sat.:     0    0     0  1720    0  1720  1720 3440     0     0 2900   540
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.10 0.00  0.00  0.11 0.39  0.00  0.00 0.31  0.31
Crit Volume:         0         178              195                          536
Crit Moves:                   ****             ****                         ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #20 Main/O'Hara
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.878
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       152                Level Of Service:                  D
********************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Permitted       Protected        Protected
Rights:           Include          Include         Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    0  0  1! 0  0    1  0  1  0  1    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     130    0    50      1    0     1      5  930   200     20  580     5
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  130    0    50      1    0     1      5  930   200     20  580     5
Added Vol:     65    0     0      0    0     0      0  213    71      0  213     0
PasserByVol:   13    0    -2      0    0     0      0  136     2      1   99     0
Initial Fut:  208    0    48      1    0     1      5 1279   273     21  892     5
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   208    0    48      1    0     1      5 1279   273     21  892     5
Reduct Vol:     0    0     0      0    0     0      0    0     0      0    0     0
Reduced Vol:  208    0    48      1    0     1      5 1279   273     21  892     5
RTOR Reduct:    0    0     0      0    0     0      0    0   208      0    0     0
RTOR Vol:     208    0    48      1    0     1      5 1279    65     21  892     5
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  208    0    48      1    0     1      5 1279    65     21  892     5
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.00  1.00  0.50 0.00  0.50  1.00 1.00  1.00  1.00 0.99  0.01
Final Sat.:  1720    0  1720   860    0   860  1720 1720  1720  1720 1710    10
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.12 0.00  0.03  0.00 0.00  0.00  0.00 0.74  0.04  0.01 0.52  0.52
Crit Volume:  208                            2       1279          21
Crit Moves:  ****                         ****       ****        ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #21 Empire/Cypress
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.438
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        41                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1  1  0    1  0  2  0  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0  340   160   190  460     0     0    0     0   120    0   160
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   0  340   160   190  460     0     0    0     0   120    0   160
Added Vol:     0   97     0    61   97     0     0    0     0     0    0    63
PasserByVol:   0   89     0    42   81     0     0    0     0    -2    0    24
Initial Fut:   0  526   160   293  638     0     0    0     0   118    0   247
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    0  526   160   293  638     0     0    0     0   118    0   247
Reduct Vol:    0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   0  526   160   293  638     0     0    0     0   118    0   247
RTOR Reduct:   0    0     0     0    0     0     0    0     0     0    0   247
RTOR Vol:      0  526   160   293  638     0     0    0     0   118    0     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   0  526   160   293  638     0     0    0     0   118    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.53  0.47  1.00 2.00  0.00  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:    0 2638   802  1720 3440     0     0    0     0  1720    0  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.20  0.20  0.17 0.19  0.00  0.00 0.00  0.00  0.07 0.00  0.00
Crit Volume:            343   293                         0         118
Crit Moves:            ****  ****                                  ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
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                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #22 Main/Cypress
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.498
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        45                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  2  0  1    2  0  1  1  0    1  0  1  1  0    1  0  0  1  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      30  310   100   470  420    50    30  130    60   100  190   250
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   30  310   100   470  420    50    30  130    60   100  190   250
Added Vol:      0  152     0    60  153     0     0   22     0     0   20    62
PasserByVol:   -1   52    -2    55   65     2     1    4     1     1    2    39
Initial Fut:   29  514    98   585  638    52    31  156    61   101  212   351
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    29  514    98   585  638    52    31  156    61   101  212   351
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   29  514    98   585  638    52    31  156    61   101  212   351
RTOR Reduct:    0    0    98     0    0     0     0    0     0     0    0   322
RTOR Vol:      29  514     0   585  638    52    31  156    61   101  212    29
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   29  514     0   585  638    52    31  156    61   101  212    29
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  0.91
Lanes:       1.00 2.00  1.00  2.00 1.85  0.15  1.00 1.44  0.56  1.00 1.00  1.00
Final Sat.:  1650 3300  1650  3000 3051   249  1650 2372   928  1650 1650  1500
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.16  0.00  0.20 0.21  0.21  0.02 0.07  0.07  0.06 0.13  0.02
Crit Volume:       257         293               31                   212
Crit Moves:       ****        ****             ****                  ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #24 Live Oak/Laurel
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):        0.437
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        41                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  0  0  1    2  0  3  0  0    0  0  2  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0    90    0   190   230  900     0     0  980    50
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0    90    0   190   230  900     0     0  980    50
Added Vol:      0    0     0    37    0   192   190    0     0     0    0    37
PasserByVol:    0    0     0     2    0     2     2   29     0     0   35     3
Initial Fut:    0    0     0   129    0   384   422  929     0     0 1015    90
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0    0     0   129    0   384   422  929     0     0 1015    90
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0    0     0   129    0   384   422  929     0     0 1015    90
RTOR Reduct:    0    0     0     0    0   232     0    0     0     0    0     0
RTOR Vol:       0    0     0   129    0   152   422  929     0     0 1015    90
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0    0     0   129    0   152   422  929     0     0 1015    90
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  1.00 0.00  1.00  2.00 3.00  0.00  0.00 2.76  0.24
Final Sat.:     0    0     0  1720    0  1720  3127 5160     0     0 4740   420
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.08 0.00  0.09  0.13 0.18  0.00  0.00 0.21  0.21
Crit Volume:    0                         152   211                         368
Crit Moves:                              ****  ****                        ****
********************************************************************************
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--------------------------------------------------------------------------------
                    River Oaks Crossing Specific Plan EIR
                   Existing + Approved + Project Scenario
                                PM Peak Hour
--------------------------------------------------------------------------------
                     Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #25 Empire/Laurel
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):        0.695
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):     xxxxxx
Optimal Cycle:        75               Level Of Service:                 B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  1  1  0    1  0  1  1  0    1  0  1  1  0    1  0  1  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:     150  410    90   190  270   240   200  760    90    80  640    90
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  150  410    90   190  270   240   200  760    90    80  640    90
Added Vol:      0   95     0     2   96     0     0   37     0     0   37     2
PasserByVol:   -1   19    -1    15   30    38    35   -2    -2     0    1    28
Initial Fut:  149  524    89   207  396   278   235  795    88    80  678   120
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   149  524    89   207  396   278   235  795    88    80  678   120
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  149  524    89   207  396   278   235  795    88    80  678   120
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:     149  524    89   207  396   278   235  795    88    80  678   120
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  149  524    89   207  396   278   235  795    88    80  678   120
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 1.71  0.29  1.00 1.18  0.82  1.00 1.80  0.20  1.00 1.70  0.30
Final Sat.:  1650 2821   479  1650 1939  1361  1650 2971   329  1650 2804   496
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.09 0.19  0.19  0.13 0.20  0.20  0.14 0.27  0.27  0.05 0.24  0.24
Crit Volume:       307         207               235                         399
Crit Moves:        ****        ****              ****                        ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #26 Project Dwy 1/Bridgehead Rd.
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.362
Loss Time (sec):       8 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        27                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted       Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  1  0  1    1  0  1  0  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  330     0     0  410     0     0    0     0     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0  330     0     0  410     0     0    0     0     0    0     0
Added Vol:      0   31   158    98   30     0     0    0     0   163    0    99
PasserByVol:    0    1     0     0    4     0     0    0     0     0    0     0
Initial Fut:    0  362   158    98  444     0     0    0     0   163    0    99
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:     0  362   158    98  444     0     0    0     0   163    0    99
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  362   158    98  444     0     0    0     0   163    0    99
RTOR Reduct:    0    0   158     0    0     0     0    0     0     0    0    98
RTOR Vol:       0  362     0    98  444     0     0    0     0   163    0     1
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:    0  362     0    98  444     0     0    0     0   163    0     1
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 1.00  1.00  1.00 1.00  0.00  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:     0 1720  1720  1720 1720     0     0    0     0  1720    0  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.21  0.00  0.06 0.26  0.00  0.00 0.00  0.00  0.09 0.00  0.00
Crit Volume:       362          98                     0         163
Crit Moves:       ****        ****                              ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #27 Main St./Proj Drwy 4
********************************************************************************
Cycle (sec):         100              Critical Vol./Cap.(X):         0.671
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        69              Level Of Service:                  B
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:    0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  0  0  0    1  0  0  0  1    1  0  2  0  0    0  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0    0     0     0    0     0     0 1720     0     0  770     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   0    0     0     0    0     0     0 1720     0     0  770     0
Added Vol:     0    0     0   122    0    61    59  267     0     0  250   120
PasserByVol:   0    0     0    67    0    32    67  -57     0     0   -8    32
Initial Fut:   0    0     0   189    0    93   126 1930     0     0 1012   152
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    0    0     0   189    0    93   126 1930     0     0 1012   152
Reduct Vol:    0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   0    0     0   189    0    93   126 1930     0     0 1012   152
RTOR Reduct:   0    0     0     0    0    93     0    0     0     0    0   152
RTOR Vol:      0    0     0   189    0     0   126 1930     0     0 1012     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   0    0     0   189    0     0   126 1930     0     0 1012     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       0.00 0.00  0.00  1.00 0.00  1.00  1.00 2.00  0.00  0.00 2.00  1.00
Final Sat.:    0    0     0  1720    0  1720  1720 3440     0     0 3440  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.00  0.00  0.11 0.00  0.00  0.07 0.56  0.00  0.00 0.29  0.00
Crit Volume:         0         189                 965            0
Crit Moves:                   ****                  ****        ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
                    Existing + Approved + Project Scenario
                                 PM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #28 Main St/Proj Dwy 6
********************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.785
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        86                Level Of Service:                  C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Permitted        Permitted         Protected        Protected
Rights:          Include          Include           Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:       0  1  0  0  1    0  1  0  0  1    1  0  2  0  1    1  0  2  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0    0     0     0    0     0     0 1650     0     0  720     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    0     0     0    0     0     0 1650     0     0  720     0
Added Vol:      0    0     0    63    0    82    65  358     0     0  339    78
PasserByVol:   87    0   249    34    0    12    34   -1    97   185    3    12
Initial Fut:   87    0   249    97    0    94    99 2007    97   185 1062    90
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    87    0   249    97    0    94    99 2007    97   185 1062    90
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   87    0   249    97    0    94    99 2007    97   185 1062    90
RTOR Reduct:    0    0   185     0    0    94     0    0    87     0    0    90
RTOR Vol:      87    0    64    97    0     0    99 2007    10   185 1062     0
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   87    0    64    97    0     0    99 2007    10   185 1062     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.00  1.00  1.00 0.00  1.00  1.00 2.00  1.00  1.00 2.00  1.00
Final Sat.:  1720    0  1720  1720    0  1720  1720 3440  1720  1720 3440  1720
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.00  0.04  0.06 0.00  0.00  0.06 0.58  0.01  0.11 0.31  0.00
Crit Volume:              64    97                   1004          185
Crit Moves:             ****  ****                   ****         ****
********************************************************************************
```

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑↑	↱	↰	↰↑↱		↰↰	↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.91	1.00	0.91	0.91		0.97	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.99		0.95	1.00	1.00
Satd. Flow (prot)	1719	3334		1719	4940	1538	1564	3152		3335	1810	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.99		0.95	1.00	1.00
Satd. Flow (perm)	1719	3334		1719	4940	1538	1564	3152		3335	1810	1538
Volume (vph)	108	742	189	10	1145	354	200	135	51	116	73	120
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	807	205	11	1245	385	217	147	55	126	79	130
RTOR Reduction (vph)	0	15	0	0	0	194	0	25	0	0	0	114
Lane Group Flow (vph)	117	997	0	11	1245	191	137	257	0	126	79	16
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases						6						4
Actuated Green, G (s)	10.0	57.3		1.2	48.5	48.5	12.5	12.5		12.0	12.0	12.0
Effective Green, g (s)	10.0	58.3		1.2	49.5	49.5	12.5	12.5		12.0	12.0	12.0
Actuated g/C Ratio	0.10	0.58		0.01	0.50	0.50	0.12	0.12		0.12	0.12	0.12
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	172	1944		21	2445	761	196	394		400	217	185
v/s Ratio Prot	c0.07	c0.30		0.01	0.25		c0.09	0.08		0.04	c0.04	
v/s Ratio Perm						0.12						0.01
v/c Ratio	0.68	0.51		0.52	0.51	0.25	0.70	0.65		0.32	0.36	0.08
Uniform Delay, d1	43.5	12.4		49.1	17.0	14.6	41.9	41.7		40.2	40.5	39.1
Progression Factor	0.95	0.73		1.35	0.29	0.55	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.8	0.9		8.0	0.6	0.6	8.5	2.9		0.2	0.4	0.1
Delay (s)	49.1	9.9		74.4	5.5	8.6	50.4	44.6		40.4	40.9	39.2
Level of Service	D	A		E	A	A	D	D		D	D	D
Approach Delay (s)		14.0			6.7			46.5			40.0	
Approach LOS		B			A			D			D	

Intersection Summary			
HCM Average Control Delay	16.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↑↱		↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.96		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1828		1770	1779		1770	1837		1770	1840	
Flt Permitted	0.59	1.00		0.70	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1092	1828		1303	1779		1770	1837		1770	1840	
Volume (vph)	14	70	10	50	144	61	41	195	20	45	140	13
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	16	78	11	56	160	68	46	217	22	50	156	14
RTOR Reduction (vph)	0	8	0	0	35	0	0	6	0	0	6	0
Lane Group Flow (vph)	16	81	0	56	193	0	46	233	0	50	164	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	8.8	8.8		8.8	8.8		1.7	16.5		1.7	16.5	
Effective Green, g (s)	9.3	9.3		9.3	9.3		1.7	17.0		1.7	17.0	
Actuated g/C Ratio	0.23	0.23		0.23	0.23		0.04	0.42		0.04	0.42	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	254	425		303	414		75	781		75	782	
v/s Ratio Prot		0.04			c0.11		0.03	c0.13		c0.03	0.09	
v/s Ratio Perm	0.01			0.04								
v/c Ratio	0.06	0.19		0.18	0.47		0.61	0.30		0.67	0.21	
Uniform Delay, d1	12.0	12.3		12.3	13.2		18.8	7.6		18.9	7.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.2		0.3	0.8		14.0	0.2		20.1	0.1	
Delay (s)	12.1	12.5		12.6	14.0		32.8	7.8		39.0	7.4	
Level of Service	B	B		B	B		C	A		D	A	
Approach Delay (s)		12.5			13.8			11.8			14.6	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	36.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

23: Neroly Road & Live Oak Ave

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↱			↰↑↱		↰	↑↱		↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frt		0.96			0.96		1.00	0.96		1.00	0.96	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3389			3356		1770	1793		1770	1794	
Flt Permitted		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		3389			3356		1770	1793		1770	1794	
Volume (vph)	31	191	74	70	212	115	106	148	50	167	62	20
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	208	80	76	230	125	115	161	54	182	67	22
RTOR Reduction (vph)	0	45	0	0	60	0	0	17	0	0	15	0
Lane Group Flow (vph)	0	277	0	0	371	0	115	198	0	182	74	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		10.0			11.4		7.3	12.4		9.0	14.1	
Effective Green, g (s)		10.5			11.9		7.3	12.9		9.0	14.6	
Actuated g/C Ratio		0.17			0.20		0.12	0.21		0.15	0.24	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		590			662		214	384		264	434	
v/s Ratio Prot		c0.08			c0.11		0.06	c0.11		c0.10	0.04	
v/s Ratio Perm												
v/c Ratio		0.47			0.56		0.54	0.52		0.69	0.17	
Uniform Delay, d1		22.4			21.8		24.9	20.9		24.3	18.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6			1.1		2.6	1.2		7.3	0.2	
Delay (s)		23.0			22.9		27.5	22.1		31.6	18.2	
Level of Service		C			C		C	C		C	B	
Approach Delay (s)		23.0			22.9			24.0			27.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	24.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	60.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
              Existing + Approved + Project Scenario + Mitigated
                                 AM Peak Hour
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                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #11 Main St./Bridgehead Rd./Neroly Rd.
********************************************************************************
Cycle (sec):         120                Critical Vol./Cap.(X):         0.427
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        40                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  1  0  1  0    2  0  1  0  1    1  0  1  1  0    1  0  3  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 23 Apr 2002 << 730-830
Base Vol:     200  110    50   100   50    80    60  600   190    10 1020   330
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  200  110    50   100   50    80    60  600   190    10 1020   330
Added Vol:      0   29     0    15   24    40    48  127     0     0  103    12
PasserByVol:    0   -4     1     1   -1     0     0   15    -1     0   22    12
Initial Fut:  200  135    51   116   73   120   108  742   189    10 1145   354
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   200  135    51   116   73   120   108  742   189    10 1145   354
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  200  135    51   116   73   120   108  742   189    10 1145   354
RTOR Reduct:    0    0     0     0    0   108     0    0     0     0    0    64
RTOR Vol:     200  135    51   116   73    12   108  742   189    10 1145   290
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  200  135    51   116   73    12   108  742   189    10 1145   290
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.56 1.05  0.39  2.00 1.00  1.00  1.00 1.59  0.41  1.00 3.00  1.00
Final Sat.:  2337 1728   651  3000 1650  1650  1650 2630   670  1650 4950  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.09 0.08  0.08  0.04 0.04  0.01  0.07 0.28  0.28  0.01 0.23  0.18
Crit Volume:  128                    73         108                   382
Crit Moves:  ****                  ****        ****                  ****
********************************************************************************
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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
              Existing + Approved + Project Scenario + Mitigated
                                 AM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #16 Oakley/Live Oak
********************************************************************************
Cycle (sec):          60                Critical Vol./Cap.(X):         0.278
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        26                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      40   60    20    10   30     5     5   70    10    50  140    20
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   40   60    20    10   30     5     5   70    10    50  140    20
Added Vol:      0  136     0    35  111     7     8    0     0     0    0    43
PasserByVol:    1   -1     0     0   -1     1     1    0     0     0    4    -2
Initial Fut:   41  195    20    45  140    13    14   70    10    50  144    61
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    41  195    20    45  140    13    14   70    10    50  144    61
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   41  195    20    45  140    13    14   70    10    50  144    61
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      41  195    20    45  140    13    14   70    10    50  144    61
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   41  195    20    45  140    13    14   70    10    50  144    61
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.91  0.09  1.00 0.92  0.08  1.00 0.88  0.12  1.00 0.70  0.30
Final Sat.:  1720 1560   160  1720 1574   146  1720 1505   215  1720 1208   512
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.13  0.13  0.03 0.09  0.09  0.01 0.05  0.05  0.03 0.12  0.12
Crit Volume:       215          45               14                   205
Crit Moves:       ****        ****             ****                  ****
********************************************************************************
```

```
--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
              Existing + Approved + Project Scenario + Mitigated
                                 AM Peak Hour
--------------------------------------------------------------------------------

                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #23 Neroly/Live Oak
********************************************************************************
Cycle (sec):        100                 Critical Vol./Cap.(X):        0.431
Loss Time (sec):      0 (Y+R=4.0 sec)   Average Delay (sec/veh):     xxxxxx
Optimal Cycle:       40                 Level Of Service:                 A
********************************************************************************
Approach:     North Bound      South Bound       East Bound       West Bound
Movement:    L  -  T  -  R   L  -  T  -  R   L  -  T  -  R   L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Protected        Protected       Split Phase      Split Phase
Rights:          Include          Include          Include          Include
Min. Green:    0    0     0    0    0     0    0    0     0    0    0     0
Lanes:       1  0  0  1  0   1  0  0  1  0   0  1  0  1  0   0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:    100  120    50   90   40    20   30  180    70   70  200    20
Growth Adj: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Initial Bse: 100  120    50   90   40    20   30  180    70   70  200    20
Added Vol:     7   26     0   79   22     0    0   11     5    0   13    97
PasserByVol:  -1    2     0   -2    0     0    1    0    -1    0   -1    -2
Initial Fut: 106  148    50  167   62    20   31  191    74   70  212   115
User Adj:   1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
PHF Volume:  106  148    50  167   62    20   31  191    74   70  212   115
Reduct Vol:    0    0     0    0    0     0    0    0     0    0    0     0
Reduced Vol: 106  148    50  167   62    20   31  191    74   70  212   115
RTOR Reduct:   0    0     0    0    0     0    0    0     0    0    0     0
RTOR Vol:    106  148    50  167   62    20   31  191    74   70  212   115
PCE Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
MLF Adj:    1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
FinalVolume: 106  148    50  167   62    20   31  191    74   70  212   115
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:   1650 1650  1650 1650 1650  1650 1650 1650  1650 1650 1650  1650
Adjustment: 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00
Lanes:      1.00 0.75  0.25 1.00 0.76  0.24 0.21 1.29  0.50 0.35 1.07  0.58
Final Sat.: 1650 1233   417 1650 1248   402  346 2129   825  582 1762   956
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:    0.06 0.12  0.12 0.10 0.05  0.05 0.09 0.09  0.09 0.12 0.12  0.12
Crit Volume:      198        167                   148              199
Crit Moves:       ****       ****                  ****             ****
********************************************************************************
```

11: Main Street & Bridgehead Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↑↑	↱	↰	↰↑↱		↰↰	↑	↱
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.91	1.00	0.91	0.91		0.97	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.99		0.95	1.00	1.00
Satd. Flow (prot)	1719	3344		1719	4940	1538	1564	3141		3335	1810	1538
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.99		0.95	1.00	1.00
Satd. Flow (perm)	1719	3344		1719	4940	1538	1564	3141		3335	1810	1538
Volume (vph)	188	1767	392	39	924	185	219	160	71	288	151	172
Peak-hour factor, 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
Adj. Flow (vph)	192	1803	400	40	943	189	223	163	72	294	154	176
RTOR Reduction (vph)	0	14	0	0	0	93	0	22	0	0	0	155
Lane Group Flow (vph)	192	2189	0	40	943	96	145	291	0	294	154	21
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Turn Type	Prot			Prot		Perm	Split			Split		Perm
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases						6						4
Actuated Green, G (s)	16.8	73.0		3.6	59.8	59.8	12.0	12.0		14.4	14.4	14.4
Effective Green, g (s)	16.8	74.0		3.6	60.8	60.8	12.0	12.0		14.4	14.4	14.4
Actuated g/C Ratio	0.14	0.62		0.03	0.51	0.51	0.10	0.10		0.12	0.12	0.12
Clearance Time (s)	4.0	5.0		4.0	5.0	5.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	241	2062		52	2503	779	156	314		400	217	185
v/s Ratio Prot	0.11	c0.65		c0.02	0.19		0.09	c0.09		c0.09	0.09	
v/s Ratio Perm						0.06						0.01
v/c Ratio	0.80	1.06		0.77	0.38	0.12	0.93	0.93		0.73	0.71	0.11
Uniform Delay, d1	49.9	23.0		57.8	18.0	15.6	53.6	53.6		51.0	50.8	47.1
Progression Factor	0.96	0.96		0.61	0.30	0.07	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.1	33.0		39.9	0.4	0.3	50.3	31.9		5.9	8.4	0.1
Delay (s)	55.0	55.0		75.1	5.7	1.3	103.9	85.5		56.9	59.2	47.2
Level of Service	D	D		E	A	A	F	F		E	E	D
Approach Delay (s)		55.0			7.4			91.3			54.7	
Approach LOS		D			A			F			D	

Intersection Summary			
HCM Average Control Delay	46.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	97.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
16: Oakley Road & Live Oak Ave

2010 & Proj PM
2/5/2008

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.94		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1821		1770	1743		1770	1839		1770	1839	
Flt Permitted	0.43	1.00		0.50	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	810	1821		927	1743		1770	1839		1770	1839	
Volume (vph)	35	170	30	39	129	97	30	316	29	158	369	34
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	39	189	33	43	143	108	33	351	32	176	410	38
RTOR Reduction (vph)	0	11	0	0	52	0	0	5	0	0	5	0
Lane Group Flow (vph)	39	211	0	43	199	0	33	378	0	176	443	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	8.7	8.7		8.7	8.7		1.3	21.6		6.7	27.0	
Effective Green, g (s)	9.2	9.2		9.2	9.2		1.8	22.1		7.2	27.5	
Actuated g/C Ratio	0.18	0.18		0.18	0.18		0.04	0.44		0.14	0.54	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	148	332		169	318		63	805		252	1001	
v/s Ratio Prot		c0.12			0.11		0.02	0.21		c0.10	c0.24	
v/s Ratio Perm	0.05			0.05								
v/c Ratio	0.26	0.63		0.25	0.63		0.52	0.47		0.70	0.44	
Uniform Delay, d1	17.7	19.1		17.7	19.1		23.9	10.1		20.6	6.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	3.9		0.8	3.8		7.6	0.4		8.2	0.3	
Delay (s)	18.7	23.0		18.5	22.9		31.6	10.5		28.8	7.2	
Level of Service	B	C		B	C		C	B		C	A	
Approach Delay (s)		22.4			22.3			12.2			13.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	50.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↱			↰↑↱		↰	↑↱		↰	↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frt		0.94			0.93		1.00	0.96		1.00	0.97	
Flt Protected		1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3314			3262		1770	1779		1770	1802	
Flt Permitted		1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		3314			3262		1770	1779		1770	1802	
Volume (vph)	20	219	166	80	189	242	83	93	40	253	180	50
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	238	180	87	205	263	90	101	43	275	196	54
RTOR Reduction (vph)	0	149	0	0	210	0	0	20	0	0	12	0
Lane Group Flow (vph)	0	291	0	0	345	0	90	124	0	275	238	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		10.4			11.1		6.3	11.0		13.3	18.0	
Effective Green, g (s)		10.9			11.6		6.3	11.5		13.3	18.5	
Actuated g/C Ratio		0.17			0.18		0.10	0.18		0.21	0.29	
Clearance Time (s)		4.5			4.5		4.0	4.5		4.0	4.5	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		571			598		176	323		372	527	
v/s Ratio Prot		c0.09			c0.11		0.05	0.07		c0.16	c0.13	
v/s Ratio Perm												
v/c Ratio		0.51			0.58		0.51	0.39		0.74	0.45	
Uniform Delay, d1		23.8			23.6		27.0	22.8		23.4	18.3	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.7			1.4		2.5	0.8		7.5	0.6	
Delay (s)		24.5			25.0		29.5	23.6		30.9	18.9	
Level of Service		C			C		C	C		C	B	
Approach Delay (s)		24.5			25.0			25.9			25.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	63.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
              Existing + Approved + Project Scenario + Mitigated
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #11 Main St./Bridgehead Rd./Neroly Rd.
********************************************************************************
Cycle (sec):         120                Critical Vol./Cap.(X):         0.874
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:       180                Level Of Service:                  D
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Split Phase      Split Phase       Protected        Protected
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  1  0  1  0    2  0  1  0  1    1  0  1  1  0    1  0  3  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 23 Apr 2002 << 430-530
Base Vol:     220  100    60   250   90    70    90 1410   390    30  590   150
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:  220  100    60   250   90    70    90 1410   390    30  590   150
Added Vol:      0   60     0    30   61   102    98  261     0     0  261    31
PasserByVol:   -1    0    11     8    0     0     0   96     2     9   73     4
Initial Fut:  219  160    71   288  151   172   188 1767   392    39  924   185
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:   219  160    71   288  151   172   188 1767   392    39  924   185
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:  219  160    71   288  151   172   188 1767   392    39  924   185
RTOR Reduct:    0    0     0     0    0   172     0    0     0     0    0   158
RTOR Vol:     219  160    71   288  151     0   188 1767   392    39  924    27
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:  219  160    71   288  151     0   188 1767   392    39  924    27
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  0.91 1.00  1.00  0.91 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.47 1.06  0.47  2.00 1.00  1.00  1.00 1.64  0.36  1.00 3.00  1.00
Final Sat.:  2197 1757   776  3000 1650  1650  1650 2701   599  1650 4950  1650
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.10 0.09  0.09  0.10 0.09  0.00  0.11 0.65  0.65  0.02 0.19  0.02
Crit Volume:  150                144                        1080    39
Crit Moves:  ****             ****                          ****  ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                     River Oaks Crossing Specific Plan EIR
              Existing + Approved + Project Scenario + Mitigated
                                 PM Peak Hour
--------------------------------------------------------------------------------
                      Level Of Service Computation Report
                  CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #16 Oakley/Live Oak
********************************************************************************
Cycle (sec):          60                Critical Vol./Cap.(X):         0.444
Loss Time (sec):       0 (Y+R=4.0 sec)  Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        33                Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected         Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  0  0  1  0    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      30   30    30    70   80    10    10  170    30    40  130    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   30   30    30    70   80    10    10  170    30    40  130    10
Added Vol:      0  279     0    90  281    18    17    0     0     0    0    89
PasserByVol:    0    7    -1    -2    8     6     8    0     0    -1   -1    -2
Initial Fut:   30  316    29   158  369    34    35  170    30    39  129    97
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    30  316    29   158  369    34    35  170    30    39  129    97
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   30  316    29   158  369    34    35  170    30    39  129    97
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      30  316    29   158  369    34    35  170    30    39  129    97
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   30  316    29   158  369    34    35  170    30    39  129    97
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1720 1720  1720  1720 1720  1720  1720 1720  1720  1720 1720  1720
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.92  0.08  1.00 0.92  0.08  1.00 0.85  0.15  1.00 0.57  0.43
Final Sat.:  1720 1575   145  1720 1575   145  1720 1462   258  1720  982   738
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.02 0.20  0.20  0.09 0.23  0.23  0.02 0.12  0.12  0.02 0.13  0.13
Crit Volume:             345   158                 35                     226
Crit Moves:             ****  ****               ****                    ****
********************************************************************************
```

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--------------------------------------------------------------------------------
                    River Oaks Crossing Specific Plan EIR
              Existing + Approved + Project Scenario + Mitigated
                                 PM Peak Hour
--------------------------------------------------------------------------------

                     Level Of Service Computation Report
                 CCTALOS Method (Future Volume Alternative)
********************************************************************************
Intersection #23 Neroly/Live Oak
********************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.512
Loss Time (sec):       0 (Y+R=4.0 sec) Average Delay (sec/veh):      xxxxxx
Optimal Cycle:        47               Level Of Service:                  A
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected       Split Phase      Split Phase
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        1  0  0  1  0    1  0  0  1  0    0  1  0  1  0    0  1  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      70   40    40    50  120    50    20  190   150    80  160    40
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   70   40    40    50  120    50    20  190   150    80  160    40
Added Vol:     14   54     0   201   55     0     0   27    14     0   27   199
PasserByVol:   -1   -1     0     2    5     0     0    2     2     0    2     3
Initial Fut:   83   93    40   253  180    50    20  219   166    80  189   242
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Volume:    83   93    40   253  180    50    20  219   166    80  189   242
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:   83   93    40   253  180    50    20  219   166    80  189   242
RTOR Reduct:    0    0     0     0    0     0     0    0     0     0    0     0
RTOR Vol:      83   93    40   253  180    50    20  219   166    80  189   242
PCE Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Adj:     1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
FinalVolume:   83   93    40   253  180    50    20  219   166    80  189   242
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1650 1650  1650  1650 1650  1650  1650 1650  1650  1650 1650  1650
Adjustment:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Lanes:       1.00 0.70  0.30  1.00 0.78  0.22  0.10 1.08  0.82  0.31 0.74  0.95
Final Sat.:  1650 1154   496  1650 1291   359   163 1784  1353   517 1221  1563
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.05 0.08  0.08  0.15 0.14  0.14  0.12 0.12  0.12  0.15 0.15  0.15
Crit Volume:             133   253                    203                    256
Crit Moves:             ****  ****                   ****                   ****
********************************************************************************
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bae

Memorandum

To: Rebecca Willis
Community Development Department
City of Oakley

From: Raymond Kennedy
Vice President

Re: Effects of Changing Conditions on Economic Impact Analysis for River Oaks Crossing EIR

Date: January 24, 2008

The purpose of this memorandum is to provide supplemental analysis to discuss changes in "on-the-ground" conditions in Oakley since BAE completed its economic impact analysis for the September, 2007 release of the Draft EIR for the River Oaks Crossing project. Subsequent to release of the Draft EIR, the City received an application for the proposed Oakley Station/Home Depot retail project which is now under environmental review by the City. This brings another large retail project into the market, and there may be additional cumulative economic impacts of the River Oaks Crossing project as a result. This memorandum will re-assess cumulative economic impacts in light of the Oakley Station/Home Depot retail project.

Project Description for Oakley Station

The proposed Oakley Station/Home Depot project is slated for an approximately 21.3-acre site on State Highway 4/Main Street directly across from the proposed River Oaks Crossing project and behind the Cypress Square/Raley's Center. Plans received by the City call for a total of 203,599 square feet of retail initially, with an additional 18,500 square feet in a second later phase (see Exhibit A). The Home Depot would consist of 104,887 of building space and 32,383 in an outdoor garden center, totaling 137,270 square feet. The remainder of the Oakley Station's first phase would include 56,133 of major retailers and shops, and 10,196 square feet of pads with drive-thrus suitable for fast-food restaurants. BAE has not received any information regarding prospective tenants other than Home Depot and understands that the City not received any such information from the Oakley Station project sponsor. At this time, the project is anticipated to open in 2009.

This project will compete directly with River Oaks Crossing in the building materials/home improvement sector, as well as for restaurant patrons. It may also compete in other retail sectors as the tenant mixes for both projects evolve over time. In fact, it may compete directly for retail tenants. The following discussion provides analysis, by retail sector, of the potential impacts of the Oakley Station/Home Depot retail project.

Exhibit A: Proposed Oakley Station/Home Depot Project

Description	Square Feet
The Home Depot	
Building	*104,887*
Outdoor Garden Center	*32,383*
Home Depot Total	137,270
Major 1	15,643
Major 2	18,298
Major 3	17,992
Shops	4,200
Pad 1 (Drive Thru)	3,500
Pad 2 (Drive Thru)	2,485
Pad 3 (Drive Thru)	1,726
Pad 4 (Drive Thru)	2,485
Phase 1 Total Retail	**203,599**
Future Retail (Phase II)	**18,500**
Total Retail Area	**222,099**

Sources: Greenberg Farrow; City of Oakley; Bay Area Economics, 2007.

Building Materials Stores

The anchor tenant of the Oakley Station project is a Home Depot. BAE's analysis in the Draft EIR assumed that one component of River Oaks Crossing would be a similar large home improvement center, so the new project would be directly competitive with River Oaks Crossing in this retail category.

At the time of BAE's economic impact analysis for the Draft EIR, there were no competitors in Oakley in this store category. As a result, all the sales in this retail store category were being captured by stores outside of Oakley. These leakages amounted to $36.4 million annually in 2006 dollars. Assuming that River Oaks Crossing could capture 80 percent of these sales, there were approximately 86,000 square feet of capturable sales under baseline conditions. With population growth as assumed in the Draft EIR,[1] this increased to 146,000 square feet in 2010 and 165,000 square feet in 2015, roughly equivalent to the size of a 170,000 square-foot home improvement store as assumed for River Oaks Crossing. With limited capture assumed from elsewhere in the Subregion, the supportable square footage increased to 174,000 square feet in 2010 and 195,000 square feet in 2015.

In addition to the proposed Home Depot, an approximately 11,000 square-foot Ace Hardware has opened in Oakley since BAE's research for the Draft EIR. Even if these two additional stores succeeded in increasing the proportion of sales in this store category captured by Oakley beyond the 80 percent assumed for River Oaks Crossing alone, it is unlikely that there is market support in Oakley for two major home improvement centers, as well as the recently opened Ace Hardware

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[1] See BAE Memorandum of January 24, 2008, "Effects of Changing Conditions on Population Forecasts for River Oaks Crossing EIR."

store. If both home improvement centers were built, possible outcomes could include poor sales performance at both of these new outlets, possibly leading to the eventual closure of one or the other store, closure of the new hardware store, or additional capture from outside Oakley that would lead to reduced sales at other home improvement stores in the Subregion, such as the Lowe's and Home Depot on Lone Tree Way. While the performance of those stores is not known and it is not possible to state which store is most at risk, the Subregion may end up over-retailed in this category, leading to closures of one or more outlets. Another alternative would be that no home improvement anchor comes into River Oaks Crossing, and other types of retail take the available space. This scenario is discussed in further detail below.

Supermarkets

None of the spaces in this project are suitable for a major supermarket, so Oakley Station is not likely to significantly affect competition and demand in this store category. One of the major spaces could hold a specialized food store, but the City has no information indicating that Oakley Station proposes a tenant of this type. Thus it cannot be concluded that the addition of Oakley Station to the Trade Area's retail inventory will result in any additional impacts or closures of existing food stores.

Eating and Drinking Places

Oakley Station has approximately 10,000 square feet suitable for restaurant pads, and thus would compete directly with River Oaks Crossing for suitable tenants as well as customers. BAE's previous analysis indicated support for approximately 88,000 square feet of space in this retail category by 2015, approximately equal to the available space in River Oaks Crossing. While Oakley Station might capture some additional sales from Oakley and the Subregion, the potential exists for an oversupply of restaurant space. Potential outcomes include failure to find tenants for all the restaurant pads available in the two projects (in which case the land may merely sit vacant), slower absorption of this space, or possible closures of existing restaurants with inferior locations or currently marginal sales. As noted in BAE's original analysis, these scattered restaurant outlets are not anchors of large retail centers, and even if they are vacated, the vacancy is not likely to lead to a cycle of urban decay and physical impacts as might occur with the loss of a major anchor tenant; i.e., the loss of a restaurant or other secondary use) in a retail center does not have the same negative synergistic effect as the loss of an anchor store that serves to attract shoppers to the smaller outlets in a shopping center.

General Merchandise Stores

As noted in BAE's previous analysis, the Antioch Big K-mart, because of its location near River Oaks Crossing, was seen as being at risk of closure, as Oakley recaptured resident sales currently flowing to that store. Oakley Station has limited space for additional general merchandise stores, and the City has not been provided with any information indicating a tenant of this type; as a result, the addition of this project to the retail market is not likely to lead to additional impacts for this store category.

Other Retail Store Sectors

As noted in BAE's previous analysis, the River Oaks Crossing project by itself provides more square footage in other retail categories than it is estimated could be supported by the market. BAE estimated that possible outcomes could include phased buildout, stores not performing at industry benchmarks, or tenanting of some space in non-retail uses such as banks. Buildout might precede the demand somewhat, but not enough to avoid impacts on existing businesses. Capture from Oakley could take the form of stores relocating to the new center, or closures of the existing stores in the face of new competition, additional sales might be captured from non-Oakley shoppers who are attracted to the center by the large anchor stores, and the stores in River Oaks Crossing might perform at lower sales levels until the market support grows to a level to support the stores. The addition of Oakley Station, with approximately 56,000 square feet of additional unspecified retail space, could exacerbate the above potential outcomes. However, the retail mix of these spaces is unspecified, so precise store impacts are unknown. Since Oakley currently has extremely limited retail, the impacts might be on stores elsewhere in the Subregion, with those impacts spread among a more widely scattered set of stores, dissipating the impacts such that resulting store closures cannot be assumed with a high degree of probability.

As discussed above, the lack of market support for two large home improvement centers might result in no such store locating in River Oaks Crossing. This 170,000 square-foot space might then potentially be occupied by other types of space, adding to the potential inventory in the unspecified other retail store category. The previous analysis indicated that River Oaks Crossing's total square footage in unspecified retail was already slightly above the supportable square footage in this catch-all store category. Adding 170,000 square feet of space would increase River Oaks Crossing's square footage for unspecified retail types by two thirds, leading to a substantial imbalance between supply and demand in the Oakley market. In combination with the unspecified space in Oakley Station, there would be slightly over 475,000 square feet of space, with support for only 217,000 square feet through 2015. While some additional sales might be captured from outside Oakley, primarily from elsewhere in the Subregion, this represents a substantial potential oversupply of retail space in Oakley. While a likely outcome is that some of the space is never developed as retail, in a worst-case scenario, if all this space came onto the market it could cause substantial and long-term vacancies in retail space elsewhere in Oakley and nearby in the Subregion. Because the tenant mix for this space is unknown, it is difficult to assess what types of space could potentially be subject to long-term vacancies. However, this mixed category excludes discount general merchandise stores, supermarkets, and home improvement centers, which serve as anchors for many types of shopping centers. As a result, these vacancies may occur largely in non-anchor spaces, scattered among many centers in a mix of sizes of space in various retail uses.

bae

Memorandum

To: Rebecca Willis
Community Development Department
City of Oakley

From: Raymond Kennedy
Vice President

Re: Effects of Changing Conditions on Population Forecasts for River Oaks Crossing EIR

Date: January 24, 2008

The purpose of this memorandum is to provide supplemental analysis to discuss changes in "on-the-ground" conditions in Oakley since BAE completed its economic impact analysis for the September, 2007 release of the DEIR for the River Oaks Crossing project. The issue of concern addressed here is potential changes in household and population growth trends related to the subprime mortgage crisis and its impact on the regional housing market.

The Economic Impact Analysis for the River Oaks Crossing DEIR used population and household forecasts for Oakley provided by City staff. For the remainder of the Subregion (Antioch and Brentwood), Association of Bay Area Governments (ABAG) projections[1] were used, but the City indicated that due to recent applications for development and annexations of developing areas not foreseen by ABAG, staff thought that the ABAG projections underestimated the potential for growth in Oakley. The project approvals are shown in Appendix G of BAE's report.

It should be noted that the decision to use these forecasts was made in mid-2006, as a necessary early step in BAE's analysis. At that time, the housing market in the Bay Area was extremely strong, with high demand, strong sales levels, and steady increases in home prices.

These population projections shown in Table 2 in the Economic Impact Analysis for the DEIR, which is attached here as Exhibit A:

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[1] *Projections 2007,* Association of Bay Area Governments (ABAG), December 2006.

Exhibit A: Population Trends, 1990-2015

Population	1990	2000	Average Annual Change 1990-2000	2005	Average Annual Change 2000-2005	2010	Average Annual Change 2005-2010	2015	Average Annual Change 2005-2015
Oakley (a)	18,374	25,619	3.4%	29,800	3.1%	50,600	11.2%	57,300	6.8%
Subregion (b)	88,132	139,453	4.7%	174,500	4.6%	207,900	3.6%	227,300	1.8%
Contra Costa County (c)	803,732	948,816	1.7%	1,023,400	1.5%	1,061,900	0.7%	1,107,300	0.8%
State of California (d)	29,760,021	33,871,648	1.3%	36,644,983	1.6%	39,246,767	1.4%	41,485,408	1.1%

(a) Projections for the City of Oakley are from City of Oakley staff.
(b) Subregion consists of Oakley, Antioch, and Brentwood. 2005, 2010, and 2015 from ABAG.
(c) 2005, 2010, and 2015 from ABAG. 2005 number is within two percent of DOF estimate.
(d) 2005 and 2010 from DOF. 2015 estimated based on DOF P-1 data.

Sources: 1990 & 2000 U.S. Census; Association of Bay Area Governments (ABAG) *Projections 2007* ; City of Oakley, 2006; BAE, 2007.

This forecast projected extremely strong growth for Oakley over the 2005 to 2010 period, with growth still strong but moderating somewhat after 2010. While these forecasts, especially in hindsight, might seem aggressive, historic trends in neighboring Brentwood from 2000 through 2007 were even stronger, as shown in Exhibit B, with strong growth that was sustained over several years, with approximately 100 households added per month added between 2000 and 2007.[2] This strong demand trend indicated that if approvals were in place, it was not unreasonable to assume that Oakley could achieve a similar rate of growth.

Exhibit B: Historic Population and Household Growth in Brentwood, 2000 through 2007

	2000	2001	2002	2003	2004	2005	2006	2007	Average Annual Change 2000-2007
Households	7,497	8,341	9,532	10,873	12,359	13,635	15,064	16,069	11.5%
Population	23,302	26,202	30,010	34,125	38,442	42,108	45,974	48,907	11.2%

Sources: 2000 U.S. Census; CA State Department of Finance; BAE, 2007.

While the Oakley projections were reasonable in light of local trends and conditions at the time of analysis, recent trends in the housing market nationally and regionally make it less likely that Oakley will reach these population levels as quickly as projected. One indicator of the slowdown can be found in the housing data, where building permits are not being issued at the rate necessary to meet the projections.

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[2] Based on Census 2000 date of April 1 and 2007 estimated date of January 1.

As shown in Exhibit C, an average of approximately 40 to 50 building unit permits per month have been issued since the beginning of 2005, far below the rate of 100 units per month (similar to the rate experienced in Brentwood between 2000 and 2007) required for the entire 2005 to 2010 period to reach the projected population for 2010. In order to "catch up" and reach the number of households projected by the beginning of 2010, over 400 units total per month would have to be added during 2008 and 2009. Given current housing market conditions, this is an unlikely scenario. Thus it is likely that Oakley will not achieve the population and household levels for 2010 assumed in BAE's analysis for the Draft EIR.

Exhibit C: Building Permit Trends in Oakley

Year	January	February	March	April	May	June	July	August	September	October	November	December	Annual Total	Per Month
2005	3	42	41	37	19	48	18	26	16	17	174	94	535	45
2006	19	25	103	109	95	53	122	12	8	14	19	28	607	51
2007	38	20	244	36	53	17	4	13	13	14	9		461	42

December 2007 data not available as of time of analysis.

Source: U.S Census Bureau, Building Permit Trends; Bay Area Economics, 2007.

However, the net effect of the current housing market slowdown may be an increase in pent-up demand later, with housing growth merely shifted back a few years. The overall Bay Area economy is still relatively strong, and there is a chronic imbalance between jobs and housing, as noted by the Association of Bay Area Governments in *Projections 2007*:

> In 2000, the number of jobs in the Bay Area exceeded the number of employed residents by over 300,000. With a regional average of 1.4 employed residents per household, more than 215,000 additional housing units would have been needed to provide a regional jobs-housing balance. Current growth forecasts … reveal that by 2035 the region's jobs will continue to exceed its employed residents by over 250,000. [3]

Another source of projections for California, the Center for Continuing Study of the California Economy, also voices the expectation that growth in the Bay Area will continue, based on the strong economic base of the region:

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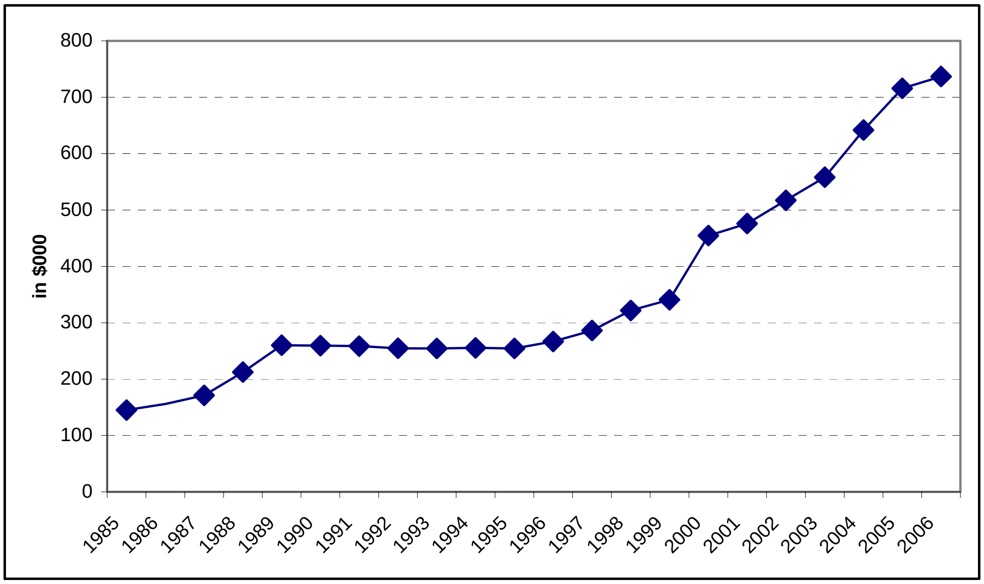
[3] *Projections 2007,* Association of Bay Area Governments (ABAG), December 2006, pp. 3-4.

> The projected regional job and population growth is at the high end of recent experience and is based on the strong growth prospects for key portions of the region's economic base centered in technology.[4]

Driven by workers seeking housing proximate to their place of employment, the fundamentals of strong housing demand are still present, albeit with a downward adjustment of peak price levels that may have been driven in part by speculation and questionable loan underwriting practices. Some changes may also occur in the product mix, with developers building smaller and more affordable homes to meet demand based on more rational credit constraints. Additionally, historic trends indicate that while short-term adjustments occur in the Bay Area housing market, long term trends show that recovery occurs with a consistent rise in prices over the long term (see Exhibit D).

Exhibit D: San Francisco Bay Area House Price Trends, 1985-2006

Year	Median Price in $000
1985	145.1
1986	na
1987	171.3
1988	212.6
1989	260.2
1990	259.3
1991	258.5
1992	254.7
1993	254.4
1994	255.6
1995	254.4
1996	266.7
1997	286.2
1998	321.7
1999	340.8
2000	454.6
2001	475.9
2002	517.1
2003	558.1
2004	641.7
2005	715.7
2006	736.8



Includes existing detached single-family homes and townhouses. Data from 1985 through 1989 are reported as the San Francisco-Oakland-San Jose CMSA, which is an 11 county area. Data from 1990 forward are reported as being for the five county inner Bay Area, including Alameda, Contra Costa, Marin, San Francisco, and San Mateo Counties.

Source: Statistical Abstracts of the United States, based on data from the National Association of Realtors and California Association of Realtors.

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[4] *California County Projections, 2007 Edition*, Center for Continuing Study of the California Economy, page 3-38.

The projections used in the DEIR assumed a slowing of growth in Oakley after 2010, as the approved projects were built out, with a growth rate of only 6.8 percent per annum from 2010 through 2015, compared to 11.2 percent from 2005 through 2010. Overall, from 2005 through 2015, an average of approximately 75 units per month would have to be added in Oakley to reach the projected population levels. Given the fundamentals of more demand for housing than supply in the region, once the current housing slowdown is past and pricing in the market has adjusted appropriately, the growth that was originally projected for 2005 through 2010 may simply instead occur somewhat later; if growth between 2010 and 2015 in Oakley reaches the levels projected originally for the 2005 to 2010 period and in line with historic trends in Brentwood this decade, the projections for 2015 are not unreasonable, even given current market conditions. As a result, some of the short-term impacts may be somewhat longer-term with lengthier vacancies resulting, but the long-term impacts on existing retailers would be similar to those assumed in BAE's previous analysis, with long-term housing demand and population growth by 2015 similar to the previous projections.

The following section of this memorandum discusses some of BAE's findings regarding retail estate conditions and potential vacancies in existing retail nodes in light of these market changes.

Retail Real Estate Market Conditions in Oakley

In its original research effort, BAE contacted real estate brokers and other representatives of retail properties in Oakley, who at that time indicated the Proposed Project would likely have a substantial competitive economic impact on Kmart, and possibly Raley's and Albertsons when it opens in 2009. They opined that Oakley had a hodgepodge of retail types in need of long-term retail vision for tenant mix, and that as newer centers such as the Proposed Project were developed, older centers would be upgraded to compete, and could be re-tenanted with a variety of "second generation" tenants. The market was seen as currently stable, but facing substantial challenges if the Proposed Project moves forward.

BAE contacted these same individual again in January, 2008, to see how slowing growth and changing market conditions had affected their perceptions of the market. Generally, they reported some increase in vacancies and rents trending downward. Smaller national chains were exercising more caution in the market, but one broker reported that there were still national chains looking for large spaces (30,000 square feet or more) in the Oakley area. Overall, while conditions had weakened somewhat, the lack of large spaces in Oakley meant that the market was still relatively tight. However, they pointed out again that there if the Proposed Project enters the market and adds new competitors and new space to the market, it would make for a more challenging retail real estate environment.

Findings Regarding Potential for Business Closures and Sustained Vacancies

Overview

The following discussion reconsiders the potential for business closures and sustained vacancies for the key retail nodes in light of the slowing short-term growth in the area

Cypress Square

In its previous analysis, BAE indicated that there would be some risk of closure for the Raley's anchor store following the opening of a Supercenter at River Oaks Crossing, but that by 2010, local demand for supermarkets would be above current levels even with a Supercenter and other proposed projects in place. Slowing short-term population growth would push the point where demand would rise above current levels out toward 2015; however, as indicated in the broker contacts, there are still lower-tier national chains looking for larger spaces in the Oakley area, so the space might still be reused, but reuse as a supermarket would be less likely in the short term.

Oakley Shopping Center

BAE's previous analysis indicated that Centro Mart, the anchor tenant for this older center, would face the risk of closure, but that by 2010, local demand for supermarkets would be above current levels even with a Supercenter and other proposed projects in place. Slowing short-term population growth would push the point where demand would rise above current levels out toward 2015. The more rundown and antiquated appearance of this center indicates less favorable potential for reuse than in Cypress Square, but it would provide a lower-rent alternative for smaller start-up businesses. As a result of slowing growth, it might face vacancies for a longer period than originally anticipated, but once again, by 2015, overall increased demand for retail space should lead to re-tenanting of this center.

Oakley Town Center

Since BAE's previous analysis, the former Albertson's supermarket in this center was acquired by the Save Mart chain and re-branded as a Lucky store. In that analysis, it was noted that this center's supermarket anchor as well as the Rite-Aid store might see competitive pressure from the Supercenter, but that the drug store would offer a convenience level unattainable at the Supercenter, and would likely survive as Oakley's only other general merchandise outlet. As Albertson's, the store was estimated to be performing above industry benchmarks and as a result was less likely to be at risk of closure. The short-term slowing of growth in Oakley may put additional competitive pressure on these two outlets in the face of new competition, but these stores are still better-positioned than some others for short-term survival, and long-term growth still makes long-term vacancies unlikely.

Big Kmart

Because of the impacts of the Proposed Project as well as other potential developments, BAE previously found that there was potential risk of closure of this store as well as a prolonged period of vacancy. This finding has not changed in light of the slower short-term population growth discussed here.

Other Locations

In BAE's previous analysis, the other potential closure indicated was the Albertsons (now Lucky) on Lone Tree Way on Antioch under a cumulative impacts scenario, most notably if the Wal-Mart expansion nearby ultimately occurs following reapplication with the City of Antioch. However, even with the slowing of growth in Oakley, the risk of closure is still linked almost entirely to that expansion moving forward rather than from impacts of the Proposed Project. If that store closes, the overall Subregion retail market and regional growth should lead to reuse with either another supermarket or a "second generation" user, although slower short-term growth in the region might delay re-tenanting. Furthermore, the purchase of this Albertsons by Save Mart indicates that the store may be repositioned to be more competitive. In either case, long-term vacancy is not a likely outcome.