

# SONOMA COUNTY WASTE MANAGEMENT AGENCY COMPOST FACILITY

Recirculated Draft Environmental Impact Report  
State Clearinghouse #: 2008122007

Prepared for  
Sonoma County Waste  
Management Agency

October 2012





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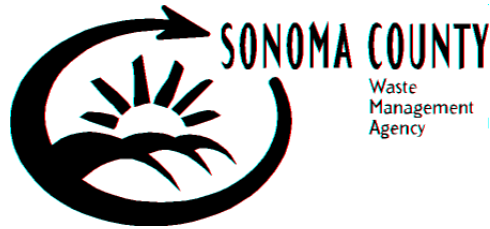
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***NOTICE OF AVAILABILITY OF  
RECIRCULATED DRAFT ENVIRONMENTAL IMPACT REPORT AND PUBLIC  
HEARING***

**Project Title:** SCWMA Compost Facility

**Project Applicant:** Sonoma County Waste Management Agency

**Date:** October 4, 2012

The Sonoma County Waste Management Agency (SCWMA), as the lead agency under the California Environmental Protection Act (CEQA), has prepared a Recirculated Draft Environmental Impact Report (RDEIR) for the SCWMA Compost Facility. This RDEIR addresses an increase in the amount of material processed at the Central Site Alternative from 110,000 tons per year (analyzed in the “2011 Draft EIR) to 200,000 tons per year (analyzed in this Recirculated Draft EIR). To assure that all the resource areas are appropriately analyzed, all the resource areas for the Central Site Alternative are reviewed in this RDEIR for impacts related to the increased capacity and operational changes. As to the increased throughput, recirculation of the entire 2011 Draft EIR is not required because other sites (Sites 5A and 40) were already analyzed for 200,000 tons per year.

The Central Site Alternative would include a compost facility with a pad area of approximately 22 acres that would require initial grading and disturbance of approximately 34 acres on the 400-acre Central Disposal Site property, located approximately 1.5 miles southwest of the City of Cotati, off of Meham Road. After additional review of the site design and other aerated static pile (ASP) composting processes (e.g., covered aerated static piles), it was determined that the throughput goal of 200,000 tons per year could be reached by using cutting edge technologies such as the use of cement push walls, special covers, positive air pressure, and oxygen and temperature gauges connected to a computer system that manage the air pressure and allow for additional tons of materials to be composted on less space than with traditional windrow or other ASP composting processes.

The objectives for the proposed project are the relocation of the SCWMA’s composting operations from its current location (on top of an area that has previously been landfilled) at the County’s Central Disposal Site; the establishment of a permanent composting facility in Sonoma County with sufficient capacity for current and future quantities; and to assist jurisdictions within SCWMA’s service area in meeting the goals and objectives for waste diversion as set forth in the California Integrated Waste Management Act of 1989 (AB 939).

### **Significant adverse environmental impacts**

The following significant adverse impacts associated with the Central Site Alternative would be unavoidable, even with the implementation of the mitigation measures identified in this RDEIR:

#### **Central Site Alternative**

- Impact 28.2 - The Central Site Alternative could conflict with the Sonoma County General Plan or Zoning Ordinance. In most cases, the alternative would not conflict with the General Plan or Zoning Ordinance, however, as identified in Impact 29.2, the Central Site Alternative could expose persons to or generate noise levels in excess of standards in the General Plan.
- Impact 29.2 - Operation of the Central Site Alternative composting facility could expose persons to or generate noise levels in excess of standards established in the local general plans or noise ordinances, or applicable standards of other agencies.
- Impact 31.5 - Long-term cumulative traffic volumes from this alternative would have a significant impact to traffic delays at the Gravenstein Highway (SR 116) / Stony Point Road intersection. Mitigation Measure 31.5 would reduce the impact to less than significant. However, if implementation of Mitigation Measure 31.5 is not approved by Caltrans (the jurisdiction responsible for SR 116), the impact would be Significant and Unavoidable.

#### **RDEIR Availability, Commenting Procedures, and Meeting on RDEIR**

The RDEIR is available for a 45-day public comment period from October 4, 2012 through November 19, 2012. Copies of the RDEIR are available to the public for review or purchase at the SCWMA office in Santa Rosa (2300 County Center Drive, Suite B100, Santa Rosa, CA 95403) and available for review at local libraries throughout the County. Electronic copies of the RDEIR and also the previous December 2011 Draft EIR are available online at:

**<http://www.recyclenow.org/agency/reports.asp>**

The public may present comments and concerns regarding the adequacy of the RDEIR. Comments may be submitted in writing to:

Mr. Patrick Carter, Department Analyst  
Sonoma County Waste Management Agency  
2300 County Center Drive, Suite B100  
Santa Rosa, CA 95403  
Fax: (707) 565-3701  
[patrick.carter@sonoma-county.org](mailto:patrick.carter@sonoma-county.org)

Please be sure to include your name, address, and telephone number in your correspondence. Written comments on the RDEIR must be postmarked or received by fax or e-mail no later than **4:00 pm, November 19, 2012.**

The SCWMA will also hold a public hearing on **Wednesday, October 24, 2012 at 9:00 a.m. in the Ray Miller Community Center – Cotati Room, 216 East School Street, Cotati, CA 94931.** This hearing will allow public comment on the RDEIR for the proposed Central Site Alternative. Comments received during the comment period, including the public hearing, will be considered by the SCWMA during the preparation of the Final EIR.

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# CHAPTER R1

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## Introduction

### Partial Recirculation of an Environmental Impact Report

The California Environmental Quality Act (CEQA) requires that all state and local government agencies consider the environmental consequences of programs and projects over which they have discretionary authority before taking action on those projects or programs. Where there is substantial evidence that a project may have a significant effect on the environment, the agency shall prepare an Environmental Impact Report (EIR) (CEQA Guidelines, Section 15064[f][1]). An EIR is an informational document that will inform public agency decision makers and the general public of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project.

CEQA requires that a Draft EIR be prepared and circulated for public review. Following the close of the public review period, the lead agency typically prepares a Final EIR, which includes the comments received during the review period (either verbatim or in summary), and responses to the significant environmental issues raised in those comments. Prior to taking action on a proposed project, the lead agency must certify the EIR and make certain findings.

A lead agency, however, is required to recirculate a Draft EIR, prior to certification, when “significant new information” is added to the EIR after the public review period begins (CEQA Guidelines Section 15088.5). “New information added to an EIR is not ‘significant’ unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative) that the project's proponents have declined to implement. ‘Significant new information’ requiring recirculation includes, for example, a disclosure showing that:

1. A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.
2. A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance.
3. A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project, but the project's proponents decline to adopt it.

4. The draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded. (*Mountain Lion Coalition v. Fish and Game Com.* (1989) 214 Cal.App.3d 1043)” (CEQA Guidelines, Section 15088.5[a].)

Public notice and circulation of a Recirculated Draft EIR is required, per CEQA Guidelines Sections 15086 and 15087. Recirculation may be limited to those chapters or portions of the EIR that have been modified.

On the other hand, “[r]ecirculation is not required where the new information added to the EIR merely clarifies or amplifies or makes insignificant modifications in an adequate EIR.” (*Id.*, subd. [b]). In fact, “the Legislature did not intend to promote endless rounds of revision and recirculation of EIR’s. Recirculation was intended to be an exception, rather than the general rule.” (*Laurel Heights Improvement Assn. v. Regents of the University of California* (1993) 6 Cal.4th 1112, 1132.)

In some instances, lead agencies, voluntarily conduct a full or partial recirculation of a draft EIR not because such recirculation is legally required but because the agencies find it desirable to subject new or expanded analysis to formal public review and scrutiny with the goal of fostering fully informed decision making. Here, such is partly the case. This Recirculated Draft EIR addresses a number of issues for which recirculation is not necessary under the legal standards set forth above. One issue addressed in this document, however, does trigger recirculation under Section 15088.5 of the CEQA Guidelines: increasing the amount of material processed at the Central Site Alternative from 110,000 tons per year to 200,000 tons per year. This change could result in a substantial increase in the severity of environmental impacts such as air quality emissions, traffic and hydrology and water quality. To assure that all the resource areas are appropriately analyzed, all the resource areas for the Central Site Alternative (Chapter 24 through 32) are reviewed in this Recirculated Draft EIR for impacts related to the increased capacity and operational changes.

As to the increase throughput, recirculation of the *entire* draft EIR is not required. Rather, a partial recirculation is authorized by the CEQA Guidelines:

*When the EIR is revised only in part and the lead agency is recirculating only the revised chapters or portions of the EIR, the lead agency may request that reviewers limit their comments to the revised chapters or portions of the recirculated EIR. The lead agency need only respond to (i) comments received during the initial circulation period that relate to chapters or portions of the document that were not revised and recirculated, and (ii) comments received during the recirculation period that relate to the chapters or portions of the earlier EIR that were revised and recirculated. The lead agency's request that reviewers limit the scope of their comments shall be included either within the text of the revised EIR or by an attachment to the revised EIR. (CEQA Guidelines, Section 15088.5[f][2])*

In preparing this document, the Sonoma County Waste Management Agency (SCWMA) is availing itself of the option described immediately above. Readers are thus directed to comment

only on the new information found herein. The SCWMA will not treat as timely, and will not respond in writing, to any comments addressing issues that are not addressed herein but rather were previously addressed in the original Draft EIR published in December 2011. That Draft EIR is referred throughout this document as the “2011 Draft EIR”. The Final EIR, as eventually prepared, will contain the SCWMA’s written responses to all significant environmental issues raised in comments on the 2011 Draft EIR (generally on all sites except the Central Site Alternative) and responses to appropriately focused comments on the Recirculated Draft EIR (i.e., this document).

## Project History

### Notice of Availability and Draft EIR

A Notice of Availability of a Draft EIR and Public Hearing was issued by SCWMA for the SCWMA Compost Facility on December 21, 2011 and revised on January 20, 2012 to extend the comment period. The Draft EIR (State Clearinghouse # 2008122007) was circulated for public comment from December 21, 2011 through February 21, 2012.

### Changes to the Central Site Alternative

The primary reason for soliciting comments on a Draft EIR is to allow the lead agency (e.g., Sonoma County) to identify, at the earliest possible time, the potentially significant adverse effects of a proposed project and alternatives and the mitigation measures that would substantially lessen or avoid these effects. Comments on the SCWMA 2011 Draft EIR were extensive and included the results of engineering and processing reviews of the potential capacity at the Central Site Alternative. In the 2011 Draft EIR, the Central Site Alternative was analyzed to only have the capacity to process approximately 110,000 tons of incoming feedstock materials per year. However, after additional review of the site design and other aerated static pile (ASP) composting processes (e.g., covered aerated static piles), one comment letter indicated that 200,000 tons per year could be processed at the Central Site Alternative.<sup>1</sup> This goal would be reached by using cutting edge technologies such as the use of cement push walls, special covers, positive air pressure, and oxygen and temperature gauges connected to a computer system that manage the air pressure and allow for additional tons of materials to be composted on less space than with traditional windrow or other ASP composting processes. For purposes of reviewing potential impacts of the proposed approach (to achieve a throughput of 200,000 tons per year), this Recirculated Draft EIR will analyze the approach identified in the comment letter.<sup>2</sup>

Based on this engineering review and other written and oral comments, the following changes were made to the Central Site Alternative.

<sup>1</sup> It should be noted that the proposed design moved the administrative and maintenance building off the processing site to allow for more capacity. Such actions were not considered in the conceptual design for the Central Disposal Site Alternative, but could realistically be implemented in determining a final design for the Central Disposal Site Alternative.

<sup>2</sup> Letter submitted by EBA Engineering on February 21, 2012 on behalf of Sonoma Compost Company.

- Using the existing single-story administrative and maintenance building<sup>3</sup>
- Creating a single level processing site in one phase rather than a three tiered site in two phases
- Redesigning the ASP site layout
- Cutting approximately 421,000 cubic yards of soil and filling with approximately 306,000 cubic yards of soil
- Increasing the incoming compost feedstock from 110,000 tons per year to 200,000 tons per year
- Changing the maximum pile height from 12 feet to 14 feet

To the extent these changes affect potentially significant impacts, they are addressed in the recirculated portions of the Draft EIR.

It is also assumed that construction would start in 2013. However, for purposes of comparison to the project and other alternatives considered in the 2011 Draft EIR, the analysis presented in this Recirculated Draft EIR, including air quality and traffic analyses, presume that construction would be initiated in 2011. This enables the direct comparison of potential impacts associated with the Central Site Alternative to the proposed project and other alternatives, as previously evaluated.

## CEQA EIR Process

### Lead Agency

As the CEQA lead agency, SCWMA is responsible for the preparation and certification of the EIR prior to approving or carrying out the proposed project. In its role as the lead agency, SCWMA has directed the partial recirculation of the 2011 Draft EIR for the SCWMA Compost Facility.

### Notice of Recirculation

Recirculation of a Draft EIR requires the notification of responsible and trustee agencies and the public, per CEQA Guidelines Sections 15086 and 15087. As explained earlier in this chapter, the lead agency need only recirculate those chapters or portions of the Draft EIR that have been modified. The modified chapters of the Draft EIR are identified and summarized in **Chapter R2, Summary**. The impact conclusions and resultant mitigation measures for all other resource chapters and alternative sites contained in the 2011 Draft EIR remain the same and are not discussed further in this Recirculated Draft EIR.

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<sup>3</sup> The current administrative and maintenance building used for the existing compost facility would also be used for the proposed compost facility. This building is currently located at the entrance of the existing compost facility.

## Recirculated DEIR Availability, Commenting Procedures, and Meeting on Recirculated DEIR

The Recirculated Draft EIR is available for a 45-day public comment period ending November 19, 2012. Copies of the DEIR are available to the public for review or purchase at the SCWMA office in Santa Rosa (2300 County Center Drive, Suite B100, Santa Rosa, CA 95403) and available for review at local libraries throughout the County. Electronic copies of the Recirculated DEIR are also available online at: <http://www.recyclenow.org/agency/reports.asp>.

The public may present comments and concerns regarding the adequacy of the Recirculated DEIR. Comments may be submitted in writing to:

Mr. Patrick Carter, Department Analyst  
Sonoma County Waste Management Agency  
2300 County Center Drive, Suite B100  
Santa Rosa, CA 95403  
Fax: (707) 565-3701  
[patrick.carter@sonoma-county.org](mailto:patrick.carter@sonoma-county.org)

Please be sure to include your name, address, and telephone number in your correspondence. Written comments on the DEIR must be postmarked or received by fax or e-mail no later than **4:00 pm, November 19, 2012**.

The SCWMA will also hold a public hearing on **Wednesday, October 24, 2012 at 9:00 a.m. in the Ray Miller Community Center – Cotati Room, 216 East School Street, Cotati, CA 94931**. This hearing will allow public comment on the DEIR for the proposed compost facility project. Comments received during the comment period, including the public hearing, will be considered by the SCWMA during the preparation of the Final EIR.

## Final EIR and EIR Certification

As limited to the topics of the recirculation, the SCWMA will respond in writing to significant environmental points raised by the reviewers of the Recirculated Draft EIR in their comments. The comments and responses will be included in the Final EIR. The Final EIR shall consist of the Draft EIR, the Recirculated Draft EIR, comments received on both the Draft EIR and Recirculated Draft EIR, and the responses to those comments. After a public hearing on the project, the lead agency decision-making body (i.e., the SCWMA) will then review the Final EIR and any public testimony and decide whether to certify the Final EIR and whether to approve or deny the project.

If the SCWMA approves the project and significant impacts identified by the EIR cannot be mitigated, the SCWMA must state in writing the reasons for its actions. A statement of overriding considerations must be included in the record of the project approval and mentioned in the notice of determination (CEQA Guidelines, Section 15093(c)).





# CHAPTER R2

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## Summary

As more fully described in **Chapter R1, Introduction**, the lead agency need only recirculate those chapters or portions of the 2011 Draft EIR that have been modified. For this project, consideration of the revised Central Site Alternative and issues raised in the comments on the December 2011 Draft EIR have resulted in the SCWMA's desire to clarify chapters or sections of chapters of the 2011 Draft EIR. This modified text is included in the following sections:

- Table 2-3, Environmental Impacts and Mitigation Measures (Recirculated Chapters Only)
- Section 4.7, Central Site Alternative Project Description
- Chapter 24, Air Quality/Central Site Alternative
- Chapter 25, Biological Resources/Central Site Alternative
- Chapter 26, Cultural Resources/Central Site Alternative
- Chapter 27, Hydrology and Water Quality/Central Site Alternative
- Chapter 28, Land Use and Agriculture/Central Site Alternative
- Chapter 29, Noise/Central Site Alternative
- Chapter 30, Public Services and Utilities/Central Site Alternative
- Chapter 31, Traffic/Central Site Alternative
- Chapter 32, Aesthetics/Central Site Alternative

## Format of Changes

For each chapter, the key revisions or updates for each chapter are marked to help the reader identify specific portions of the chapters that have been modified. As shown in the example below, new text is underlined and deleted text has strikethrough marking.

This sentence is underlined as an example of new text. ~~This sentence is stricken as an example of a sentence or word that has been removed.~~

The impact conclusions and resultant mitigation measures for all other resource chapters and alternative sites contained in the original 2011 Draft EIR remain the same and are not discussed further in this Partial Recirculated Draft EIR.

## Mitigation Measures

Some of the mitigation measures for the Central Site Alternative are the same as mitigation measures for Site 5A and 40 so the mitigation measure is not repeated but referenced to the original measure first introduced in the 2011 DEIR (e.g., Implement Mitigation Measure 7.3). Therefore, for convenience to those referenced (or “repeated”) measures, the Summary Table of the Impacts for Sites 5A and 40 is provided in this Recirculated Draft EIR as **Appendix 2011 DEIR Mitigation Measures**.

## Summary of Changes

### *Section 4.7, Central Site Alternative Project Description*

The description of the Central Site Alternative has been revised to describe the changes identified in Chapter R1, which are primarily related to increased throughput of compost materials.

The original Central Site Alternative description used in the Draft EIR included the processing of 110,000 tons per year using aerated static piles (ASP) on a three tiered site. Processing of the material is similar to the processes described in Chapter 4.7, Central Site Alternative of the 2011 Draft EIR.

Additional information pertaining to the ongoing Central Site Landfill water quality monitoring and operations has been added to the section. Updated throughput and percent composition of yard and wood waste processed through the existing compost facility was also included.

The Central Site Alternative composting site layout and conceptual design has been revised, which is reflected in updated figures. Soil cut and fill estimates for leveling the site have also been updated accordingly. Additional information is provided regarding the proposed covered, positive-pressure technology that would allow for larger mass to be composted on less space, which allows for the increased throughput capacity to 200,000 tons per year.

Composting feedstock limitations are also discussed, per State Water Resources Control Board (SWRCB) recommendations for composting operations statewide.

Finally, options for stormwater and compost leachate management have been revised. Compliance with the County’s MS4 permit for stormwater was also added.

### *Chapter 24, Air Quality/ Central Site Alternative*

The analyses included in Chapter 24 have been revised to incorporate changes to construction and operational assumptions for the Central Site Alternative. In regards to construction, Impact 24.1 (criteria pollutant emissions), Impact 24.5 (toxic air contaminants [TACs]), and Impact 24.6 (greenhouse gases [GHGs]) have been revised to reflect the changes in construction phasing, disturbed area, and conservative soil haulage. For operations, Impact 24.2 (criteria pollutant emissions), Impact 24.5 (TACs), and Impact 24.6 (GHGs) have been revised to reflect the

changes to the assumed throughput, traffic, project buildout year, and ASP control of GHGs. Finally, Impact 24.4 (odors) has been updated to incorporate odor complaint information from the Sonoma County Environmental Health and Safety Section pertaining to the existing facility, as well as a discussion of potential changes to odor generation for the Central Site Alternative.

#### ***Chapter 25, Biological Resources/ Central Site Alternative***

This chapter has been revised to incorporate additional information pertaining to the California tiger salamander (CTS). In addition, Mitigation Measure 25.1 has been updated to clarify the mitigation process for the California Red-legged Frog (CRLF).

#### ***Chapter 26, Cultural Resources/ Central Site Alternative***

No changes were made to the impact analyses or mitigations in Chapter 26.

#### ***Chapter 27, Hydrology and Water Quality/ Central Site Alternative***

This chapter has been revised to incorporate information pertaining to ongoing Central Site Landfill groundwater level and ground and surface water quality monitoring information. Also, additional detail is provided regarding water quality permitting requirements. Impact 27.1 (violate water quality standard, waste discharge requirement, or substantially degrade water quality) has been revised to include permitting information as well as the new Mitigation Measure 27.1b, which describes measures to ensure that construction related blasting does not result in the degradation of groundwater. Impact 27.3 (alter the existing drainage pattern) has been revised to include greater detail for Mitigation Measure 27.3, which requires a grading and drainage plan be prepared prior to construction. Finally, Impact 27.4 (stormwater runoff) has been updated with a revised stormwater discharge management analysis, including MS4 permit requirements, as well as updated Mitigation Measure 27.4a (grading and drainage plan) and a new Mitigation Measure 27.4b, which describes stormwater management options.

#### ***Chapter 28, Land Use and Agriculture/ Central Site Alternative***

Impact 28.2 (Central Site Alternative could conflict with the Sonoma County General Plan or Zoning Ordinance) has been revised to include Mitigation Measure 28.2 as a significant and unavoidable determination, since noise levels could occasionally exceed the standards in the General Plan.

#### ***Chapter 29, Noise/ Central Site Alternative***

Impact 29.2 (operational noise) has been updated with potential equipment hours and notes that although ASP fans may operate 24 hours per day, positive pressure systems (push fans) can be very intermittent with long off cycles. Also, since loaders would be used rather than dozers during operations, the noise analysis has been updated accordingly. The County noise standards of L<sub>25</sub>, L<sub>8</sub>, and L<sub>2</sub> are also described. Mitigation Measures 29.2d and 29.2e were also added, which work to keep the noisiest equipment away from the nearest residence and require the

applicant to fund sound insulation upgrades to the nearest residence (if resident is amenable), respectively. Impact 29.3 (traffic noise) has been revised to reflect increased traffic volumes. This impact has also been updated with a description of the number of homes that the County has already retrofitted for sound insulation, as well as road segments that the County has already developed sound walls/fences, in order to minimize roadway noise. Finally, Impact 29.4 (blasting) has been revised to include several additional mitigation measures (Measures 29.4h and 29.4i), as well as allowable hours for blasting activities that are consistent with the Central Disposal Landfill hourly restrictions (Mitigation Measure 29.4c).

### ***Chapter 30, Public Services and Utilities/ Central Site Alternative***

Impact 30.2 (energy demands) has been revised with updated electricity and fuel usage assumptions based on the increased throughput and associated equipment and vehicle operations. In addition, Impact 30.5 (stormwater facilities) has been updated with information regarding optional stormwater management facility construction, added Mitigation Measure 30.5, and determined that the impact would be less-than-significant after mitigation. Finally, Impact 30.6 (wastewater treatment facilities) has been added to the chapter and includes a discussion of the optional conveyance of stormwater to the Laguna Wastewater Treatment Plant, which has sufficient capacity to support the Central Site Alternative. Impact 30.6 was determined to be a less-than-significant impact without mitigation.

### ***Chapter 31, Traffic/ Central Site Alternative***

This chapter has been revised to reflect increased traffic volumes based on the increase in material throughput to 200,000 tons per year for the Central Site Alternative. Impact 31.5 (long-term cumulative traffic volumes) identified a significant impact to traffic delays at the Gravenstein Highway (SR 116) / Stony Point Road intersection. Mitigation Measure 31.5 would reduce the impact to less than significant. However, if implementation of Mitigation Measure 31.5 is not approved by Caltrans (the jurisdiction responsible for SR 116), the impact would be Significant and Unavoidable. Additional analysis was also included in Impact 31.8 (degradation of pavement on public roads) and Impact 31.9 (construction traffic).

### ***Chapter 32, Aesthetics/ Central Site Alternative***

Additional details were incorporated into Mitigation Measure 32.1 pertaining to the screening measures to screen views of composting facilities from Roblar Road.

### ***Appendix 2011 DEIR Mitigation Measures (Sites 5A and 40)***

This Appendix is provided for the convenience of not having to reference the 2011 Draft EIR, because some of the mitigation measures for the Central Site Alternative reference mitigation measures for Site 5A and 40.

***Appendix AIR-5***

Appendix AIR-5 includes updated model runs and emission factors used to develop the criteria air pollutant and GHG analyses based on the increased throughput, equipment usage, traffic, year 2030 emission factors, and ASP control of GHGs.

***Appendix AIR-6***

Appendix AIR-6 includes updated health risk data and results based on the increased throughput, equipment usage, traffic, and year 2030 emisctors.

***Appendix NOISE***

Appendix NOISE includes updated traffic volumes and TNM Lookup values.

***Appendix TRAFFIC-3***

Levels of service (LOS) reports for the cumulative plus project scenario are now included in this appendix for the Central Site Alternative.

**Table 2-3 (Revised)**

Table 2-3 (provided below) has been revised for the analyses in this Recirculated Draft EIR for all impacts related to the Central Site Alternative. Mitigation measures and impact determinations shown in Table 2-3 are clean (i.e., without strikethrough or underline) to optimize readability. To compare text changes incorporated since the 2011 Draft EIR, please see the individual resource chapters included in this Recirculated Draft EIR.

**TABLE 2-3 (REVISED)**  
**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (CENTRAL SITE ALTERNATIVE)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
24. Air Quality/Central Site			
<b>Impact 24.1:</b> Construction of the Central Site Alternative could generate short-term emissions of criteria air pollutants: ROG, NOx, CO, PM10, and PM2.5 that could contribute to existing nonattainment conditions and further degrade air quality.	<b>Mitigation Measure 24.1:</b> Implement the ‘Basic Control Measures’ and ‘Additional Control Measures’ specified in Mitigation Measure 5.1 (Construction Emission Controls) during construction (2011 Draft EIR).	S	LSM
<b>Impact 24.2:</b> Operation of the Central Site Alternative would result in emissions of criteria air pollutants at levels that would substantially contribute to a potential violation of applicable air quality standards or to nonattainment conditions.	None required.	LS	LS
<b>Impact 24.3:</b> Central Site Alternative traffic would generate localized CO emissions on roadways and at intersections in the site vicinity.	None required.	LS	LS
<b>Impact 24.4:</b> Operation of the Central Site Alternative could create objectionable odors affecting a substantial number of people.	<b>Mitigation Measure 24.4:</b> Same as Mitigation Measure 5.5 (Odor Control) (2011 Draft EIR).	S	LSM
<b>Impact 24.5:</b> Implementation of the Central Site Alternative may lead to increases in chronic exposure of sensitive receptors in the vicinity to certain toxic air contaminants from various stationary and mobile sources.	None required.	LS	LS
<b>Impact 24.6:</b> Construction and operation of the Central Site Alternative would not result in a cumulatively considerable increase in greenhouse gas emissions.	None required.	LS	LS
<b>Impact 24.7:</b> The Central Site Alternative, together with anticipated cumulative development in the Bay Area Air Basin, would contribute to regional criteria pollutants.	<b>Mitigation Measure 24.7:</b> Implement Mitigation Measure 24.1 (Construction Emission Controls) (2011 Draft EIR).	S	LSM
<b>Impact 24.8:</b> Cumulative risk from all past, present and reasonably foreseeable sources within 1,000 feet of the Central Site Alternative would expose sensitive receptors to PM2.5 and TACs which may lead to adverse health effects.	None required.	LS	LS

KEY: S - Significant      SU – Significant and Unavoidable      LS – Less than Significant      LSM – Less than Significant with Mitigation      NI – No Impact

**TABLE 2-3 (REVISED)**  
**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (CENTRAL SITE ALTERNATIVE)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
25. Biological Resources/Central Site			
<b>Impact 25.1:</b> Implementation of the Central Site Alternative could result in direct and indirect impacts to the California red-legged frog, northwestern pond turtle, white-tailed kite, hoary bat, and showy Rancheria clover.	<p><b>Mitigation Measure 25.1:</b> To reduce potential impacts to California red-legged frog, northwestern pond turtle, white-tailed kite, hoary bat, and showy Rancheria clover, SCWMA shall implement the following mitigation measures:</p> <p><b>California red-legged frog</b></p> <p>A qualified biologist shall conduct a protocol-level habitat assessment in accordance with the USFWS' 2005 "Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog" or the most current guidance. If it is determined, based on the results of the habitat assessment and the USFWS, that the pond does not support CRLF habitat, no additional measures would be required.</p> <p>Based on the results of the protocol-level habitat assessment, the USFWS may require protocol-level field surveys, which shall be conducted in accordance with the most current guidelines. The results of these surveys will document use by CRLFs in the freshwater pond habitat. If it is determined, based on the results of the field surveys that the pond does not support CRLFs, no additional mitigation would be required.</p> <p>If the freshwater pond does support CRLFs, SCWMA shall consult with the U.S. Army Corps of Engineers (USACE) to take jurisdiction and request a formal consultation with the USFWS under Section 7 of the Federal Endangered Species Act. Once the USFWS has prepared a biological opinion on whether the proposed project will jeopardize the continued existence of CRLFs, the USFWS may prepare an incidental take statement (permit) for the proposed project, which provides the Corps and SCWMA reasonable and prudent alternative actions. The SCWMA shall consult with the USFWS and obtain the incidental take permit prior to the commencement of any construction activities that could affect CRLF habitat. In consultation with the USFWS, SCWMA may be required to prepare a habitat conservation plan (HCP) that documents how effects of the authorized incidental take would be adequately minimized and mitigated. The HCP shall detail approved mitigation measures, including but not be limited to preconstruction clearance surveys conducted by a qualified biologist, installation of exclusionary fencing, mitigation for loss of CRLF habitat as approved by USFWS, and implementation of a worker environmental awareness training program.</p> <p><b>Northwestern pond turtle</b></p> <p>A survey shall be performed 24 hours prior to the start of construction activities near the freshwater pond located on the Central Site. If a turtle is found in the freshwater pond, the DFG-approved biologist shall try to passively move the turtle out of the area. If a turtle becomes trapped during construction activities in the freshwater pond, a biologist shall remove the turtle from the work area and place it in a suitable habitat in the vicinity of the project. If a turtle is discovered in the construction area during active operations the equipment operator or equivalent will temporarily cease operations per the biologist's direction until the biologist has moved the turtle away from the construction area and/or out of harm's way.</p> <p><b>White-tailed kite and other raptors</b></p> <p>A survey shall be conducted two weeks prior to the start of construction activities in suitable nesting habitats such as trees and tall shrubs. If an active nest is found in the construction area, the SCWMA shall consult with the Department of Fish and Game (DFG) to implement appropriate measures to</p>	S	LSM

KEY: S - Significant

SU – Significant and Unavoidable

LS – Less than Significant

LSM – Less than Significant with Mitigation

NI – No Impact

**TABLE 2-3 (REVISED)**  
**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (CENTRAL SITE ALTERNATIVE)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
	<p>reduce impacts to the nesting effort. The SCWMA shall ensure the following measures are implemented to reduce impacts to white-tailed kites and other raptor species:</p> <ol style="list-style-type: none"> <li>1. Maintain a 500-foot buffer or a buffer distance agreed to with DFG around each active raptor nest; no construction activities shall be permitted within this buffer except as a result of consultation with DFG.</li> <li>2. Depending on conditions specific to each nest, and the relative location and rate of construction activities, it may be feasible for construction to occur as planned within the buffer without impacting the breeding effort. In this case (to be determined in consultation with DFG), the nest(s) shall be monitored by a qualified biologist during construction within the buffer. If, in the professional opinion of the monitor, the project would impact the nest, the biologist shall immediately inform the construction manager and DFG. The construction manager shall stop construction activities within the buffer until either the nest is no longer active or the project receives approval to continue from DFG.</li> <li>3. If tree removal is necessary, it shall be conducted outside of the breeding season (between February and October). Loss of a nest tree shall be compensated according to CDFG guidance.</li> </ol> <p><b>Hoary Bat and other sensitive bat species</b></p> <ol style="list-style-type: none"> <li>1. A survey shall be conducted two calendar weeks prior to initiation of construction activity in suitable bat roosting habitat (e.g. abandoned buildings, rock crevices, under tree bark, hollow trees, culverts, under bridges, or other dark crevices). The pre-construction bat survey shall be performed by a DFG-approved wildlife biologist or other qualified professional.</li> <li>2. If a female or maternity colony of bats are found on the project site and the project can be constructed without the elimination or disturbance of the roosting colony (e.g., if the colony roosts in an area not planned for removal), a qualified wildlife biologist shall determine what physical and timed buffer zones shall be employed to ensure the continued success of the colony. Such buffer zones may include a construction-free barrier of 250 feet from the roost and/or the timing of the construction activities outside of the maternity roost season (typically May to August).</li> <li>3. If an active nursery roost is known to occur on site and the project cannot be conducted outside of the maternity roosting season, bats shall be excluded from the site after August and before May to prevent the formation of maternity colonies. If a non-breeding pallid bat is found in a tree scheduled to be removed, the applicant will apply for a memorandum of understanding (MOU) with DFG. The bats shall be safely evicted within the guidelines of the MOU under the direction of a qualified bat biologist by opening the roosting area at dusk to allow air flow through the cavity, or by an alternative measure that does not result in adverse impacts. Tree removal shall then follow no later than the following day (i.e. there would be not less than one night between the initial disturbance for airflow and the removal). This action should allow bats to leave during the dark hours, thus increasing their chance of finding roots with a minimum of potential predation during daylight.</li> </ol> <p><b>Showy Rancheria clover</b></p> <p>Implement Mitigation Measure 6.3b (2011 Draft EIR).</p>		

#### 26. Cultural Resources/Central Site

KEY: S - Significant      SU – Significant and Unavoidable      LS – Less than Significant      LSM – Less than Significant with Mitigation      NI – No Impact



**TABLE 2-3 (REVISED)**  
**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (CENTRAL SITE ALTERNATIVE)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
<b>Impact 26.1:</b> The Central Alternative could inadvertently discover archaeological resources.	<b>Mitigation Measure 26.1:</b> Halt work if cultural resources are discovered during ground-disturbing activities. Implement Mitigation Measure 7.2 (2011 Draft EIR).	S	LSM
<b>Impact 26.2:</b> The Central Site Alternative could inadvertently discover human remains.	<b>Mitigation Measure 26.2:</b> Implement Mitigation Measure 7.3 (2011 Draft EIR).	S	LSM
<b>Impact 26.3:</b> The Central Site Alternative could inadvertently discover paleontological resources.	<b>Mitigation Measure 26.3:</b> Implement Mitigation Measure 7.4 (2011 Draft EIR).	S	LSM
<b>27. Hydrology and Water Quality/Central Site</b>			
<b>Impact 27.1:</b> The Central Site Alternative could violate a water quality standard or waste discharge requirement, or otherwise substantially degrade water quality.	<b>Mitigation Measure 27.1a:</b> Implement Mitigation Measures 8.1a and 8.1b (2011 Draft EIR). <b>Mitigation Measure 27.1b:</b> In order to ensure that construction related blasting does not result in the degradation of groundwater quality on site, the following blasting best management practices shall be implemented by the project proponent for all blasting during proposed compost facility construction: <ul style="list-style-type: none"> <li>Blasting shall only be employed where ripping operations with a D8 bulldozer or larger cannot adequately loosen the rock to be removed;</li> <li>Blasting shall only be conducted by a licensed, certified professional consistent with federal, state, and local regulations;</li> <li>Explosive products shall be selected that are appropriate for site conditions and safe blast execution;</li> <li>Loaded explosives shall be detonated as soon as possible and shall not be left in the blastholes overnight, unless weather or other safety concerns reasonably dictate that detonation should be postponed;</li> <li>Explosive products shall be managed on -site so that they are either used in the borehole, returned to the delivery vehicle, or placed in secure containers for off-site disposal;</li> <li>Spillage around the borehole shall either be placed in the borehole or cleaned up and returned to an appropriate vehicle for handling or placement in secured containers for off-site disposal;</li> <li>Explosives shall be loaded to maintain good continuity in the column load to promote complete detonation. Industry accepted loading practices for priming, stemming, decking and column rise need to be attended to.</li> </ul>	S	LSM
<b>Impact 27.2:</b> The Central Site Alternative could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table or conflict with Sonoma County General Plan policies regarding groundwater.	<b>Mitigation Measure 27.2:</b> Implement Mitigation Measures 8.2a and 8.2b (2011 Draft EIR).	S	LSM
<b>Impact 27.3:</b> The Central Site Alternative could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion	<b>Mitigation Measure 27.3.</b> Prior to construction, a grading and drainage plan for the project site shall be completed, and SCMWA shall ensure that the recommendations from that document are incorporated into the project design. The plan shall quantitatively evaluate anticipated stormwater flows that would occur on site, and provide for the implementation of grading and stormwater management features that	S	LSM

KEY: S - Significant      SU - Significant and Unavoidable      LS - Less than Significant      LSM - Less than Significant with Mitigation      NI - No Impact

**TABLE 2-3 (REVISED)**  
**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (CENTRAL SITE ALTERNATIVE)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
or siltation on- or off-site, or result in flooding on- or off-site.	would minimize flooding, unintentional ponding, erosion, and sedimentation. Additionally, the plan shall quantify anticipated discharges from the Project site, up to the 100-year storm event (plus an extra 10 percent volume capacity to account for the effects of climate change), and ensure that stormwater management infrastructure would be sized appropriately so as to safely convey anticipated discharges to surface waters and/or the landfill's leachate management system. The plan shall include anticipated sizings including engineering diagrams and maps for all stormwater management infrastructure.		
<b>Impact 27.4:</b> The Central Site Alternative could create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	<p><b>Mitigation Measure 27.4a.</b> Prior to construction, a grading and drainage plan for the Central Site shall be completed, and the SCWMA shall ensure that recommendations from that document are incorporated into project design. The study shall include the following:</p> <ul style="list-style-type: none"> <li>• Engineering diagrams and maps of all proposed drainage facilities, sized so as to convey all stormwater flows from the composting site, up to 100-year storm conditions plus an extra 10 percent volume capacity to accommodate potential climate change conditions.</li> <li>• Facilities shall include ditches, swales, stormwater retention ponds, and other stormwater conveyances, as needed to ensure that stormwater can be conveyed off site without causing additional flooding, erosion, or sedimentation on -site or downstream.</li> <li>• Discharges from the site shall be routed into waterways or other stormwater management facilities that have sufficient capacity to contain anticipated stormwater flows without causing additional flooding, erosion, or sedimentation downstream.</li> </ul> <p><b>Mitigation Measure 27.4b.</b> In order to further reduce potential effects on natural waterways downstream, the following additional measures for stormwater management shall be implemented where possible:</p> <ol style="list-style-type: none"> <li>1. Management of stormwater stored in the on-site retention pond for use as dust suppressant or for other uses at the landfill. Land application of water stored in the retention pond onto the landfill area would be subject to applicable state and local permitting.</li> <li>2. Management of stormwater and compost leachate stored in the on-site retention pond for use as agricultural irrigation water. Water could be applied to an adjacent or nearby property in support of agricultural activities. Application of water for agricultural use would be subject to federal, state, and local requirements regarding the quality and use of discharged water.</li> </ol>	S	LSM
<b>28. Land Use and Agriculture/Central Site</b>			
<b>Impact 28.1:</b> The Central Site Alternative has the potential to physically divide an established community.	None required.	LS	LS
<b>Impact 28.2:</b> The Central Site Alternative could conflict with the Sonoma County General Plan or Zoning Ordinance.	<b>Mitigation Measure 28.2:</b> Implement Mitigation Measures 29.2a through 29.2e to reduce operational noise impacts.	S	SU
<b>Impact 28.3:</b> The Central Site Alternative would result in the conversion of agricultural land, specifically Grazing Land.	None required.	LS	LS
<b>Impact 28.4:</b> The Central Site Alternative would not conflict with an existing Williamson Act Contract.	None required.	NI	NI
<p>KEY:      S - Significant      SU – Significant and Unavoidable      LS – Less than Significant      LSM – Less than Significant with Mitigation      NI – No Impact</p>			

**TABLE 2-3 (REVISED)**  
**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (CENTRAL SITE ALTERNATIVE)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
29. Noise/Central Site			
Impact 29.1: Construction at the Central Site Alternative could expose persons to or generate excessive noise levels.	Mitigation Measure 29.1: Implement Mitigation Measure 10.1 (2011 Draft EIR).	S	LSM
Impact 29.2: Operation of the Central Site Alternative composting facility could expose persons to or generate noise levels in excess of standards established in the local general plans or noise ordinances, or applicable standards of other agencies.	Mitigation Measure 29.2a: Implement Mitigation Measure 10.2 (ASP equipment control) (2011 Draft EIR).	S	SU
	Mitigation Measure 29.2b: The site design shall include sound walls or earthen berms and/or other sound insulating features (i.e., sound blankets or curtains) that would block the line of sight to the nearest sensitive residences to the northeast and the south.		
	Mitigation Measure 29.2c: Operational equipment noise shall be minimized by muffling and shielding intakes and exhaust on equipment (per the manufacturer's specifications).		
	Mitigation Measure 29.2d: The applicant shall keep the noisiest equipment operations away from the nearest residence as much as feasible.		
	Mitigation Measure 29.2e: The applicant shall fund appropriate sound insulation upgrades to the nearest residences, if residents are amenable to installing window/wall and/or door upgrades.		
Impact 29.3: Traffic associated with operation of the Central Site Alternative could result in an increase in ambient noise levels on nearby roadways used to access the project site.	None required.	LS	LS
Impact 29.4: Blasting that would occur under the project would generate temporary airborne and groundborne noise and vibration.	Measure 29.4a: A site specific blasting plan shall be prepared. The blasting plan shall ensure that ground motions do not exceed 0.5 in/s at the nearest residence and determine the appropriate vibration threshold for nearby structures at the time of the blasting.	S	LSM
	Measure 29.4b: The blasting plan shall require monitoring of ground vibration and air-overpressure at a minimum of two locations to ensure these effects remain under threshold levels. One location should be close to the nearest residential property. The second monitoring point should be the adjacent landfill property.		
	Measure 29.4c: Blasting shall be limited to the same daytime restrictions that apply to the Central Disposal Site Landfill (the permitted blasting times are between 4:30 and 5:30 p.m.).		
	Measure 29.4d: A blasting permit shall be obtained from the Sonoma County Sheriff's Department prior to any blasting.		
	Measure 29.4e: Discuss the blast monitoring program with the stakeholders in the project area that could be affected by blasting vibration. Educate property owners as to what is being done and why. Obtain information on time periods that are sensitive to blast activity.		
	Measure 29.4f: Conduct a pre-blast survey to determine the condition of existing structures, and to alert homeowners that some rattling may be expected but damage is not expected. Contacts should be provided so that damage claims and complaints can be monitored and responded to quickly.		
	Measure 29.4g: Schedule blasts to occur at approximately the same time on each blast day. Include this information in public announcements.		

KEY: S - Significant

SU - Significant and Unavoidable

LS - Less than Significant

LSM - Less than Significant with Mitigation

NI - No Impact

**TABLE 2-3 (REVISED)**  
**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (CENTRAL SITE ALTERNATIVE)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
	<b>Mitigation Measure 29.4h:</b> The blast plan shall require sequential detonating of charges to minimize potential noise from blasting. <b>Mitigation Measure 29.4i:</b> Implement Hydrology and Water Quality Mitigation Measure 27.1b, which limits blasting to situations where a D8 bulldozer cannot loosen the rock to be removed and requires blasting to be conducted by licensed certified personnel.		
<b>Impact 29.5:</b> Increases in traffic from the Central Site Alternative in combination with other development would result in cumulative noise increases.	None required.	LS	LS
<b>30. Public Services and Utilities/Central Site</b>			
<b>Impact 30.1:</b> The Central Site Alternative would generate solid waste which would require disposal at a landfill.	None required.	LS	LS
<b>Impact 30.2:</b> The Central Site Alternative and implementation of certain mitigations, would increase energy demands.	None required.	LS	LS
<b>Impact 30.3:</b> The Central Site Alternative would require law enforcement services from the Sonoma County Sheriff's Office.	None required.	LS	LS
<b>Impact 30.4:</b> The Central Site Alternative would increase demand for fire protection and emergency medical services including response to wildland fires.	None required.	LS	LS
<b>Impact 30.5:</b> The Central Site Alternative would include new stormwater drainage facilities, the construction of which could create impacts.	<b>Measure 30.5:</b> Implement Mitigation Measure 27.3	S	LSM
<b>Impact 30.6:</b> The Central Site Alternative could require or result in the construction of new wastewater treatment facilities, the construction of which could cause significant environmental effects.	None required.	LS	LS
<b>31. Traffic and Transportation/Central Site</b>			
<b>Impact 31.1:</b> The Central Site Alternative would contribute to Near-Term Cumulative traffic volumes at the study intersection during the weekday a.m. and weekend peak hour.	None required.	LS	LS
<b>Impact 31.2:</b> The Central Site Alternative could worsen traffic safety due to design features or incompatible uses.	None required.	LS	LS
<b>Impact 31.3:</b> The Central Site Alternative would create	<b>Mitigation Measure 31.3a:</b> Implement Mitigation Measure 12.3a (2011 Draft EIR).	S	LSM

KEY: S - Significant

SU – Significant and Unavoidable

LS – Less than Significant

LSM – Less than Significant with Mitigation

NI – No Impact

**TABLE 2-3 (REVISED)**  
**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (CENTRAL SITE ALTERNATIVE)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
potential conflicts with adopted policies, plans, or programs supporting alternative transportation.	<b>Mitigation Measure 31.3b:</b> The operator shall be required to conduct regular sweeping of the intersection of Mecham Road at the Central Site access road so that the intersection remains free of debris and dirt that may accumulate from exiting trucks.		
<b>Impact 31.4:</b> The Central Site Alternative would generate turning movements by heavy vehicles to and from Mecham Road, and could increase the potential for conflicts between Central Site Alternative traffic and through traffic.	None required.	LS	LS
<b>Impact 31.5:</b> The Central Site Alternative would contribute to Long-Term Cumulative traffic volumes at the study intersection during the weekday a.m. and weekend peak hour.	<b>Mitigation Measure 31.5:</b> Prior to Year 2030, SCWMA shall modify the traffic signal timing settings at the intersection of Gravenstein Highway (SR 116) / Stony Point Road to better accommodate traffic volumes during the a.m. peak hour.  Specific timing changes shall be established based on actual traffic volumes under the future-year conditions, but as an example of the delay reduction that can be achieved based on the estimated 2030 traffic volumes, increasing the cycle length from 60 seconds to 65 seconds would reduce the average vehicle delay by more than the five-second threshold of significance, and would mitigate the project's impact on cumulative traffic conditions.	S	SU
<b>Impact 31.6:</b> The Central Site Alternative could worsen traffic safety due to design features or incompatible uses.	None required.	LS	LS
<b>Impact 31.7:</b> The Central Site Alternative would generate turning movements by heavy vehicles to and from Mecham Road, and could increase the potential for conflicts between Central Site Alternative traffic and through traffic.	None required.	LS	LS
<b>Impact 31.8:</b> The Central Site Alternative would contribute to the degradation of pavement on public roads.	None required.	LS	LS
<b>Impact 31.9:</b> Project construction would result in temporary increases in truck traffic and construction worker traffic.	<b>Mitigation Measure 31.9:</b> Implement Mitigation Measure 12.8 (2011 Draft EIR).	S	LSM
<b>32. Aesthetics/Central Site</b>			
<b>Impact 32.1:</b> The Central Site Alternative would alter the visual character of the Central Site.	<b>Mitigation Measure 32.1:</b> The alternative shall incorporate landscaping or other screening measures, such as the use of native trees and/or a vegetated berm, along the northern and southern boundaries of the Central Site composting area. The proposed screening measures along the northern boundary of the composting area shall be sufficient in height to screen views of composting facilities from Roblar Road.	S	LSM
<b>Impact 32.2:</b> The Central Site alternative could result in the production of new sources of light and/or glare.	<b>Mitigation Measure 32.2:</b> Implement Mitigation Measure 13.2 (2011 Draft EIR).	S	LSM

KEY: S – Significant      SU – Significant and Unavoidable      LS – Less than Significant      LSM – Less than Significant with Mitigation      NI – No Impact



# CHAPTER R3

## Comparison of Alternatives

This Chapter provides revisions to Sections 4.9, 4.10 and 4.11 from the 2011 Draft EIR.

### 4.9 Summary Comparison of Alternatives

The relative impacts of the various project alternatives (in comparison to the proposed project at Site 5A) are shown in **Table 4-1**.

**TABLE 4-1  
PROJECT ALTERNATIVES COMPARISON**

EIR Chapter/Project Impact	No Project A	No Project B	Site 40	Site 13	Central Site	Limited Public Access
Air Quality	L/E	L/G	G (S/U)	G (S/U)	L	L (S/U)
Biological Resources	L	L	L	L	L/E	E
Cultural Resources	L	L	L	L	L	E
Hydrology And Water Quality	L/G	L	L	L	L	E
Land Use Planning And Agriculture	L	L	E (S/U)	L (S/U)	L	E
Noise	L	L	E	L	G (S/U)	L
Public Services And Utilities	E	E	E	E	E	E
Traffic And Transportation	L/G	L	L	G (S/U)	L	L/E (S/U)
Aesthetics	L	L	E/G	E/G	L	E

**KEY:**

L = Less impact than the project

E = Equal or similar impacts as the project

G = Greater impact than the project

S/U = Significant, unavoidable impact likely to occur.

SOURCE: Environmental Science Associates, 2011/2012

**Table 4-2** shows the ability of each alternative to achieve the project objectives. As shown by the table, the No Project A and B Alternatives fail to meet the majority of the project objectives. The Site 40, Site 13, Central Site, and Limited Public Access Alternatives meet all of the project objectives. ~~The Central Site Alternative meets project objectives 1 and 3, but fails to meet project objective 2 because of its limited capacity.~~ The three objectives of the project are listed below:

- Objective 1. Relocate SCWMA's composting operations from its current location at the County's Central Disposal Site.
- Objective 2. Establish a permanent composting facility in Sonoma County with sufficient capacity for current and future quantities.
- Objective 3. Provide a facility to assist jurisdictions within SCWMA's service area in meeting the goals and objectives for waste diversion as set forth in the California Integrated Waste Management Act of 1989 (AB 939).

**TABLE 4-2**  
**PROJECT ALTERNATIVES: COMPARISON OF ABILITY TO ACHIEVE**  
**PROJECT OBJECTIVES**

Objectives	No Project A	No Project B	Site 40	Site 13	Central Site	Limited Public Access
Objective 1			✓	✓	✓	✓
Objective 2			✓	✓	✓	✓/✗
Objective 3	✓		✓	✓	✓	✓

**KEY:**

✓ = Alternative substantially achieves objective

✓/✗ = The Limited Public Access Alternative would meet Objective 2 at Sites 5A, 13 and 40. This alternative would not meet Objective 2 at the Central Site.

SOURCE: Environmental Science Associates, 2011/2012

## 4.10 Environmentally Superior Alternative

Site 40, and Site 13, and the Central Site Alternative each meet the three project objectives (as depicted in Table 4-2). Site 40, and Site 13, and the Central Site Alternative have specific impacts that would be greater than the project (as shown in Table 4-1). Site 40 would require substantial grading during construction and would result in greater TAC health risk during operations. Site 13 would also result in potentially greater air quality impacts; however, the primary drawback for this alternative is that the traffic safety issues would be greatly increased compared to the proposed project at Site 5A. Importantly, the Site 40 Alternative would avoid any impacts to the 100-year flood plain. The Site 40 Alternative also would avoid the need for safety improvements on Lakeville Road that would be required for the development of the proposed project at Site 5A. In contrast, the safety improvements for Highway 37 required for development of Site 13 would potentially be more expensive and less feasible than the safety improvements needed on Lakeville Road for Site 5A.

The Central Site Alternative has the potential to result in noise effects to the Gray property that would be greater than the project (Site 5A). However, the operational impacts to air quality, noise, aesthetics, hydrology, land use, and traffic would be similar in location and character (although the magnitude would vary [and potentially increase for some resources] from the existing baseline) to impacts that currently occur at the existing County composting facility at the Central Disposal Site. Operations at Site 40 and and Site 13 would not be similar to any existing operations at those locations.



Given these considerations, the Central Site Site 40 Alternative is the environmentally preferred alternative to the project.

## 4.11 Other Site Challenges/Difficulties/Infeasibilities

Challenges related to development of a compost facility meeting the County objectives and other financial considerations at the various sites include the following:

### Site 5A:

- The cost of roadway improvements to Lakeville Road and to private Twin House Ranch Road has been estimated at \$3.7 million. The cost of these roadway improvements are significantly higher than the estimated costs (\$1.5 - \$2 million) for purchasing the project site. This substantial cost exists for this project but not the other project-level alternatives. (likely financially infeasible)
- Would require general plan amendment, zoning change, dealing with Williamson Act contract.
- The site would be inconsistent with the County of Sonoma's policies on net fill in a floodplain. (likely procedurally infeasible)
- The County of Sonoma discourages the development of on-site wastewater systems in locations such as Site 5A. (likely procedurally infeasible)

### Site 13:

- The same issues as Site 5a, only roadway improvements on Highway 37 would likely be more expensive.

### Central Disposal Site:

- ~~The 110,000 tons per year (tpy) capacity would be only about half of the 200,000 tpy goal for the facility.~~
- ~~The length of time for full buildout (and limited operational area in Phase I) would limit the materials that could be composted at this site.~~ SCWMA will need to develop a long-term mechanism to lease the composting site area from the County of Sonoma and would need to ensure that operations don't interfere with other priority waste management actions at the Central Disposal Site.

### Site 40:

- Would require general plan amendment, zoning change, dealing with Williamson Act contract.
- An Aerated Static Pile (ASP) composting system would be required to mitigate potential air quality impacts. Windrow composting would probably not be acceptable.



## CHAPTER R4

# Project Description for Central Site Alternative (Recirculated Chapter 4.7)

### Overview

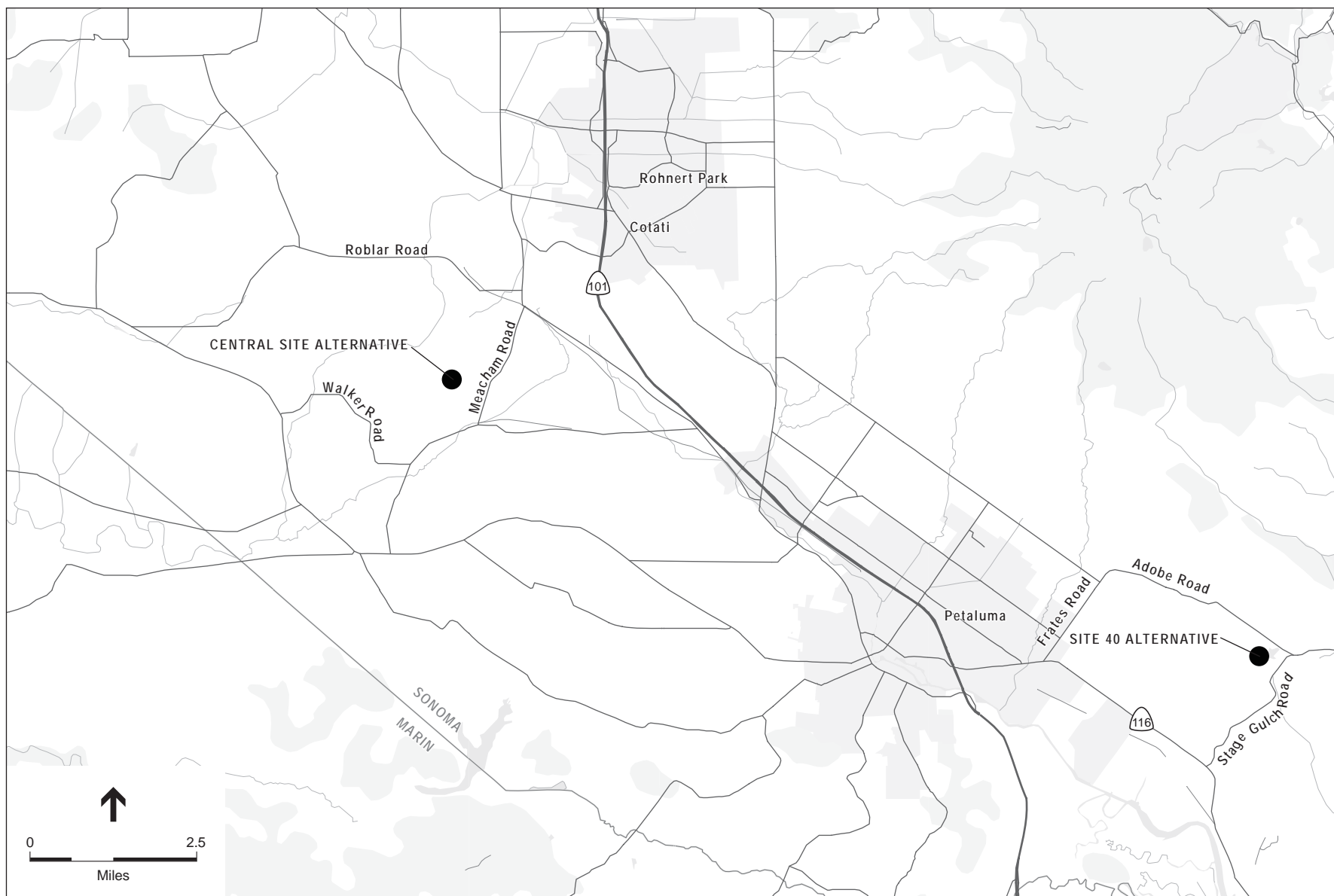
The Central Site Alternative proposes the construction of a new compost facility on a portion of the Central Disposal Site rather than the project site (Site 5A). The Central Site Alternative would include a compost facility with a pad area of approximately 22 acres that require initial grading and disturbance of approximately 34 acres on the 400-acre Central Disposal Site property, located approximately 1.5 miles southwest of the City of Cotati, off of Mecham Road as shown in Figure 4.8. An aerial photograph of the Central Disposal Site and the immediate vicinity is shown in Figure 4.9 (Revised). As with the proposed project (Site 5A), the Central Site Alternative would replace the existing compost facility at the Central Disposal Site and would have the capacity to process approximately 200,000 ~~but would only have the capacity to process approximately 110,000~~ tons of incoming feedstock materials per year. Processing would include green material, food material, and agricultural materials. Because of limited space, this compost facility would use aerated static pile (ASP) technology. Under this alternative, no development is proposed on the project site (Site 5A).

### Objectives

The Central Site Alternative would meet all ~~but one of the primary project objectives discussed above in Section 4.2.~~

- Objective 1. Relocate Sonoma County Waste Management Agency's (SCWMA) composting operations from its current location at the County's Central Disposal Site
- Objective 2. Establish a permanent composting facility in Sonoma County with sufficient capacity for current and future quantities.
- Objective 3. Provide a facility to assist jurisdictions within SCWMA's service area in meeting the goals and objectives for waste diversion as set forth in the California Integrated Waste Management Act of 1989 (AB 939).

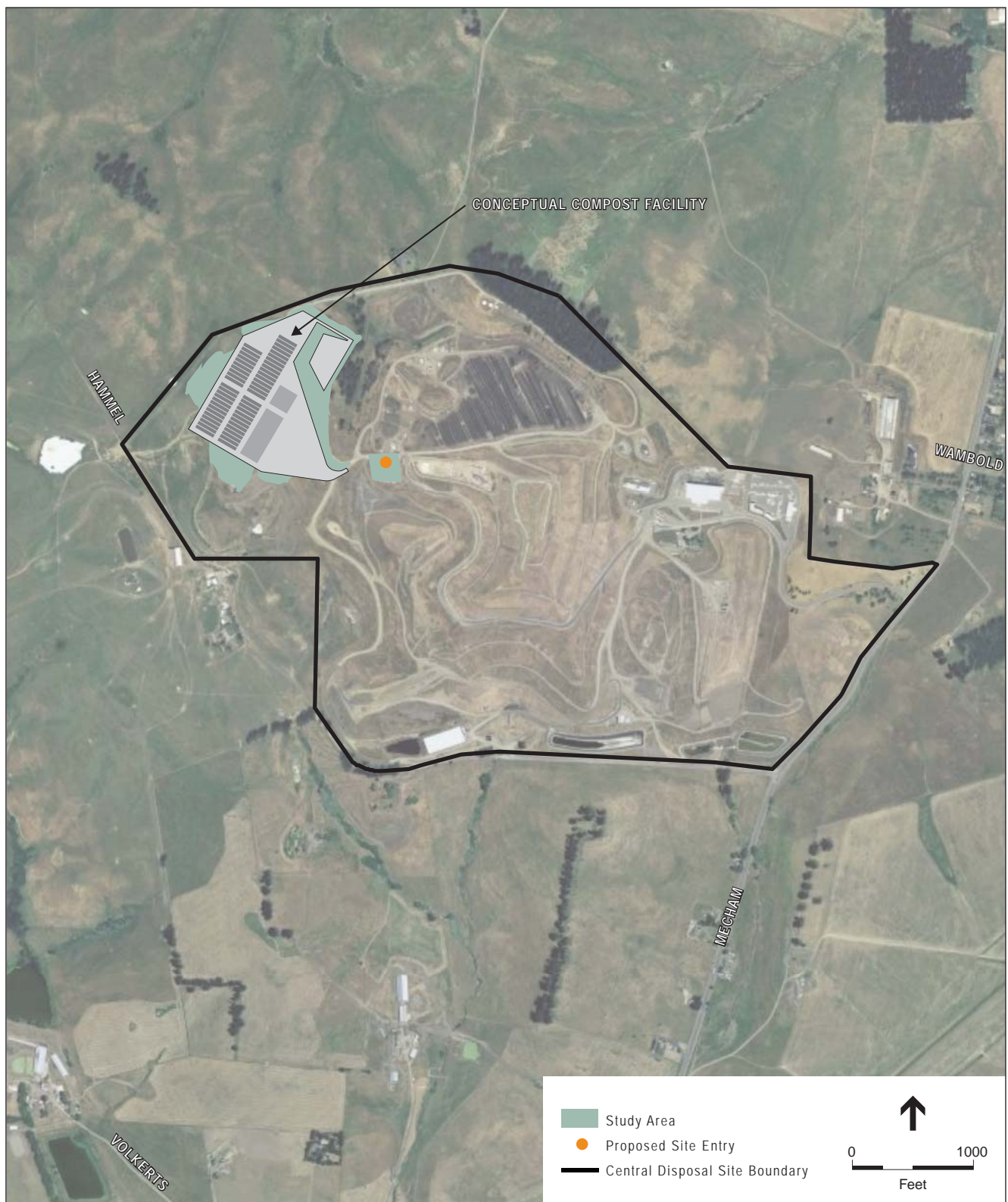
With respect to Objective 1, while the Central Site Alternative would keep the SCWMA's composting operations on the County's Central Disposal Site, the operations would be located in an area of the County's Central Disposal Site that was not previously used as a landfill.



SOURCE: DeLorme Street Atlas, 2000; and ESA, 2010

SCWMA Compost Facility EIR . 207312

**Figure 4-8**  
Central Site Alternative



SOURCE: Bing Maps, 2009; and ESA, 2012

SCWMA Compost Facility Recirculated Draft EIR . 207312

**Figure 4-9 Revised**  
Central Site Alternative Vicinity

While it would keep the SCWMA's composting operations on the County's Central Disposal Site, the operations would be located in an area that was not previously used as a landfill. Additionally, this alternative would only be able to process 110,000 tons of material after completion of Phase 2, which could mean that there would not be enough space to compost the projected 200,000 tons anticipated by 2030.

## **Central Site Alternative and Vicinity**

The Central Site Alternative would be at the Central Disposal Site (Assessor's Parcel Number 024-080-019), which includes approximately 400 acres in Sonoma County. The Central Site is located approximately 1.5 miles southwest of the City of Cotati, off of Mecham Road, as shown on **Figure 4-8**. An aerial photograph of the Central Site and the immediate vicinity is shown on **Figure 4-9**. The overall footprint size of this alternative would be approximately 37.5 acres and the composting area would occupy approximately 25 acres in the northwestern corner of the Central Disposal Site as shown on **Figure 4-9**. Locations for composting at the Central Disposal Site were not evaluated in the siting study prepared for SCWMA (HDR Engineering, Inc., 2008) because of the landfill divestiture in process at that time. The SCWMA decided to include analysis of the Central Disposal Site to this EIR February 17, 2010.

The Central Disposal Site is owned by Sonoma County and currently used for the existing compost facility as well as recycling and landfill operations. The site was historically used as a landfill. Buildings associated with the recycle/reuse facility and household hazardous waste facility are currently located on the eastern portion of the site and would may remain in operation under this alternative. The current composting facility is located in the northern portion of the Central Disposal Site and detention ponds collecting site runoff are located along the southern portion of the Central Disposal Site. Access to the site is off of Mecham Road. Regional access from major population centers in Sonoma County is provided by U.S. Highway 101.

The majority of land uses surrounding the Central Disposal Site are agricultural in nature with areas of open space. Single-family rural residences are scattered in the surrounding area and often present on sites with agricultural operations, such as dairy farming and grazing. The closest residence to the Central Site Alternative composting area is approximately 500 feet northeast. Other residences are approximately 1,000 feet to the south, 4,500 feet to the east (Happy Acres subdivision), and 5,000 feet to the southeast. Dunham Charter School is located approximately 4,000 feet north of the Central Site Alternative composting area. Urban development associated with the City of Cotati is located approximately 2.5 miles northeast of the Central Disposal Site. The Petaluma Municipal Airport is located approximately 8.5 miles southeast of the Central Disposal Site.

## **Central Disposal Site (Existing Landfill)**

The Central Disposal Site is owned by Sonoma County and is a landfill site, which also includes recycling operations, including recycling/reuse and household hazardous waste disposal facilities in the eastern portion of the site, and an existing compost facility in the northern portion of the site.

In May, 2003, the County confirmed detection of trace amounts of volatile organic carbons (VOCs) in the underdrain beneath a lined portion of the landfill. The contamination source was traced to a design flaw in the liner anchor trench, which allowed landfill gas to migrate around the liner and into groundwater, as well cause physical damage to the liner. A retrofit for the liner was completed, along with other upgrades at the landfill site. However, in response to updated Waste Discharge Requirements from the North Coast Regional Water Quality Control Board (NCRWQCB), the County began transporting all waste out of county for disposal at several landfills with available capacity. During 2004 to 2010, operations on the site included recycling and composting operations, transfer operations, and household hazardous waste disposal (Sonoma County, 2012).

By 2010, the County had achieved resolution of outstanding corrective action Waste Discharge Requirements (WDRs) issued by the NCRWQCB sufficiently to enable continued use of the landfill facility. Since September 2010, an average of 450 tons/day of waste has been landfilled on-site, and the County is the owner and operator of record for the facility. As of September, 2010, available capacity at the landfill was approximately 9.1 million cubic yards, sufficient to support landfilling for approximately 15 to 20 years. Additional areas of the landfill site are currently undergoing development in support of ongoing operations on-site. These changes were evaluated under the 1998 EIR for the Central Disposal Site Improvement Program EIR and associated documentation (Sonoma County, 2012).

The landfill stormwater and leachate management system for the Central Disposal Site includes several ponds for collecting leachate and site runoff that are located along the southern portion, as well as the northeastern and northwestern areas of the Central Disposal Site. These ponds include a series of detention ponds that are used for storm water retention and sedimentation. There are also two leachate ponds that operate separately from the stormwater ponds and independently of one another. Thus, stormwater and leachate from the landfill are managed separately, and are not commingled.

The County maintains an extensive groundwater monitoring well network at the Central Disposal Site. Data from this monitoring network are incorporated into the Recirculated Draft EIR. Additional discussion of the existing groundwater monitoring network and associated groundwater monitoring data are contained in Chapter 27, Hydrology and Water Quality/Central Site Alternative.

## **Existing Compost Facility**

Under existing conditions, the Sonoma Compost Company operates an approximately 35-acre facility that is located at the existing Central Site Landfill, within the northern-central area of the landfill, immediately east of the proposed composting facility site. As of 2011, the facility processed a total of 98,461 tons of feedstock per year, of which 95% (93,179 tons) was yard waste and 5% (5,282 tons) was wood waste (SCWMA, 2012). For additional discussion regarding the existing facility, please refer to Chapter 3, Section 3.3 of the 2011 Draft EIR.

## Central Site Alternative Characteristics

### Composting Site Layout

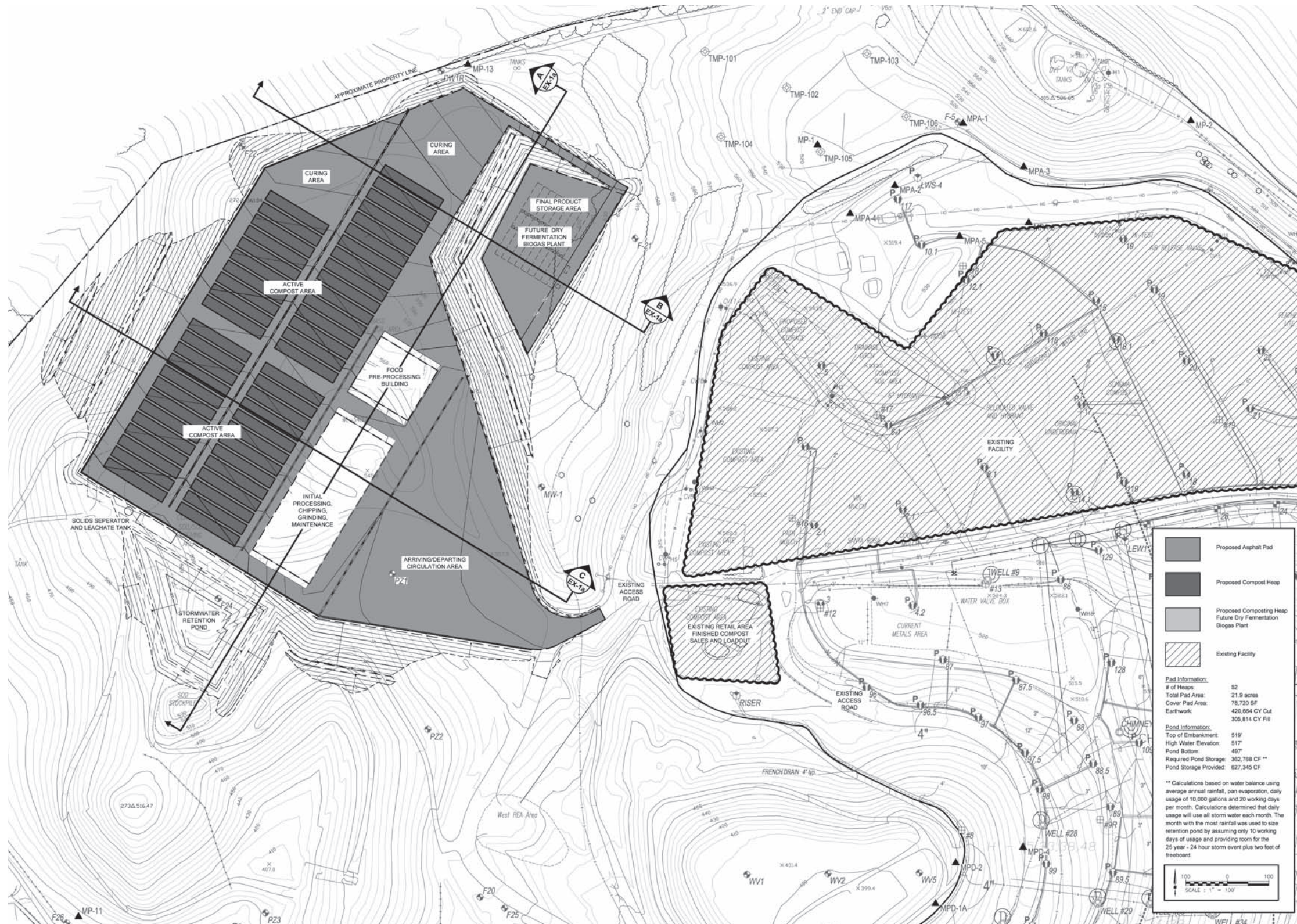
The Central Site Alternative would only include the ASP processing option due to limited space. An aerial photograph of the Central Disposal Site and its immediate vicinity is shown on **Figure 4-9 (Revised)**. **Figure 4-10 (Revised)** is a plan view of the preliminary conceptual design. The overall footprint size of this alternative would be installed on approximately 22 acres (total pad area); the overall area that may need to be graded to allow for development of the site would be approximate 34-acres. The active composting area would occupy approximately 11 acres in the northwestern corner of the Central Disposal Site as shown on **Figure 4-10 (Revised)**. Locations for composting at the Central Disposal Site were not evaluated in the siting study prepared for SCWMA (HDR Engineering, Inc., 2008) because the landfill divestiture process was underway at that time. The future dry fermentation biogas plant on **Figure 4-10 (Revised)** is not proposed at this time nor evaluated in this EIR.

Proposed facilities and site layout of the Central Site Alternative were discussed in Chapters 3 and 4 of the 2011 Draft EIR. The proposed facilities and site layout would be similar to those described therein, except that the proposed facilities would be sufficient to handle up to 200,000 tons per year of incoming feedstock material. Key features of the proposed composting site include an active composting area, underlain by an asphalt pad, as well as compost curing areas, product storage and sales areas, areas for food feedstock pre-processing/material sorting, a chipping/grinding/maintenance area, an arriving/departing circulation area with a truck scale, and a stormwater detention pond. For additional discussion regarding proposed facilities, refer to Chapters 3 and 4 of the 2011 Draft EIR.

Leveling the proposed composting facility area would require cutting approximately 421,000 cubic yards of soil and filling with approximately 306,000 cubic yards of soil. This would result in a net excess of 115,000 cubic yards of soil, which would be utilized at the adjacent landfill site for ongoing operations, and/or stored for future use at the landfill. Leveling and site preparation is anticipated to require blasting in order to loosen rocky materials on site and allow for grading and facility installation.

As noted in the 2011 Draft EIR, the site footprint for the Central Site Alternative is smaller than the other alternatives considered for this project. As a result, an administrative and maintenance building would be located off of the proposed compost site. The current administrative and maintenance building used for the existing compost facility would be used for the proposed compost facility. This building is currently located at the entrance of the existing compost facility. No additions or alterations need be made to that building and therefore use of that building would not cause any new environmental impacts. The existing and proposed area for this facility is shown as the separate polygon to the southeast of the main composting site.







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## Composting Process

Due to limited space, the Central Site Alternative would only include the ASP processing options, and does not consider a windrow composting option. A description of operations associated with the ASP option is included in the 2011 Draft EIR Chapter 3, Project Description, Section 3.5. ASP operations include covered compost piles that are mechanically aerated either by a blower that pushes or a pump that pulls air through the piles. Typically ASP systems are not turned as frequently as a windrow system. The Central Site Alternative option proposes to use a positive pressure ASP system, which uses a membrane covered aerated static pile design. Membranes would be placed on the piles using an approximately 17 to 18-foot tall rigging system, which would carry the rolled membrane over the top of each pile, unrolling the membrane as it travels along the length of the pile. Following covering with the membrane, air would be pushed through the static piles by a blower mechanism. The membrane cover would act as a physical barrier against dust and bacteria and would provide odor and air emission control similar to a biofilter. The blowers are controlled by a computer system that monitors oxygen and temperature. Aeration trenches would be included under each pile, and would also serve as ducts to collect leachate. Leachate management is discussed below. Cement push walls around the pile would be used to contain the piles as well as house the control equipment. Use of these technologies allows for a larger mass of material to be composted on less space, as compared to a conventional ASP composting process. The 2011 Draft EIR includes information on covered ASP systems in Appendices ASP-2 that are in use at Cedar Grove Organics. Also Appendix ASP-2 provides additional information on Gore™ covered ASP membranes and systems.

## Composting Feedstocks and Feedstock Limitations

Proposed composting feedstocks were discussed in the 2011 Draft EIR, and included the following general feedstock categories: green material (yard waste), food material, and agricultural materials. Subsequent to circulation of the 2011 Draft EIR, additional constraints have been added to the project, with respect to limitations on potential composting feedstocks.

The State Water Resources Control Board (SWRCB) has proposed certain limitations on composting feedstocks, in order to prevent detrimental degradation of water quality as a result of leaching of water quality pollutants from compost product material. Based on the recommendations provided in the SWRCB's Draft Concepts for a Proposed Statewide Order for Composting Facilities, the following wastes would be prohibited from use as composting feedstock during project operations:

- Hazardous wastes (consistent with CCR Title 14, Section 17855.2(c))
- Ash with contaminants of heavy metals
- Wood with contaminants of heavy metals and other preservatives
- Petroleum wastes
- Medical wastes (consistent with CCR Title 14, section 17855.2(b))
- Mammalian tissue, except when from the food service industry, grocery stores, or residential food scrap collection, or as part of a research composting activity (consistent with CCR Title 14, Section 17855.2(a))

- Septage
- Sludges

## **Stormwater Management**

Stormwater at the Central Site Alternative would be managed in a manner similar to that described for the proposed project in the 2011 Draft EIR. The site would be graded and designed such that all on-site drainage would be directed into a proposed retention pond on-site. Compost leachate from composting operations would be collected at the individual ASPs and then reused on-site. In the event there are insufficient on-site reuse options, the leachate may be conveyed to the proposed retention pond on-site. The retention pond would be sized with sufficient capacity to fully contain all anticipated stormwater flows during an average rainfall year, and up to a 24-hour, 25 year storm event. In order to fully contain these anticipated stormwater flows, a retention pond with a total capacity of approximately 8.3 AF of storage capacity would be required. The proposed Central Site Alternative would include installation of a 14.4 AF capacity retention pond on site. This volume of storage capacity is anticipated to be sufficient to contain a 24 hour, 25-year storm, even if the retention pond already contains up to about 6 AF of water prior to initiation of the storm event. For additional discussion of anticipated stormwater management procedures, refer to Section 27, Central Site Hydrology and Water Quality.

Composting operations would be managed so as to minimize potential for discharges from the site. However, discharges associated with storm events that are larger than a 24 hour, 25-year storm event, or from smaller events during an above average rainfall year if the retention pond is nearing capacity, could result in the discharge of stormwater from the composting facility site. Discharges from the site would be handled according to one or more of the following options:

### **Option 1: Discharge of Stormwater to Gossage/Stemple Creek**

Gossage Creek flows in a southwesterly direction along the northwestern edge of the proposed compost site. The creek discharges into Stemple Creek, which eventually discharges into the Estero de San Antonio, and the Pacific Ocean. Alternatively, discharges could occur via unnamed drainages that flow directly to Stemple Creek. Discharges to the creek would require acquisition of appropriate permitting, as discussed in additional detail in Chapter 27, Central Site Hydrology and Water Quality.

### **Option 2: Discharge of Stormwater to the Laguna Wastewater Treatment Plant via the Central Site Landfill**

Under this option, when sufficient capacity is not available in the proposed retention pond, stormwater would be directed to the leachate containment ponds at the adjacent Central Site Landfill. Under existing conditions, when the leachate containment ponds reach capacity, additional flows are conveyed, via pipeline, to the Laguna Wastewater Treatment Plant (WWTP), located approximately 4.5 miles north of the composting site.

The Laguna WWTP is located near the intersection of Llano Road and Meadow Lane, to the southwest of the City of Santa Rosa, immediately north and east of the Laguna de Santa Rosa. The plant treats wastewater generated in the Cities of Santa Rosa, Cotati, Sebastopol, and the unincorporated community served by the South Park Sanitation District.

The Laguna WWTP maintains an average dry weather capacity of 21.34 million gallons per day (mgd), with summer dry weather flows averaging approximately 15.5 to 17 mgd. Winter wet weather flows can increase substantially, with flows during large storm events exceeding 50 mgd for short periods. As of the time of publication of this document, the Laguna WWTP had a monthly average wet weather capacity not to exceed 47.7 mgd, and a weekly average capacity not to exceed 64 mgd. Plant treatment facilities include primary, secondary, and tertiary treatment with ultraviolet disinfection, including three UV disinfection channels. Tertiary treated wastewater from the facility is used, in accordance with applicable regulations, for urban reuse/recycled water, in support of created wetlands, in support of approximately 6,000 acres of agriculture, as a water supply for the Geysers Recharge Project (to support geothermal power production), and as discharge to the Russian River by way of the Laguna de Santa Rosa at a rate of up to five percent of the river's flow. The plant is required to provide a tertiary level of treatment to all incoming flows, including during wet periods. Implementation of this Option would require coordination with and approval from the County and the Laguna WWTP. For a discussion of facility capacity and additional stormwater management detail, please refer to Chapter 27, Central Site Hydrology and Water Quality.

## **Compost Leachate Management**

Compost leachate is the liquid that percolates to the bottom of the compost piles. Because the proposed design includes covered aerated static piles, the amount of moisture in the piles can be better controlled than for uncovered windrows. Leachate would be contained and collected from drains located below the aerated static piles. During operations, collected leachate would be reused so that it would not be added to the stormwater in the retention pond or otherwise be discharged.

## **Permits and Approvals**

The Central Site Alternative would be subject, as appropriate to the site specific conditions and proposed operations, to similar entitlements, permits, and approvals described in 2011 SCWMA Draft EIR Chapter 3, Project Description, Section 3.6 (2011 Draft EIR). In addition to the permits listed in Section 3.6, the Central Site Alternative would need to comply with the County's MS4 permit for stormwater.

## **Environmental Analysis**

The environmental impacts of the Central Site Alternative are analyzed in the Recirculated Draft EIR in Chapters 24 through 32. In these chapters, the EIR preparers reviewed the potential impacts of increasing site capacity to 200,000 tons per year. Several environmental issues were determined to be less than significant for the project and were not analyzed further in this EIR for the proposed project site (Site 5A) or other alternatives. As the Central Site Alternative was analyzed to an equal level of analysis as the proposed project these issues are discussed briefly below.

## Geology and Soils

Based on the “Siting and Classification Study, Proposed Western Area Expansion” no faults on the Central Site would be considered active (GeoLogic Associates, 2003). Design would follow building codes and no impact would occur.

## Hazards and Hazardous Materials

As with the project, the only hazardous materials associated with composting operations would be required for the maintenance of the processing equipment, such as diesel fuel, lubricants, and antifreeze. These materials would be controlled by following Best Management Practices. This impact would be less than significant.

## Mineral Resources

Sonoma County includes a Mining Resource (MR) combining district for the conservation and protection of land that is necessary for future mineral resource production. The Central Site Alternative is not located in an area with a zoning designation for mineral resources.

## Population and Housing

As with the project, the Central Site Alternative would not create population growth as it would simply relocate existing operations. Any road or infrastructure improvements are designed to provide capacity for the project and are not designed with excess capacity. The project would not displace existing housing.

## Recreation

The establishment of composting operations at the Central Site Alternative would not increase demands on recreational facilities nor would it include the construction of recreational facilities.

## References

- ~~EBA Engineering, 2008. Phase I Environmental Site Assessment, Teixeira Property, 1035 Stage Gulch Road, Petaluma, California. January 2008.~~
- ~~CalRecycle, 2011. Statewide Anaerobic Digester Facilities for the Treatment of Municipal Organic Solid Waste. Final Program Environmental Impact Report.~~
- Geologic Associated, 2003. Siting and Classification Study Proposed West Area Expansion, Central Disposal Site, Sonoma California. March 2003.
- HDR Engineering, Inc. Composting Facility Siting Study for Sonoma County, CA. June, 2008.
- ~~Sonoma Compost Company, LLC., 2009, <http://www.sonomacompost.com>, accessed September 13, 2009.~~

Sonoma County, 2012, Addendum to the Sonoma County Central Disposal Site Improvement Program Final Environmental Impact Report (SCH #1995073068) for the Reopening of the Central Disposal Site, May 25, 2012.

Sonoma County Waste Management Agency, 2012, Excel Compost Chart provided by Patrick Carter, Department Analyst





# CHAPTER 24 (RECIRCULATED)

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## Air Quality/Central Site Alternative

### 24.1 Introduction

This chapter evaluates the potential impacts of the Central Site Alternative on regional and local air quality from both stationary and mobile sources of air emissions. The information presented in this chapter is unique to the Central Site Alternative and the reader is referred to Chapter 5, Air Quality (2011 Draft EIR), in cases where air quality setting information and/or impact analysis is the same for the Central Site as the project site.

### 24.2 Setting

#### Topography, Climate and Meteorology

Much of the information regarding general Climate and Meteorology is the same for the Central Site as the project site. The reader is referred to Chapter 5, Air Quality (2011 Draft EIR), for this information.

#### Regulatory Context

Information regarding the Regulatory Context for the Central Site is the same as for the project site. The reader is referred to Chapter 5, Air Quality (2011 Draft EIR), for this information. Notably, the current Bay Area Quality Management District (BAAQMD) CEQA Air Quality Guidelines provide guidance for analyzing air emissions under CEQA, but do not recommend any specific significance thresholds for construction and operational emission impacts. Instead, the current BAAQMD CEQA Air Quality Guidelines suggest that lead agencies either reference BAAQMD's Thresholds of Significance adopted in 1999, or reference BAAQMD's CEQA Thresholds Options and Justification Report developed by BAAQMD staff in 2009, in selecting a significance threshold based on substantial evidence.<sup>1</sup> The Sonoma County Waste Management Agency agrees that the significance thresholds contained in BAAQMD staff's 2009 *CEQA Thresholds Options and*

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<sup>1</sup> The previous BAAQMD guidelines (adopted in June 2010 and amended in May 2011) did recommend specific significance thresholds. These guidelines were set aside pursuant to a judicial writ of mandate issued March 5, 2012, in *California Building Industry Association v. BAAQMD* (Alameda Superior Court Case No. RGI0548693). The judicial order requires BAAQMD to set aside its approval of the thresholds until it has conducted further environmental review under CEQA. The claims made in the case concerned the environmental impacts of adopting the thresholds – that is, how the thresholds would indirectly affect land use development patterns – not the scientific soundness of the BAAQMD's analysis of what levels of pollutants should be deemed significant, or the threshold to use in assessing any health risk impact a project will have on the existing environment.

Justification Report are supported by substantial evidence and will use the significance thresholds recommended there by the BAAQMD staff for determining the significance of air quality impacts in this EIR.

## Existing Air Quality

Existing levels of air quality in the Central Site area can generally be inferred from ambient air quality measurements conducted by the ~~Bay Area Air Quality Management District (BAAQMD)~~ at its nearby monitoring stations. The Central Site is approximately 16.5 miles northwest of the project site, 10 miles southwest of the Santa Rosa monitoring station, and 26 miles northwest of the San Rafael monitoring station. The Santa Rosa and San Rafael air quality monitoring station data described in Chapter 5, Air Quality, for ozone and respirable particulates (PM10 and PM2.5) would be representative of existing regional air quality at the Central Site as well. The reader is referred to Chapter 5, Air Quality (2011 Draft EIR), for this information.

## Sensitive Land Uses

Some persons are considered more sensitive than others to air pollutants. The reasons for heightened sensitivity may include age, health problems, proximity to the emissions source, and duration of exposure to air pollutants. Land uses such as schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because the very young, the old, and the infirm are more susceptible to respiratory infections and other air-quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people are often at home for extended periods. Recreational land uses are moderately sensitive to air pollution, because vigorous exercise associated with recreation places a high demand on the human respiratory system.

The Central Site is adjacent to the existing composting facility location (Sonoma Compost, Inc.). Sensitive receptors would be similar to the current scenario. The nearest potential sensitive receptors to the proposed Central Site composting area would be residences approximately 500 feet north, 1,000 feet to the south, 4,500 feet to the east (Happy Acres subdivision) and 5,000 feet to the southeast. Dunham Elementary School is approximately 4,000 feet north of the site. Additionally, residences along haul routes may also be considered sensitive receptors during construction and operation of the Central Site Alternative.

## 24.3 Impacts and Mitigation Measures

### Significance Criteria

The Significance Criteria for the air quality analysis for the Central Site is the same as for the project site. The reader is referred to Chapter 5, Air Quality (2011 Draft EIR), for this information.

## Impact Discussion

Unlike the proposed project, composting for the Central Site Alternative would utilize only aerated static piles (ASP). The air quality impacts of this option are described below. Note also that the existing compost facility, located at the Central Site Landfill, utilizes an open windrow system. In order to maintain consistency and direct comparability with the analyses for other alternatives contained in the previously Circulated Draft EIR, 2011 was assumed to be the first year of operation for the purposes of the air quality modeling and analysis.

### **Impact 24.1: Construction of the Central Site Alternative could generate short-term emissions of criteria air pollutants: ROG, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> that could contribute to existing nonattainment conditions and further degrade air quality. (Significant)**

Construction of the Central Site Alternative would have similar impacts, regulations, and controls as those described under Chapter 5, Air Quality, Impact 5.1 (2011 Draft EIR). BAAQMD has adopted new daily mass significance thresholds for construction-related activities in its *CEQA Air Quality Guidelines*. These thresholds are 54 pounds per day of ROG, NO<sub>x</sub>, or PM<sub>2.5</sub> and 82 pounds per day for PM<sub>10</sub>. The URBEMIS2007 model was used to quantify construction emissions. Unmitigated and mitigated construction-related emissions for the Central Site Alternative are presented in **Table 24-1** for ~~Phase 1 (year 2010) and Phase 2 (year 2018) construction~~. As can be seen from the data in **Table 24-1**, NO<sub>x</sub> emissions generated during ~~Phase 1~~ construction would exceed the BAAQMD threshold and would be significant without mitigation. ~~Criteria pollutant emissions generated during Phase 2 construction would not exceed the BAAQMD thresholds and would be less than significant.~~

**TABLE 24-1  
PEAK DAY CONSTRUCTION-RELATED POLLUTANT EMISSIONS (Pounds/Day)<sup>a</sup>**

Construction Phase	ROG	NO <sub>x</sub>	CO	SO <sub>2</sub>	Exhaust PM <sub>10</sub> <sup>b</sup>	Exhaust PM <sub>2.5</sub> <sup>b</sup>
<b>Phase 1 – Year 2010</b>						
2010 (Unmitigated Emissions)	<del>67</del>	<del>5558</del>	<del>2932</del>	<1	3	3
2010 (Mitigated Emissions) <sup>c</sup>	<del>67</del>	<del>4750</del>	<del>2932</del>	<1	2	2
<i>BAAQMD Construction Threshold</i>	54	54	None	None	82	54
Significant Impact?	No	No	No	No	No	No
<b>Phase 2 – Year 2018</b>						
<del>2018 (Unmitigated Emissions)</del>	<del>5</del>	<del>44</del>	<del>26</del>	<del>&lt;1</del>	<del>2</del>	<del>2</del>
<del><i>BAAQMD Construction Threshold</i></del>	<del>54</del>	<del>54</del>	<del>None</del>	<del>None</del>	<del>82</del>	<del>54</del>
<del>Significant Impact?</del>	<del>No</del>	<del>No</del>	<del>No</del>	<del>No</del>	<del>No</del>	<del>No</del>

a. Emissions were modeled using URBEMIS2007 and assuming 25.5 acres of the total 40 ~~approximate 34 acre-site (Phase 1) and 3.9 acres of the total 15.6 acre expansion (Phase 2)~~ would be disturbed on the worse-case day. Default URBEMIS2007 equipment assumptions were assumed for construction. 150,000 and 400,000 cubic yards of soil was conservatively assumed to be exported under Phase 1 and Phase 2, respectively. Construction activities were assumed to occur for a duration of one year. Additional information is included in Appendix AIR-5 (Revised).

b. BAAQMD's proposed construction-related significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> apply to exhaust emissions only and not to fugitive dust.

c. Mitigation measures were incorporated into the URBEMIS2007 model as surrogates for the Basic and Additional Control Measures described below under Mitigation Measure 24.1, per the BAAQMD *CEQA Air Quality Guidelines*.

## Mitigation Measure

**Mitigation Measure 24.1:** Implement the ‘Basic Control Measures’ and ‘Additional Control Measures’ specified in Mitigation Measure 5.1 (Construction Emission Controls) during ~~Phase 1 construction, and implement only the ‘Basic Control Measures’ (which are required for all construction projects in the BAAQMD jurisdiction) included in Mitigation Measure 5.1 for Phase 2 construction~~ (2011 Draft EIR).

**Significance after Mitigation:** Less than Significant.

As depicted in **Table 24-1**, with mitigation implementation, NO<sub>x</sub> emissions during construction would be reduced below the BAAQMD threshold. This impact would be less than significant.

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## **Impact 24.2: Operation of the Central Site Alternative would result in emissions of criteria air pollutants at levels that would substantially contribute to a potential violation of applicable air quality standards or to nonattainment conditions. (Less than Significant)**

The Central Site Alternative-related air quality impacts fall into two categories: fugitive dust impacts (re-entrainment on local roadways and on-site disturbed areas) and criteria pollutant impacts due to off-road equipment, on-road vehicles (employee and haul truck trips), area sources (natural gas combustion, landscaping equipment, architectural coatings), and composting off-gas emissions. The modeling methodology and emission factors would be the same for the Central Site Alternative as those described in Chapter 5, Air Quality, Impact 5.3 (2011 Draft EIR).

Conditions were assessed for the Existing Sonoma Compost facility (for year 2011), and for the Central Site Alternative’s assumed first year of operation (~~Phase 1, year 2011~~) and maximum projected throughput (~~Phase 2, year 2019~~2030). **Table 24-2**, below, presents estimated maximum (worst-case) daily emissions of criteria pollutants, and comparison to the applicable regulatory threshold. **Table 24-2** shows that the estimated net emissions (Central Site minus Existing emissions) of all pollutants would not exceed the applicable BAAQMD significance thresholds during ~~Phase 1 or Phase 2~~ operations. This would be a less than significant impact without mitigation.

**TABLE 24-2  
ESTIMATED MAXIMUM DAILY CENTRAL SITE ALTERNATIVE (ASP COMPOSTING) EMISSIONS**

	Criteria Pollutant Emissions (lbs/day) <sup>1</sup>				
	ROG	CO	NO <sub>x</sub>	PM10	PM2.5
<b>Existing Operations – Projected Year 2011</b>					
Off-road Equipment Exhaust	4	16	38	1	1
On-road Vehicle Exhaust	1	<del>24</del> 26	<del>56</del>	0	0
Area Sources - Natural Gas, Landscape Equipment, Architectural Coatings	0	2	0	0	0
Windrow Emissions	712	0	0	0	0
Fugitive Dust - Re-entrained, Disturbed Area (3 acres)	0	<del>8</del>	0	<del>935</del>	7
<b>Total Unmitigated Emissions (pounds/day)</b>	<b>717</b>	<b>3944</b>	<b>4344</b>	<b>4036</b>	<b>8</b>
<b>Central Site Alternative Operations - Year 2011</b>					
Off-road Equipment Exhaust	24	815	4436	1	1
On-road Vehicle Exhaust	0	<del>8</del> 26	<del>26</del>	0	0
Area Sources - Natural Gas, Landscape Equipment, Architectural Coatings	0	2	0	0	0
Aerated Static Pile Emissions	1436	0	0	0	0
Fugitive Dust - Re-entrained, Disturbed Area (4-52 acres)	0	0	0	3443	79
<b>Total Unmitigated Emissions (pounds/day)</b>	<b>1640</b>	<b>1843</b>	<b>1642</b>	<b>3544</b>	<b>810</b>
<b>Total Net Emissions (Unmitigated Central Site minus Existing) <sup>2</sup></b>	<b>(7016 77)</b>	<b>(241)</b>	<b>(272)</b>	<b>(5) 8</b>	<b>02</b>
<b>Thresholds (pounds/day)<sup>3</sup></b>	<b>54</b>	<b>NA</b>	<b>54</b>	<b>82</b>	<b>54</b>
<b>Significant without Mitigation? (Yes or No)</b>	<b>No</b>	<b>NA</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>Central Site Alternative Operations - Year 2019/2030</b>					
Off-road Equipment Exhaust	44	1325	3 <sup>4</sup> 6 <sup>4</sup>	0	0
On-road Vehicle Exhaust	0	<del>40</del> 14	<del>23</del>	<del>01</del>	<del>01</del>
Area Sources - Natural Gas, Landscape Equipment, Architectural Coatings	0	2	0	0	0
Aerated Static Pile Emissions	3971	0	0	0	0
Fugitive Dust - Re-entrained, Disturbed Area (4 acres)	0	0	0	9487	1819
<b>Total Unmitigated Emissions (pounds/day)</b>	<b>4075</b>	<b>2541</b>	<b>59</b>	<b>9488</b>	<b>1820</b>
<b>Total Net Emissions (Unmitigated Central Site minus Existing) <sup>2</sup></b>	<b>(6776 42)</b>	<b>(143)</b>	<b>(3835)</b>	<b>5452</b>	<b>1012</b>
<b>Thresholds (pounds/day)<sup>3</sup></b>	<b>54</b>	<b>NA</b>	<b>54</b>	<b>82</b>	<b>54</b>
<b>Significant without Mitigation? (Yes or No)</b>	<b>No</b>	<b>NA</b>	<b>No</b>	<b>No</b>	<b>No</b>

1. Emissions were modeled using several models and emission factors, including the URBEMIS2007 model (for off-road equipment, area sources, and fugitive dust from actively disturbed areas), EMFAC2007 for on-road vehicle exhaust, the CIWMB emission factor for VOC emissions (CIWMB, 2007) with a 95% reduction from ASP system (based on preliminary data), and U.S. EPA AP-42 (for paved roads (section 13.2.1 - Paved Roads)). Existing emissions of fugitive dust were assumed to be controlled by watering 2x per day and reducing speed on unpaved roads. These emission factors and modeling are described in more detail in Appendix AIR-5.

2. Values in parentheses represent a net reduction from the Existing scenario.

4. BAAQMD has established mass thresholds of significance for ROG, NO<sub>x</sub>, PM10, and PM2.5. The BAAQMD thresholds for CO are localized concentrations, which is described below under Impact 24.3.

5. Even though off-road equipment operations were assumed to increase over existing usage for the year 2019/2030 operations, NO<sub>x</sub> is estimated to substantially drop during that time due to assumed new equipment purchases or rebuilding the equipment in the year 2016/2025, which would meet more stringent regulatory requirements.

**Mitigation:** None required.

**Impact 24.3: Central Site Alternative traffic would generate localized CO emissions on roadways and at intersections in the site vicinity. (Less than Significant)**

According to the BAAQMD *CEQA Air Quality Guidelines*, a proposed project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met:

1. Project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans.
2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
3. The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

The project would not conflict with the Sonoma County Comprehensive Transportation Plan established by the Sonoma County Transportation Authority. In regards to the second and third criteria, intersection traffic volumes would be substantially less than 44,000 and 24,000 vehicles per hour, respectively. The estimated increase in traffic volumes caused by project-related traffic would not be substantial relative to background traffic conditions, nor would project traffic significantly disrupt daily traffic flow on area roadways.

Based on the BAAQMD's criteria, project-related traffic would not lead to violations of the carbon monoxide standards and therefore, no further analysis was conducted for carbon monoxide impacts of the project at these intersections. This impact would be considered less than significant on a project-level and cumulative basis.

**Mitigation:** None required.

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**Impact 24.4: Operation of the Central Site Alternative could create objectionable odors affecting a substantial number of people. (Significant)**

Potential generation of odors associated with operation of the Central Site Alternative would have the same impacts, regulations, and controls as those described under Chapter 5, Air Quality, Impact 5.5 (2011 Draft EIR). Additional information was provided by the Sonoma County LEA, however, which indicated that the agency has received 35 odor complaints so far for the year 2012 and 19 odor complaints between the years 2003 through 2011 for the existing composting facility (Sonoma County Environmental Health and Safety Section, 2012). ~~These eControls~~ described in Impact 5.5 of the 2011 Draft EIR include the implementation of an Odor Impact Minimization Plan (see Appendix AIR-7) as required by law. The Odor Impact Minimization Plan includes two major components, a Complaint Response Protocol and an Odor Complaint Reporting Format. The Odor Complaint Response Protocol describes the procedures to follow upon receiving a complaint. The protocol includes measures to identify the odor and

requires appropriate adjustments to storage, process control, and facility improvements to reduce odors.

There are a few factors that would affect odors in the area compared to the existing compost operation at Central Disposal Site. The main factor potentially increasing odors would be the increase of feedstock up to 200,000 tons per year. Factors that would decrease odors in the area are the use of a food pre-processing building, the use of covered aerated static piles (compared to windrow composting for the existing operations) and the location of the site, which would be to the west of the current compost operation and farther from the Happy Acres subdivision.

### **Mitigation Measure**

**Mitigation Measure 24.4:** Same as Mitigation Measure 5.5 (Odor Control) (2011 Draft EIR).

**Significance after Mitigation:** Less than Significant.

Compliance with the Odor Impact Minimization Plan would assure that odor impacts from composting would be less than significant.

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### **Impact 24.5: Implementation of the Central Site Alternative may lead to increases in chronic exposure of sensitive receptors in the vicinity to certain toxic air contaminants from various stationary and mobile sources. (Less than Significant)**

Similar to the proposed project, TAC emissions sources at Central Site would include heavy duty equipment used on-site, haul trucks used to transport material to and from the site and fugitive emissions associated with composting activities. ~~Since Central Site would process less amount of material as the proposed project, it was assumed that the emissions rates estimated for the Central Site would be less than the proposed project as a proportion of the material processed.~~ Please see introductory information in Impact 5.6 (2011 Draft EIR), which is the same for Impact 24.5. Additional information is included in the HRA as part of Appendix AIR-6.

The majority of land uses surrounding the Central Site are agricultural in nature with areas of open space. Single-family rural residences are scattered in the surrounding area and often present on sites with agricultural operations, such as dairy farming and grazing. The closest residence to the Central Site composting area is approximately 500 feet northeast. Other residences are approximately 1,000 feet to the south, 4,500 feet to the east (Happy Acres subdivision) and 5,000 feet to the southeast. Dunham Charter School is located approximately 4,000 feet north of the Central Site. Urban development associated with the City of Cotati is located approximately 2.5 miles northeast of the Central Site. The Petaluma Municipal Airport is located approximately 8.5 miles southeast of the Central Site.

### Acute and Chronic Risk

The maximum exposed worker receptor was modeled at a dairy farm, approximately 1,000 feet to the south. For the maximum exposed worker, the acute HI would be 0.119065. For the maximum exposed residence, the acute HI would be 0.119065. For the Dunham Charter School, the acute HI would be 0.06837. The acute risk for the maximum exposed receptors is well below the BAAQMD threshold of 1 and would be **less than significant**.

For chronic risk, ~~unlike acute risk~~, the maximum exposed receptor with regard to chronic exposure would be located at the dairy farm. For the maximum exposed worker, the chronic HI would be 0.0146080. For the maximum exposed residence, the chronic HI would be 0.0146080. For the Dunham Charter School, the chronic HI would be 0.0008547. The chronic risks for the maximum exposed receptors are well below the BAAQMD threshold of 1 and would be **less than significant**.

### Cancer Risk

The following five carcinogens would be emitted under the Central Site Alternative: (1) DPM; (2) methylene chloride; (3) benzyl chloride; (4) formaldehyde; and (5) acetaldehyde. Cancer risks at worker receptors were analyzed assuming an exposure frequency of 245 days per year (5 days per week/49 weeks per year) for 40 years with a worker breathing rate of 149 L/kg bodyweight – day. Cancer risks at residential receptors were analyzed based on the 80<sup>th</sup> percentile adult breathing rate of 302 L/kg-day. Exposure frequency for residents was assumed to be 350 days per year and exposure duration was assumed to be 70 years. Cancer risks for school children were analyzed assuming an exposure frequency of 180 days per year for 9 years with a breathing rate of 591 L/kg bodyweight – day.

For the Central Site, incremental cancer risks were determined while comparing the cancer risk for the existing operations (windrow composting) to the cancer risk for the proposed operations (ASP), while also accounting for the change in process rates. The maximum cancer risk under the Central Site Alternative for the worker, residential, and Dunham Charter School receptors would be less than zero (i.e., a reduction in cancer risk from the existing conditions), which would not exceed the BAAQMD threshold of 10 in one million and would be **less than significant**.

### PM2.5 Concentration

The maximum annual PM2.5 concentration as a result of the Central Site Alternative construction would be 0.041  $\mu\text{g}/\text{m}^3$ , which would not exceed the BAAQMD threshold of 0.3  $\mu\text{g}/\text{m}^3$  and would therefore constitute a **less than significant** impact. The maximum annual PM2.5 concentration as a result of the Central Site Alternative operations would be 0.085  $\mu\text{g}/\text{m}^3$ , which would not exceed the BAAQMD threshold of 0.3  $\mu\text{g}/\text{m}^3$  and would therefore constitute a **less than significant** impact.

**Mitigation:** None required.

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**Impact 24.6: Construction and operation of the Central Site Alternative would not result in a cumulatively considerable increase in greenhouse gas emissions. (Less than Significant)**

Please see introductory information in Chapter 5, Air Quality, Impact 5.8 (2011 Draft EIR), which is the same for the Central Site Alternative.

**Central Site Alternative Contribution to Cumulative Climate Change Effects from Greenhouse Gas (GHG) Emissions**

The calculation presented below includes annual CO<sub>2</sub>e GHG emissions from off-road equipment (CO<sub>2</sub>), vehicular traffic (CO<sub>2</sub>), energy consumption (CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>), area sources (natural gas combustion and landscape equipment) (CO<sub>2</sub>), and off-gas emissions (CH<sub>4</sub>) from composting. The modeling methodology and emission factors would be the same for the Central Site Alternative as those described in Chapter 5, Air Quality, Impact 5.9 (2011 Draft EIR). Appendix AIR-5 contains information regarding assumptions and emissions calculations used in this analysis.

GHG emissions associated with the construction phase of the Central Site Alternative would result in a maximum annual generation of ~~1,032,584~~ metric tons of CO<sub>2</sub>e ~~(during Phase 2 construction)~~. The BAAQMD has not established a threshold of significance for construction GHGs.

In addition, in light of the considerations outlined above, **Table 24-3** presents an estimate of the Central Site Alternative's operational CO<sub>2</sub>e emissions. Data in **Table 24-3** indicate that GHG emissions that would result from the Central Site Alternative would not exceed the 1,100 metric tons per year threshold established by BAAQMD ~~for Phase 1 or Phase 2 operations~~. This would not represent a cumulatively significant impact.

In addition, the methodology applied here does not account for the shift in emissions from diverting the organic waste from out-of-County landfills. Under existing conditions, a portion of the County's waste is hauled to out-of-County landfills. The Central Site Alternative would process organic materials (that might otherwise be disposed of as waste) from Sonoma County sources and produce a renewable resource within the County. Compost could be used in the County as a replacement for alternative products, such as fertilizers, that also require energy for production as well as transport to the County from the manufacturing facilities or distribution centers. Thus, the Central Site Alternative would be inherently energy efficient by providing a local source of soil enrichment materials and reduce the export of waste out of the County and import of conventional fertilizer and soil conditioning products into the County. In addition, because the effects of GHGs are global, if the Central Site Alternative merely shifts the location of the GHG-emitting activities (off-road equipment, trucks, waste degradation) from landfills to the Central Site site, there would not likely be a net new increase of emissions.

With regard to any potential conflict with applicable Sonoma County plans, policies, or regulations adopted to reduce GHGs, Sonoma County has established a *Sonoma County Community Climate Protection Action Plan* (Climate Protection Campaign, 2008), which incorporates the target reduction goal of 25 percent below the 1990 level by the year 2015. The Central Site Alternative would comply with the strategies presented in the Plan to reduce GHGs through increased recycling of organic materials via composting processes (described under the Agriculture and Forests, as well as Solid Waste subsections of the Plan). Therefore, the Central Site Alternative would not conflict with any local regulations pertaining to GHGs.

**TABLE 24-3  
CENTRAL SITE ALTERNATIVE OPERATIONS GHG EMISSIONS**

	<b>Greenhouse Gas Emissions (metric tons/year)<sup>1</sup> CO<sub>2</sub>e</b>
<b>Existing Operations – Projected Year 2011</b>	
Off-road Equipment	786
On-road Vehicles	<u>418,423</u>
Area Sources - Natural Gas, Landscape Equipment	46
Composting Emissions	866
Indirect Emissions from Electricity Generation	7
<b>Total Unmitigated Emissions</b>	<b><u>2,423,128</u></b>
<b>Central Site Alternative Operations – <del>Phase 1</del>, Year 2011</b>	
Off-road Equipment	<u>305,713</u>
On-road Vehicles	<u>471,423</u>
Area Sources - Natural Gas, Landscape Equipment	46
Composting Emissions	<u>346,43</u>
Indirect Emissions from Electricity Generation	<u>59,275</u>
<b>Total Unmitigated Emissions</b>	<b><u>927,1,500</u></b>
<b>Net Emissions (Central Site minus Existing)<sup>2</sup></b>	<b><u>(1,496,628)</u></b>
<b>BAAQMD Threshold</b>	<b>1,100</b>
<b>Significant? (Yes or No)</b>	<b>No</b>
<b>Central Site Alternative Operations – <del>Phase 2</del>, Year <del>2019</del>2030</b>	
Off-road Equipment	<u>785,1,427</u>
On-road Vehicles	<u>464,981</u>
Area Sources - Natural Gas, Landscape Equipment	<u>5,146</u>
Composting Emissions	<u>95,287</u>
Indirect Emissions from Electricity Generation	<u>288,405</u>
<b>Total Unmitigated Emissions</b>	<b><u>2,540,2,946</u></b>
<b>Net Emissions (Central Site minus Existing)<sup>2</sup></b>	<b><u>417,818</u></b>
<b>BAAQMD Threshold</b>	<b>1,100</b>
<b>Significant? (Yes or No)</b>	<b>No</b>
<p>1. Emissions were modeled using several models and emission factors, which is described in more detail in Appendix AIR-5. These models and emission factors include URBEMIS2007 model (for off-road equipment and area sources), EMFAC2007 for on-road vehicle exhaust, GHG emission factors from the California Climate Action Registry <i>General Reporting Protocol</i> (California Climate Action Registry, 2009) for indirect emissions from electricity generation, and a CH<sub>4</sub> emission factor from the South Coast Air Quality Management District (SCAQMD, 2001) from green waste composting.</p> <p>2. The “Net Emissions” are estimates of the Central Site Alternative operational GHG emissions minus the Existing Sonoma Compost facility operational GHG emissions. These estimates represent the incremental increase in GHGs from the Central Site Alternative.</p>	

**Mitigation:** None required.

**Impact 24.7: The Central Site Alternative, together with anticipated cumulative development in the Bay Area Air Basin, would contribute to regional criteria pollutants. (Significant)**

According to the BAAQMD, no single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project’s individual emissions contribute to existing cumulatively significant adverse air quality impacts. In addition, according to the BAAQMD *CEQA*

*Air Quality Guidelines*, if a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions (BAAQMD, 2010). Alternatively, if a project does not exceed the identified significance thresholds, then the project would not be considered cumulatively considerable and would result in less-than-significant air quality impacts.

As discussed in Impacts 24.1 through 24.3, the Central Site Alternative would result in less than significant project impact from criteria pollutant emissions (with implementation of mitigation for Impact 24.1). Therefore, the project would not have a considerable contribution to cumulative air quality (criteria air pollutants) during construction or operations, and the impact would be considered less than significant.

### Mitigation Measure

**Mitigation Measure 24.7:** Implement Mitigation Measure 24.1 (Construction Emission Controls) (2011 Draft EIR).

**Significance after Mitigation:** Less than Significant.

### **Impact 24.8: Cumulative risk from all past, present and reasonably foreseeable sources within 1,000 feet of the Central Site Alternative would expose sensitive receptors to PM<sub>2.5</sub> and TACs which may lead to adverse health effects. (Less than Significant)**

The BAAQMD's *CEQA Air Quality Guidelines* (BAAQMD, 2010) provides estimated impacts from significant roadway within Sonoma County such as Routes 1, 12, 37, 101, 116, 121, and 128. Estimated impacts within a distance of 1,000 feet were developed for each of these roadways. The Central Site is not located within 1,000 feet of any of these roadways. Thus, the impact from these roadways is not expected to significantly contribute to the overall impact at the receptors of interest in the Central Site vicinity.

**Mitigation:** None required.

## 24.4 References

- Bay Area Air Quality Management District (BAAQMD), 1999. BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans, December 1999.
- Bay Area Air Quality Management District, 2010. *CEQA Air Quality Guidelines*, adopted June 2, 2010. Available at [www.baaqmd.gov](http://www.baaqmd.gov)
- California Climate Action Registry, 2009. General Reporting Protocol, January 2009.
- California Integrated Waste Management Board (CIWMB), 2007. Emissions Testing of Volatile Organic Compounds from Greenwaste Composting at the Modesto Compost Facility in the San Joaquin Valley. October 31, 2007, revised May 2008.

Climate Protection Campaign. 2008. Sonoma County Community Climate Action Plan. October, 2008.  
Sonoma County, 2006. Sonoma County General Plan 2020 Draft Environmental Impact Report, January 2006.

Sonoma County Environmental Health and Safety Section, 2012. Email with Odor Complaint Information from Matt Villaber, Environmental Health Specialist with the Sonoma County Environmental Health and Safety Section. September 24, 2012.

South Coast Air Quality Management District (SCAQMD), 2001. Ammonia and Volatile Organic Compound (VOC) Emissions from a Greenwaste Composting Operation.

U.S. Environmental Protection Agency (U.S. EPA). 2001. Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources, January 2001.

# **CHAPTER 25 (RECIRCULATED)**

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## **Biological Resources/Central Site Alternative**

### **25.1 Introduction**

This chapter provides background information on the biological resources and natural communities occurring within the Central Site, outlines potential impacts to biological resources that may result from development of the Central Site Alternative, and proposes mitigation measures to reduce those impacts to a less than significant level. These mitigation measures have been developed to focus on avoiding, reducing, or compensating for potentially significant impacts on biological resources. A discussion of federal, state, and local laws, policies, and regulations that influence biological resources at the Central Site is presented in Chapter 6, Biological Resources (2011 Draft EIR). The information presented in this chapter is unique to the Central Site and the reader is referred to Chapter 6, Biological Resources (2011 Draft EIR) in cases where biological resource setting information and/or impact analysis is the same for the Central Site Alternative as the project site.

### **25.2 Setting**

#### **Regional Setting**

The Central Site is located in the Northern California Coast ecological region and the Santa Rosa Plain subsection and is characterized by gently rolling hills, in between the Pacific Ocean and the Santa Rosa Plain (Miles and Goudey, 1997). Refer to Chapter 6, Biological Resources (2011 Draft EIR) for ecological region descriptions.

The predominant natural plant communities in the Santa Rosa Plain subsection are needlegrass grasslands and valley oak series in inland valleys. Other dominant plant communities include Northern claypan vernal pools on the Santa Rosa Plain, Pacific reedgrass series and needlegrass grasslands on rolling hills westward to the coast, and Coast live oak series on leeward slopes in the rolling hills. The climate is temperate to hot and humid, moderated by marine air advancing over the hills most of the time. Average annual precipitation in the Santa Rosa Plain subsection is approximately 20 to 40 inches, with summer fog. Mean annual temperature is approximately 50° to 58° F (Miles and Goudey, 1997).

#### **Project Area Setting**

The Central Site is approximately ~~38~~34 acres in size (including the area that would~~will~~ need to be graded to allow for development of the site) and is located southwest of the town of Cotati in an

unincorporated area of Sonoma County. The site is bordered by Roblar Road to the north, Mecham Road to the east, and farmland to the south and west (**Figures 14-8 and 14-9**). This location corresponds to Township 6N, Range 8W, Section 32 of the Two Rock, CA U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map (USGS, 1980). The site is accessible via Mecham Road.

The Central Site composting area is located in the northwestern corner of the Central Disposal Site, which consists of undulating grassland, eucalyptus trees, a small freshwater pond, and access roads associated with the existing compost facility and recycling center. Surrounding land uses include rural residences, grasslands used for cattle and sheep grazing, and open space.

## Methodology

This evaluation of biological resources includes a review of potentially occurring special-status species,<sup>1</sup> wildlife habitats, vegetation communities, and potential jurisdictional waters of the U.S. and/or waters of the state. The results of this assessment are based upon field reconnaissance, literature searches and database queries. Site reconnaissance was conducted by ESA biologist LeChi Huynh on May 19, 2010. The primary sources of data referenced for this report included the following:

- Two Rock, California, 7.5-minute topographic quadrangle (USGS, 1980);
- “Federal Endangered and Threatened Species that may be Affected by Projects in the Cotati, California 7.5-Minute Topographic Quadrangles” (USFWS, 2010a);
- California Natural Diversity Database (CNDDB), Rarefind 3.1 computer program (CDFG, 2010a);
- Threatened and Endangered Plants List (January, 2010) (CDFG, 2010b);
- Threatened and Endangered Animals List (January 2010) (CDFG, 2010c);
- California Native Plant Society: Inventory of Rare and Endangered Plants (CNPS, 2010a);
- Ecological Subregions of California (Miles and Goudey, 1997);
- Review of color aerial photography for vegetative, topographic, and hydrologic signatures;
- Review of Natural Resources Conservation Service (NRCS) web soil survey data (NRCS, 2010) for information about soils and geomorphology;
- Review of the National Wetlands Inventory (NWI) map (U.S. Fish and Wildlife Service [USFWS], 2010b) for information on wetlands and natural water features previously delineated in the project area;
- Sonoma County General Plan (Sonoma County, 2008)

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<sup>1</sup> Species that are protected pursuant to Federal or State endangered species laws, or have been designated as Species of Special Concern by the CDFG, or species that are not included on any agency listing but meet the definition of rare, endangered or threatened species of the CEQA Guidelines section 15380(b), are collectively referred to as “special-status species.”

## Vegetation Communities and Wildlife Habitats

Vegetation communities are assemblages of plant species that occur together in the same area, which are defined by species composition and relative abundance. Upland plant communities and habitats within the Central Site include non-native annual grassland, disturbed/ruderal, and barren. The aquatic plant community includes the freshwater detention pond in the center of the site; this feature would not be considered a water of the state or a water of the U.S. as it is manmade and isolated. The vegetation community descriptions and nomenclature used in this section generally correlate to wildlife habitat types described in *A Guide to Wildlife Habitats of California* or California Wildlife Habitats Relationships (CWHR) (Mayer and Laudenslayer, 1988) and the classification provided in *A Manual of California Vegetation* (Sawyer and Keeler-Wolf, 1995). The types of wildlife habitat (in accordance with the CWHR classification system) present in the Central Site can be found in **Table 25-1** and **Figure 25-1**.

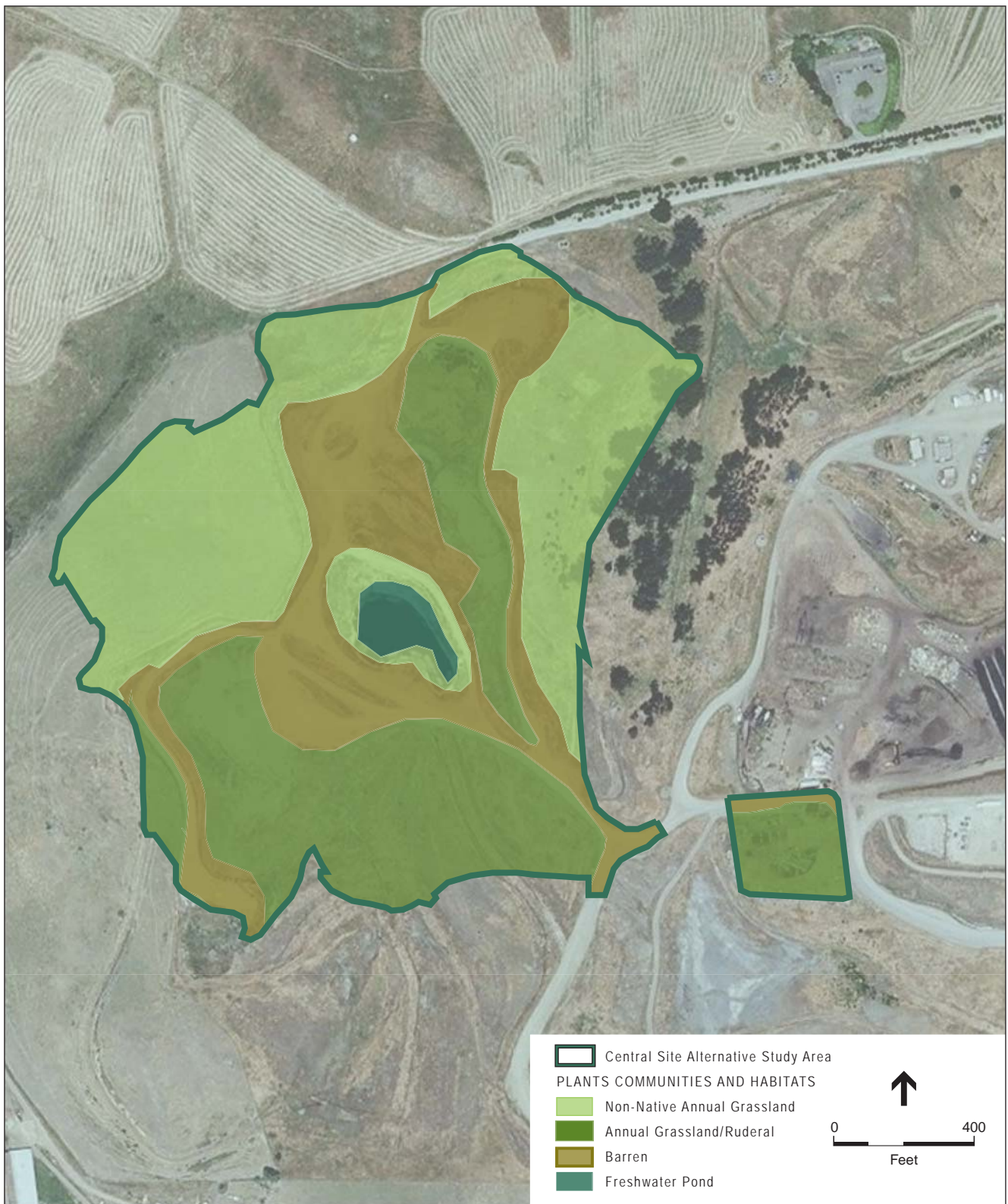
**TABLE 25-1**  
**VEGETATION COMMUNITIES WITHIN THE**  
**CENTRAL SITE ALTERNATIVE COMPOSTING AREA**

Vegetation Community	Acres / Percent of Central Site Composting Area
Non-Native Annual Grassland	<del>48.97</del> 12.51 / <del>54</del> 37%
<del>Disturbed</del> Annual Grassland/Ruderal	<del>9.48</del> 11.66 / <del>24</del> 34%
Barren	<del>8.84</del> 9.07 / <del>23</del> 27%
Freshwater Pond	0.65 / 2%
<b>Total</b>	<b><del>37.64</del>33.89 / 100%</b>
SOURCE: ESA, 2010 <del>2012</del> .	

## Upland Plant Communities

### Non-Native Annual Grassland

The non-native annual grassland vegetation community occupies ~~48.97~~12.51 acres of the Central Site and is the dominant plant community throughout the site (**Figure 25-1**). Annual grassland on the Central Site often intergrades with ruderal vegetation when adjacent to access roads or barren land. Wildflower seed mixtures have been sown in selected areas in the past. This community is dominated by nonnative Mediterranean annual grasses and ruderal plant species. An assemblage of native and nonnative forbs was noted in the grassland areas, including Italian ryegrass (~~*Lolium multiflorum*~~*Festuca perennis*), soft chess (*Bromus hordeaceus*), wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum ssp. leporinum*), purple vetch (*Vicia atropurpurea*), Italian thistle (*Carduus pycnocephalus*), and field clover (*Trifolium campestre*), among others. Species that seem to have been sown in selected areas include rose clover (*Trifolium hirtum*), owl's clover (*Castilleja* sp.), and sky lupine (*Lupinus nanus*). Vegetative cover is moderate to dense with vegetation height ranging from a few inches to three feet tall. No animal burrows are present within this habitat type. A grove of large blue gum trees (*Eucalyptus globulus*) occur within this habitat at the eastern edge of the site.



SOURCE: Bing Maps, 2009; and ESA, 2012

SCWMA Compost Facility EIR . 207312  
**Figure 25-1**  
 Plant Communities and Habitats within the  
 Central Site Composting Area



Annual grassland provides habitat for a variety of wildlife species as described in **Chapter 6 (2011 Draft EIR)**. Wildlife species observed within this habitat type include turkey vulture, red-winged blackbirds, and American crow. Signs of deer and rabbit were also observed.

### **Disturbed Annual Grassland/Ruderal**

Disturbed areas ~~such as dirt/gravel roads~~ comprise of non-native annual grassland and ruderal vegetation ~~comprise, which cover approximately 9.48~~ 11.66 acres of the site (**Figure 25-1**). This vegetation type is subjected to ongoing or past disturbances (e.g., vehicle use, mowing, and potential herbicide application). Due to the disturbance regime, assemblages of native and introduced weedy species have established which the majority consists of various annual grasses and forbs of Eurasian origin; many of which also occur in the grasslands (See **Chapter 6 (2011 Draft EIR)** for full description). Because ruderal habitat within the Central Site Alternative area generally intergrades with annual grassland habitats, wildlife species that are found in annual grassland habitats will also occur in ruderal habitats. No mammal burrows were found in this habitat type.

### **Barren**

Barren areas include dirt or gravel roads and other areas within the site which do not support vegetation; these areas provide minimal habitat for wildlife. Approximately 9.07 acres of barren habitat occur within the study area.

## **Aquatic Plant Communities and Habitats**

### **Freshwater Pond and Freshwater Emergent Wetland**

The Central Site Alternative area supports a freshwater detention pond, approximately 0.65 acres, near the center of the site (Figure 25-1). Because the pond was constructed in uplands and does not connect to any navigable waterways, it would not be considered a waters of the U.S. or a waters of the State. This pond contains up to two feet of water and supports freshwater emergent wetland plant species at the margin and in shallow areas. Vegetation cover is generally sparse to moderate, consisting of cattails (*Typha angustifolia*) and smartweed (*Polygonum* sp.) as the dominant hydrophytic species.

Freshwater ponds are lacustrine habitats, which are inland depressions that contain standing water (Mayer and Laudenslayer, 1988) and support fish and emergent vegetation. The freshwater pond within the Central Site Alternative area supports bass (Morelli, 2010), which may have some negative effects on amphibians, but would not necessarily exclude the presence of amphibians. The presence of bass may attract wildlife predators that feed on fish, such as wading birds. Bullfrogs are known to have a deleterious effect on other amphibian species when occurring within the same habitat; however, ESA biologists did not observe any bullfrogs within the freshwater pond at the Central Site Alternative area.

Refer to **Chapter 6 (2011 Draft EIR)** for a full description of habitat features and wildlife use of freshwater emergent wetlands. Wildlife species observed within the vicinity of the freshwater detention pond and freshwater emergent wetland include red-winged blackbirds and American crows.

## Special Status Species

### Definitions of Special-Status Species

Special-status species are those plants and animals that, because of their recognized rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, state, or other agencies. Refer to **Chapter 6 (2011 Draft EIR)** for a full description of the term “special-status.”

### *Potentially Affected Listed and Proposed Species*

A list of special-status plant and animal species that have the potential to occur within the vicinity of the project area was compiled based on data in the CNDDDB (CDFG, 2010a), CNPS literature (CNPS, 2010), and the USFWS List of Federal Endangered and Threatened Species that may be affected by Projects in the Cotati (501C) Quadrangle and eight surrounding quadrangles (USFWS, 2010a) (**Appendix Bio-1**). Conclusions regarding habitat suitability and species occurrence are based on a reconnaissance-level area assessment conducted by an ESA biologist, as well as existing literature and databases described previously.

A list of special-status plants and animals with the potential to occur within the Central Site Alternative area and the potential for the Central Site Alternative to impact each species listed is in **Table 25-2**. ESA identified 28 species with a low potential, 5 species with a medium potential, and no species with a high potential to occur in the vicinity of the Central Site Alternative area. The “Potential for Occurrence” category is defined in **Chapter 6 (2011 Draft EIR)**.

Life history and distribution of species with medium to high potential to occur within the vicinity of the project area are described in detail below. A complete Special-Status Species table is included as **Table BIO-4** located in **Appendix Bio-4 (2011 Draft EIR)**.

## Amphibians

### California Red-Legged Frog

The California red-legged frog (CRLF) is a largely aquatic frog found at ponds and slow moving streams with permanent or semi-permanent water. This species opportunistically migrates into upland habitats, due to normal dispersal behavior. This species may aestivate in upland environments when aquatic sties are unavailable or environmental conditions are inhospitable. If water is unavailable, they shelter from dehydration in a variety of refuges, including boulders, downed wood, moist leaf litter and small mammal burrows.

Historically, the CRLF occurred along the coast from the vicinity of Point Reyes National Seashore, Marin County, and inland from Redding, Shasta County, southward to northwestern Baja California, Mexico (Jennings and Hayes, 1994).

The nearest critical habitat for the CRLF is approximately ten miles from the study area. Potential suitable habitat for CRLFs exists within the freshwater detention pond located in the center of the Central Site Alternative. The nearest CNDDDB occurrence for this species is one to two miles south of the Central Site (CDFG, 2010a), though they have been observed in the ponds in the southern portion of the Central Disposal Site. A viable population of CRLF occurs 0.75 miles west of the intersection of Hammel Road and Mecham Road, within the 0.5-acre Central Landfill Mitigation Site (CNDDDB occurrence No. 958). This site contains three created wetland features (ponds) that capture the outflow from a pre-existing spring, with a depth and duration to support CRLF. Adult individuals and egg masses were recently observed in these ponds in 2007.

## California Tiger Salamander

California tiger salamanders (CTS) are listed as a state and federally threatened species. They are commonly found in annual grassland habitat and require vernal pools and other temporary ponds (sometimes permanent cattle ponds without fish) for reproduction and small mammal burrows for subterranean refuge sites. CTS rarely use streams to reproduce; however, they have been known to travel up to 1.3 miles more than 1,000 m (3,300 ft) or more to and from breeding ponds. Dry-season refuge sites within a reasonable distance of breeding sites are likely a necessary habitat requirement since this species is absent ~~from from~~ sites with seemingly suitable breeding habitat where surrounding hardpan soils are lacking small mammal burrows.

A recent review of potential impacts to CTS at the Central Landfill concludes that recent landfill activities would not result in significant new or substantially more severe biological resource impacts than were shown in the 1998 EIR (Sonoma County, 1998 and 2012). The analysis cited CTS surveys of the Central Disposal Site for the 1998 EIR that did not find any CTS juveniles (or adults) in the intermittent drainage features on the site. The closest known CTS breeding occurrence to the Central Landfill Site is approximately 1.3 miles to the northwest (at the extreme limit of any known migration), south of the intersection of Stony Point Road and Mecham Road, and the closest known adult occurrence was on Mecham Road just north of the Happy Acres Subdivision. Furthermore, all of the landfill site is highly disturbed, either by grading activity in which the topsoil has been removed, or areas where continual grading activities are occurring. All of these activities preclude or severely limit the potential for small mammal activity creating potential refugia for CTS. In addition, there are migration barriers on the site that would likely preclude CTS from gaining adequate access to the site or be able to travel any distance once on-site. These barriers include: many on-site roads travelled daily by heavy equipment and refuse trucks; many deep drainage ditches; and many leachate and gas pipelines throughout the site (Sonoma County, 2012).

**TABLE 25-2  
REGIONALLY OCCURRING SPECIAL-STATUS SPECIES**

Scientific Name Common Name	State Status (CDFG/CNPS)	Listing Status (USFWS)	Habitat Association	Potential for Project to Impact
<b>Amphibians</b>				
<i>Ambystoma californiense</i> California tiger salamander (Sonoma County population)	ST	FE	Annual grassland and grassy understory of valley-foothill hardwood habitats in central and northern California. Needs underground refuges and vernal pools or other seasonal water sources.	Low. Although annual grassland habitat under the eucalyptus grove may provide suitable upland habitat, the freshwater pond is probably not suitable breeding habitat due to the presence of bass, a potential predator for the species and its eggs. However, numerous CNDDDB occurrences were recorded within 5 miles north and east of the study site.
<i>Rana aurora draytonii</i> / California red-legged frog	CSC	FT	Breeds in slow moving streams, ponds, and marshes with emergent riparian vegetation; forages in nearby uplands within about 200 feet.	Medium. A freshwater pond with sparse to moderate emergent plants within the area provides potential aquatic habitat. The nearest CNDDDB occurrence is approximately 0.752 miles from the project area.
<b>Reptiles</b>				
<i>Actinemys (=Emys) marmorata</i> Northwestern pond turtle	CSC	None	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and suitable upland habitat for egg-laying. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks.	Medium. Suitable habitat in the form of a freshwater pond is present within the Central Site; basking habitat is present in shallow rocky areas surrounding the pond, and egg-laying habitat is present in grassy areas adjacent to the. The nearest CNDDDB occurrence is 1 mile southwest of the Central Site.
<b>Birds</b>				
<i>Elanus leucurus</i> White-tailed kite	CFP	None	Forages in open plains, grasslands, and prairies; typically nests in trees.	Medium. The Central Site supports a dense grove of eucalyptus trees, which may provide suitable nesting habitat for this species. Surrounding grasslands provide suitable foraging habitat. However, there are no CNDDDB occurrences within 5 miles of the Central Site.
<b>Mammals</b>				
<i>Lasiurus cinereus</i> Hoary bat	SA	None	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths; requires water.	Medium. Eucalyptus trees within the Central Site may provide suitable roosting habitat. The Central Site is part of an open habitat which may provide suitable foraging grounds. However, no CNDDDB occurrences are recorded within 5 miles of the Central Site.
<b>Plants</b>				
<i>Trifolium amoenum</i> Showy Rancheria clover	None/1B.1	FE	Annual herb occurring in coastal bluff scrub and valley and foothill grassland, sometimes on serpentinite. 5-415 m elevation. Blooms Apr-Jun.	Medium. Annual grasslands within the Central Site provide suitable habitat for this species. The nearest CNDDDB occurrence is within 0.5 miles east of the Central Site. However, the species was not encountered during the reconnaissance survey.

## STATUS CODES:

## STATE

California Department of Fish and Game:  
 ST = Listed as threatened by the State of California  
 CSC = California species of special concern  
 CFP = California fully protected bird species  
 SA = Listed on CDFG's Special Animal List

## California Native Plant Society (CNPS):

List 1B = Plants rare, threatened, or endangered in California and elsewhere

## CNPS Code Extensions

.1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)

## FEDERAL

U.S. Fish and Wildlife Service:

FE = Listed as Endangered by the Federal Government

FT = Listed as Threatened by the Federal Government

SOURCE: CNPS, 2010a; CDFG, 2010a; USFWS, 2010a

The Central Site is located within the General Plan's CTS range designation, which is consistent with the Santa Rosa Plains Conservation Strategy map. Additionally, the Central Site Alternative is located within 1.3 miles of two extant breeding pools and one adult occurrence (CDFG, 2010a). The freshwater pond on the Central Site Alternative location would not likely provide breeding habitat as the pond holds water throughout the year and supports fish species that would likely prevent any successful breeding activities. Additionally, the annual grassland habitat does not support burrows that could provide subterranean refuge sites. Additionally, Because the Central Site does not containsupport aquatic or upland habitat for this species, it will not be discussed further.

## Reptiles

### Northwestern Pond Turtle

The northwestern pond turtle is a relatively large, mostly aquatic turtle that inhabits fresh to brackish, quiet water. Its carapace is broad and low and brown to olive in color. Pond turtles inhabit ponds, marshes, lakes, streams, irrigation ditches and vernal pools that contain adequate cover and basking sites. Despite its name the pond turtle regularly inhabits terrestrial habitats usually during summer and winter months during overland dispersal, oviposition (females) and mate seeking (males).

Habitats that contain adequate refugia such as undercut banks, logs, submerged vegetation and mud banks are preferred. Basking sites such as emergent logs, open banks, rocks and root wads are utilized by turtles to thermoregulate their body temperature. They are omnivorous generalists and opportunistic predators eating insects, snakes, small mammals, birds, frogs, fish, and aquatic invertebrates. Pond turtles must ingest their food under water because they cannot swallow in the air.

The northwestern pond turtle exists in California north of the American River and integrates with the southwestern pond turtle from the San Joaquin Valley to south and East of San Francisco Bay. Throughout their range adult pond turtles are active year round, although farther north their activity can be limited. At aquatic sites turtles hibernate in muddy stream bottoms. On land, they move upland in search of hibernation spots. Mating occurs in April and May and oviposition occurs in July and August in adjacent wetland margins or uplands that will not flood.

Suitable habitat for the northwestern pond turtle exists within the freshwater detention pond located in the center of the Central Site Alternative. The nearest CNDDDB occurrence for this species is one mile southwest of the Central Site (CDFG, 2010a).

## Birds

### White-Tailed Kite

The white-tailed kite is a medium-sized raptor that inhabits open grassland and woodlands, marshes, desert grassland, partially cleared lands, and cultivated fields.

The white tailed kite is a year-round resident in central California. It typically nests in oak woodlands or trees, especially along marshes or river margins and may use any suitable tree or shrub that is of moderate height. Its nesting season may begin as early as February and extends into October, with peak from May to August. This raptor forages during the day for rodents—especially voles—in wet or dry grasslands and fields. White-tailed kites forage characteristically by hovering over the location of a potential prey item.

A grove of tall blue gum (eucalyptus) trees within the Central Site may provide suitable nesting habitat for white-tailed kite, and foraging habitat exists within the Central Site and in the surrounding open grasslands. However, there are no CNDDDB occurrences within 5 miles of the Central Site (CDFG, 2010a).

## **Mammals**

### **Hoary Bat**

The hoary bat is a mammal species that prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding.

The hoary bat is found throughout California. Maternity sites are found in inland woodland and forest areas that contain medium to large-sized trees and are densely foliated. Roosting sites are also found in densely foliated areas with medium to large trees, but this species prefers areas with habitat mosaics. The hoary bat is typically found in areas with access to trees for cover, but forages in open areas or habitat edges. Hoary bats feed primarily on moths, but will take any flying insect. This species require nearby sources of water.

Suitable habitat for the hoary bat exists in the Central Site; however, there are no CNDDDB occurrences in the vicinity of the Central Site (CDFG, 2010a).

## **Plants**

### **Showy Rancheria Clover**

The showy Rancheria clover (*Trifolium amoenum*) is a federally endangered annual herb occurring in coastal bluff scrub and valley and foothill grassland, sometimes on serpentinite substrate. This species occurs between 5 and 415 meters in elevation and blooms from April to June.

Suitable habitat for this species occurs within the Central Site composting area and the nearest CNDDDB occurrence is within 0.5 miles east of the Central Site.

## **Sensitive Habitats**

The Central Site does not support any known sensitive habitats. The freshwater pond would not be considered jurisdictional as it is manmade.

## Critical Habitats

The Central Site is not located within any known critical habitats. The nearest critical habitat is within the Petaluma River and its tributaries for the threatened steelhead (*Oncorhynchus mykiss*) (USFWS, 2010c).

## Movement Corridors

The CDFG has not identified any areas within the vicinity of the project area as important wildlife movement corridors. The Central Site Alternative is not within an important wildlife movement corridor identified by the Sonoma County General Plan 2020, Open Space and Resource Conservation Element (Sonoma County, 2008). The identified wildlife movement corridor located south of Glen Ellen connecting Sonoma Mountain and the Mayacamas Range is more than 5 miles east of the Central Site.

## 25.3 Impacts and Mitigation Measures

### Significance Criteria

This impact analysis focuses on foreseeable changes to the baseline condition in the context of the significance criteria presented in **Chapter 6** (2011 Draft EIR).

### Impact Discussion

The Central Site Alternative could have an impact on special status species, as described below. Through implementation of mitigation measures, the project would not conflict with any local policies or ordinances protecting biological resources. The project would not substantially reduce the habitat of a fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of an endangered, rare or threatened species.

#### **Impact 25.1: Implementation of the Central Site Alternative could result in direct and indirect impacts to the California red-legged frog, northwestern pond turtle, white-tailed kite, hoary bat, and showy *Rancheria* clover. (Significant)**

Implementation of the Central Site Alternative would result in the removal of freshwater pond habitat, which could result in adverse permanent and temporary impacts to the red-legged frog and northwestern pond turtle. Removal of blue gum (eucalyptus) trees may result in the removal of nesting and roosting habitat for white-tailed kite and hoary bat; this would be considered a potential adverse permanent impact. Grading activities and the removal of annual grassland habitat may result in adverse permanent impacts to showy *Rancheria* clover. The aforementioned impacts are considered **significant**.

## Mitigation Measure

**Mitigation Measure 25.1:** To reduce potential impacts to California red-legged frog, northwestern pond turtle, white-tailed kite, hoary bat, and showy Rancheria clover, SCWMA shall implement the following mitigation measures:

### California red-legged frog

A qualified biologist shall conduct a protocol-level habitat assessment in accordance with the USFWS' 2005 "Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog" or the most current guidance. If it is determined, based on the results of the habitat assessment and the USFWS, that the pond does not support CRLF habitat, no additional measures would be required.

Based on the results of the protocol-level habitat assessment, the USFWS may require protocol-level field surveys, which shall be conducted in accordance with the most current guidelines. The results of these surveys will document use by CRLFs in the freshwater pond habitat. If it is determined, based on the results of the field surveys that the pond does not support CRLFs, no additional mitigation would be required.

If the freshwater pond does support CRLFs, SCWMA shall consult with the U.S. Army Corps of Engineers (USACE) to take jurisdiction and request a formal consultation with the USFWS under Section 7 of the Federal Endangered Species Act. Once the USFWS has prepared a biological opinion on whether the proposed project will jeopardize the continued existence of CRLFs, the USFWS may prepare an incidental take statement (permit) for the proposed project, which provides the Corps and SCWMA reasonable and prudent alternative actions. The SCWMA shall be responsible for obtaining an incidental take permit from the USFWS pursuant to Section 10 of the Federal Endangered Species Act. The consult with the USFWS and obtain the incidental take permit shall be acquired prior to the commencement of any construction activities that could affect CRLF habitat. In consultation with the USFWS, SCWMA may be required to prepare a habitat conservation plan (HCP) shall also be prepared that documents how effects of the authorized incidental take would be adequately minimized and mitigated. The HCP shall detail approved mitigation measures, including but not be limited to preconstruction clearance surveys conducted by a qualified biologist, installation of exclusionary fencing, mitigation for loss of CRLF habitat as approved by USFWS, and implementation of a worker environmental awareness training program, and is likely to include but not be limited to the following:

1. ~~A preconstruction clearance survey shall be conducted by a qualified biologist prior to any vegetation clearing, excavation or construction that occurs within 300 feet of the freshwater pond to determine if any individual CRLF are present and could potentially be harmed by construction activities. Clearance survey should be conducted within 48 hours prior to the commencement of construction. If any frogs are found, they shall be removed from the construction zone and placed in an approved location offsite.~~
2. ~~Once the active construction zone has been cleared, a qualified biologist shall encircle the construction zone with an exclusionary fence in order to prevent CRLF from returning. Exclusionary fence shall be 36 inches high with 6 inches buried in the soil and shall be constructed of suitable materials as detailed in the project's incidental take permit and HCP. Fencing shall be maintained in good~~



~~working order and shall remain in place until construction in that particular area is completed.~~

- ~~3. Mitigation for the loss of CRLF habitat shall be developed in consultation with USFWS. However, a typical mitigation ratio for loss of CRLF habitat is 3:1. Replacement can be conducted offsite through purchase of mitigation credits at an approved mitigation bank.~~
- ~~4. All onsite workers shall attend a CRLF information session conducted by the designated monitor prior to beginning work onsite. This session would cover identification of the species and procedures to be followed if an individual is found onsite, as well as basic site rules meant to protect biological resources, such as speed limits, no littering, and no smoking.~~

### **Northwestern pond turtle**

A survey shall be performed 24 hours prior to the start of construction activities near the freshwater pond located on the Central Site. If a turtle is found in the freshwater pond, the DFG-approved biologist shall try to passively move the turtle out of the area. If a turtle becomes trapped during construction activities in the freshwater pond, a biologist shall remove the turtle from the work area and place it in a suitable habitat in the vicinity of the project. If a turtle is discovered in the construction area during active operations the equipment operator or equivalent will temporarily cease operations per the biologist's direction until the biologist has moved the turtle away from the construction area and/or out of harm's way.

### **White-tailed kite and other raptors**

A survey shall be conducted two weeks prior to the start of construction activities in suitable nesting habitats such as trees and tall shrubs. If an active nest is found in the construction area, the SCWMA shall consult with the Department of Fish and Game (DFG) to implement appropriate measures to reduce impacts to the nesting effort. The SCWMA shall ensure the following measures are implemented to reduce impacts to white-tailed kites and other raptor species:

1. Maintain a 500-foot buffer or a buffer distance agreed to with DFG around each active raptor nest; no construction activities shall be permitted within this buffer except as a result of consultation with DFG.
2. Depending on conditions specific to each nest, and the relative location and rate of construction activities, it may be feasible for construction to occur as planned within the buffer without impacting the breeding effort. In this case (to be determined in consultation with DFG), the nest(s) shall be monitored by a qualified biologist during construction within the buffer. If, in the professional opinion of the monitor, the project would impact the nest, the biologist shall immediately inform the construction manager and DFG. The construction manager shall stop construction activities within the buffer until either the nest is no longer active or the project receives approval to continue from DFG.
3. If tree removal is necessary, it shall be conducted outside of the breeding season (between February and October). Loss of a nest tree shall be compensated according to CDFG guidance.

### **Hoary Bat and other sensitive bat species**

1. A survey shall be conducted two calendar weeks prior to initiation of construction activity in suitable bat roosting habitat (e.g. abandoned buildings, rock crevices, under tree bark, hollow trees, culverts, under bridges, or other dark

crevices). The pre-construction bat survey shall be performed by a DFG-approved wildlife biologist or other qualified professional.

2. If a female or maternity colony of bats are found on the project site and the project can be constructed without the elimination or disturbance of the roosting colony (e.g., if the colony roosts in an area not planned for removal), a qualified wildlife biologist shall determine what physical and timed buffer zones shall be employed to ensure the continued success of the colony. Such buffer zones may include a construction-free barrier of 250 feet from the roost and/or the timing of the construction activities outside of the maternity roost season (typically May to August).
3. If an active nursery roost is known to occur on site and the project cannot be conducted outside of the maternity roosting season, bats shall be excluded from the site after August and before May to prevent the formation of maternity colonies. If a non-breeding pallid bat is found in a tree scheduled to be removed, the applicant will apply for a memorandum of understanding (MOU) with DFG. The bats shall be safely evicted within the guidelines of the MOU under the direction of a qualified bat biologist by opening the roosting area at dusk to allow air flow through the cavity, or by an alternative measure that does not result in adverse impacts. Tree removal shall then follow no later than the following day (i.e. there would be not less than one night between the initial disturbance for airflow and the removal). This action should allow bats to leave during the dark hours, thus increasing their chance of finding roots with a minimum of potential predation during daylight.

#### **Showy Rancheria clover**

Implement Mitigation Measure 6.3b (2011 Draft EIR).

**Significance after Mitigation:** Less than significant.

## **25.4 References**

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# **CHAPTER 26 (RECIRCULATED)**

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## **Cultural Resources/Central Site Alternative**

### **26.1 Introduction**

The information presented in this chapter is unique to the Central Site and the reader is referred to Chapter 7, Cultural Resources (2011 Draft EIR) in cases where cultural resources setting information and/or impact analysis are the same for the Central Site as the project site.

### **26.2 Setting**

#### **Environmental Setting and Historical Background**

The Central Site is located in the Northern California Coast ecological region and the Santa Rosa Plain subsection. The Central Site is located in an area that is characterized by gently rolling hills in between the Pacific Ocean and the Santa Rosa Plain (Miles and Goudey, 1997).

The predominant natural plant communities in the Santa Rosa Plain subsection are needlegrass grasslands and valley oak series in inland valleys. The climate is temperate to hot and humid, moderated by marine air advancing over the hills most of the time. Average annual precipitation in the Santa Rosa Plain subsection is approximately 20 to 40 inches, with summer fog. Mean annual temperature is approximately 50° to 58° F (Miles and Goudey, 1997). The Central Site is on an approximately 400-acre parcel that is currently used for the existing compost facility and recycling, as well as a transfer station for waste disposal; historically the site was used as a landfill. Surrounding land use includes rural residences, grazing lands, and open space. The project operational area would occupy 25 acres within the existing Central Disposal Site property.

The area identified for composting is located on the western side of the Central Site and would be accessed from Mechem Road. Elevations at the Central Site range from 250 to 650 feet above mean sea level, with the existing elevation in the area identified for composting generally being 550 to 625 feet above mean sea level. Due to the presence of rolling hills and lack of soil erosion control through natural or artificial means, erosional gullies (seasonal drainages) exist throughout the site.

The Central Site is mapped as Franciscan complex. This geological formation does not have the potential to contain deeply-buried archaeological resources (Meyer and Rosenthal, 2007).

#### **Paleontological Setting**

Paleontology is a multidisciplinary science that combines elements of geology, biology, chemistry, and physics in an effort to understand the history of life on earth. Paleontological resources, or fossils,

are the remains, imprints, or traces of once-living organisms preserved in rocks and sediments. These include mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. Fossils are considered nonrenewable resources because the organisms they represent no longer exist.

The geologic unit underlying the project site consists of Late Jurassic to Cretaceous-age (65 to 159 million years old) Franciscan Complex mélange (CGS, 2003). This rock unit represents a tectonic mixture of masses of resistant rock including sandstone, altered mafic volcanics (greenstone), chert, gabbro, and exotic metamorphic rocks imbedded in a sheared shaley matrix. Fossils are rarely found in Franciscan bedrock due to its long history of shearing and deformation from tectonic processes. Any fossils originally present in rock units of the Franciscan Complex have generally been destroyed because they have been altered under high heat and pressures, chaotically mixed or severely fractured. Further, a search of the University of California Museum of Paleontology Database reveals no vertebrate fossil localities within rocks of similar age and origin within Sonoma County (UCMP, 2010). Thus, proposed project underlies an area considered as having a low paleontological potential, per **Table 7-1**.

## **Prehistoric Background**

The prehistoric background is the same as discussed in Chapter 7, Cultural Resources, Section 7.2 (2011 Draft EIR).

## **Ethnographic Background**

The ethnographic background is the same as discussed in Chapter 7, Cultural Resources, Section 7.2 (2011 Draft EIR).

## **Historical Background**

The Central Site is located in a portion of the county that has historically been used predominantly for cattle and sheep ranching and is a part of the *Roblar de la Miseria* Mexican land grant established in the 1830s. While there are several historic-period rail and stage stops in the area (Roblar, Two Rock, Stony Point), the area was never densely settled until the modern period with the influx of population from the Bay Area (Hoover, 2002). The Central Disposal Site was established in 1972 and has served the surrounding community since that time.

## **Archaeological Records Search and Results**

A records search was conducted at the Northwest Information Center (NWIC) of the California Historical Resources Information System at Sonoma State University on May 14, 2010 (File No. 09-1444). The same records search methods were employed as discussed in Chapter 7, Cultural Resources, Section 7.2 (2011 Draft EIR).

The records search at the NWIC indicated that a portion of the Central Site was previously surveyed for cultural resources in 1996 (Woodward-Clyde, 1996). Two additional cultural resources studies have been conducted within ½ mile of the Central Site (Anthropological Studies Center, 1996;

Origer & Associates, 2002). No cultural resources have been recorded within the Central Site. Five cultural resources, including three prehistoric lithic scatters (CA-SON-2191, CA-SON-2192, CA-SON-2193) and two historic-period structures (CA-SON-2178H, CA-SON-2189H), have been recorded within ½ mile of the Central Site.

The 1996 Woodward-Clyde survey covered the southeast portion of the Central Site and was completed using an intensive survey strategy that consisted of a two-person crew walking in 5- to 20-meter-wide transects. Surface visibility was mixed, with some limiting vegetation. No prehistoric cultural resources were located during the survey. A historic-period water control feature was recorded within the survey area, outside of the Central Site, that was likely associated with a nearby farm complex.

## Native American Consultation

On May 19, 2010, a letter was sent to Dr. Greg Sarris c/o Nick Tipon of the Federated Indians of the Graton Rancheria (FIGR). The FIGR is the federally-recognized Native American tribe with ethnographic boundaries that include the Central Site. Mr. Tipon responded by letter on May 28, 2010 stating that the Tribe does not have concerns regarding the Central Site project area.

## Field Survey and Results

On May 18, 2010, an ESA Registered Professional Archaeologist surveyed the Central Site. The area is highly disturbed from construction of the detention pond, previous grading, and maintenance storage. A dirt maintenance road that leads to the top of the hillslope was walked by the archaeologist to the summit. The grassy hillslope was periodically scraped to reveal natural ground surface. No cultural resources were observed.

## 26.3 Impacts and Mitigation Measures

### Significance Criteria

The significance criteria are the same as those discussed in Chapter 7, Cultural Resources, Section 7.3 (2011 Draft EIR).

### Impact Discussion

#### **Impact 26.1: The Central Alternative could inadvertently discover archaeological resources. (Significant)**

It does not appear that the Central Site contains archaeological resources; however this possibility cannot be entirely discounted. Project personnel should be alerted to the possibility of encountering archaeological materials during construction, and apprised of the proper procedures to follow in the event that such materials are found. Without mitigation, this could be a **significant** impact.

**Mitigation Measure**

**Mitigation Measure 26.1:** Halt work if cultural resources are discovered during ground-disturbing activities. Implement Mitigation Measure 7.2 (2011 Draft EIR).

**Significance after Mitigation:** Less than significant.

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**Impact 26.2: The Central Site Alternative could inadvertently discover human remains. (Significant)**

Archival review and the field survey completed in support of the proposed project did not indicate that the Central Site contains human remains; however this possibility cannot be entirely discounted. Project personnel should be alerted to the possibility of encountering human remains during construction, and apprised of the proper procedures to follow in the event that they are found. Without mitigation, this could be a **significant** impact.

**Mitigation Measure**

**Mitigation Measure 26.2:** Implement Mitigation Measure 7.3 (2011 Draft EIR).

**Significance after Mitigation:** Less than significant.

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**Impact 26.3: The Central Site Alternative could inadvertently discover paleontological resources. (Significant)**

Excavations required for the Central Site would be cut into previous fills and bedrock, which is composed of the Franciscan Complex. As discussed in the setting, no known fossil sites are present ~~in at the project-Central Site area~~, and the Franciscan Complex is not a fossil-bearing geologic unit. Thus, earthmoving activities for the ~~project-Central Site Alternative~~ are unlikely to disturb or destroy paleontological resources because no resources are known to exist and the potential for the occurrence of undiscovered resources is low. Nevertheless, cuts into bedrock in the course of grading and site preparation would involve substantial volumes of soil, and even though the Franciscan Complex is not generally fossil-yielding, there is still a slight possibility that fossils could be uncovered. Accidental damage to or destruction of significant paleontological resources during project construction would be a **significant** impact.

**Mitigation Measure**

**Mitigation Measure 26.3:** Implement Mitigation Measure 7.4 (2011 Draft EIR).

**Significance after Mitigation:** Less than significant.

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## **CHAPTER 27 (RECIRCULATED)**

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# Hydrology and Water Quality/Central Site Alternative

## **27.1 Introduction**

The information presented in this chapter is unique to the Central Site, and the reader is referred to Chapter 8, Hydrology and Water Quality in the 2011 Draft EIR, in cases where hydrologic resources setting information and/or impact analysis is the same for the Central Site Alternative as the project site.

## **27.2 Setting**

### **Surface Water Hydrology and Drainage**

Topography at the Central Site is hilly, with existing elevations on site grading from about 510 feet mean sea level (msl) at the southwestern tip of the site, to approximately 660 feet at the peak of a hill near the easternmost edge of the site. Water features on site include an existing sediment pond, located on a flat plateau near the center of the site which serves existing operations ~~on site~~, as well as various minor drainages that provide storm drainage. Drainages along most of the site generally trend towards the south and west, along depressions in the ~~hilly~~ terrain. Drainage along the northwestern flank of the site is via overland flow and minor channels, with stormwater flowing towards the northeast. Nearby water features include Gossage Creek, which flows in a southwesterly direction along the northwestern edge of the property, and Washoe Creek, which flows in a northeasterly direction starting about 0.25 miles east of the site. Gossage Creek drains into Stemple Creek and eventually into the Estero de San Antonio, which flows to the Pacific Ocean, while Washoe Creek eventually drains into the Laguna de Santa Rosa.

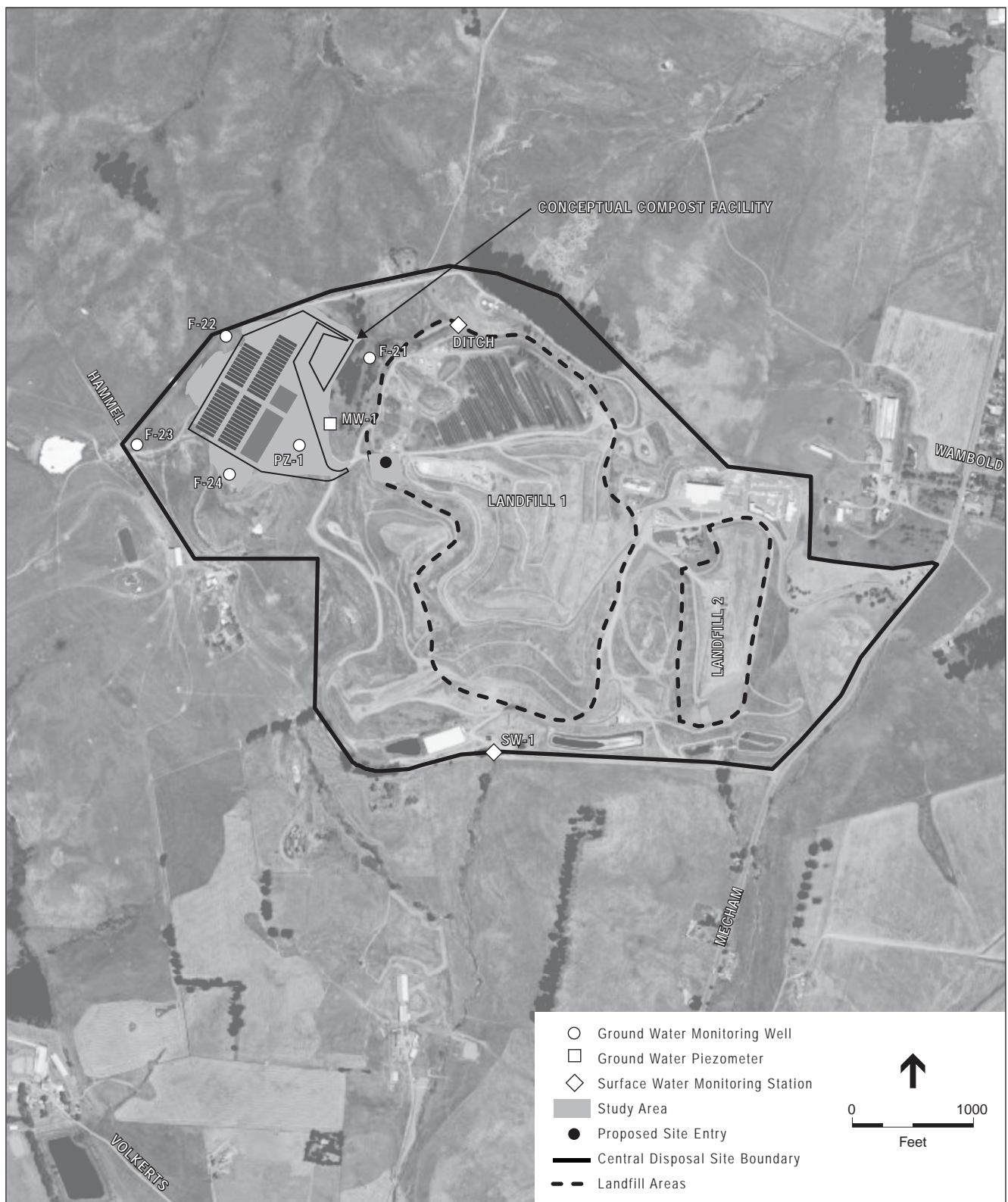
Under existing conditions, the northwestern side of the proposed compost facility drains in a generally westerly direction along unnamed channels and via sheet flow toward Gossage Creek. The southeastern portion of the proposed compost facility drains internally to the landfill to a series of stormwater management ponds that are maintained on the landfill site. Under existing conditions, stormwater leaving this area is routed into unnamed drainages that eventually flow into Stemple Creek, located approximately 1.2 miles southeast of the proposed compost facility.

## Groundwater

The Central Site is located outside of the California Department of Water Resources (DWR's) groundwater basin delineation system (DWR, 2003); the site is, however, in very close proximity to both the Santa Rosa Valley Groundwater Basin/Santa Rosa Plain Subbasin, which is located just east of the site, and the Wilson Grove Formation Highlands Groundwater Basin, which is located just west of the site. ~~Detailed groundwater level data for the Central Site were not found to be available. A search of available data maintained by DWR indicated several wells that are routinely monitored, starting approximately 2 miles west of the site, near Penngrove and Cotati. However, these sites are located along lower lying terrain, and are not expected to be similar to the Central Site in terms of water levels.~~

Groundwater is monitored at the Central Disposal Site landfill in several locations on an ongoing basis. Approximately 78 active monitoring wells are located on the landfill site, which are routinely monitored for groundwater levels as well as a variety of organic and inorganic chemicals (Pacific GeoScience, 2012). Several of these wells are located in the immediate vicinity of the proposed composting area, as shown on **Figure 27-1** (this figure only shows select monitoring sites relevant to the project). Groundwater level monitoring results from 2009 through 2011 indicate that groundwater levels in the general vicinity of the proposed compost facility vary from about 13 to 45 feet below ground surface (bgs) (Pacific GeoScience 2010, 2011, and 2012). However, within the proposed footprint of the facility, groundwater seeps have been observed along flat ground surface, as well as along hillside areas that would be excavated. Therefore, evidence suggests that in some locations on site, groundwater is near surface. **Figure 27-2** provides a summary of monitoring well data, for select wells located on the proposed compost facility. As shown, depth to groundwater varies seasonally, with recharge due to rainfall occurring primarily during the first and second quarters, and falling levels occurring during the third and fourth quarters of a given year.

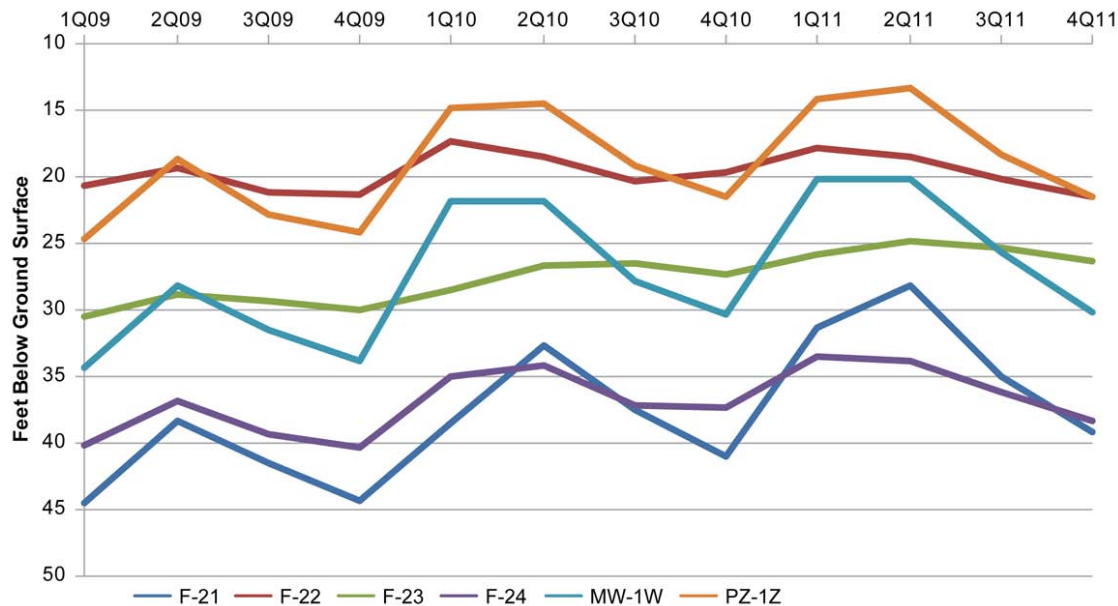
Water supply for the site is provided by an off -site well, located in the vicinity of Stony Point and Mecham Road, constructed in the Petaluma Formation. One groundwater well is presently located on site, and is currently used to supply on-site operations. With respect to other groundwater wells located offsite but in proximity to the site, a records search of DWR well log data for the site indicated that at least 30 well bores have been completed within 1.5 miles of the project site. In close proximity to the site, water levels were variable and ranged from about 30 to 120 feet below ground surface (bgs). Yields were similarly variable, and ranged from less than 10 gpm for most test wells drilled near the site, to 100 gpm approximately 0.9 mile west of the site. Many test wells within 1.5 miles of the site indicated no groundwater, to depths of up to approximately 250 feet. Producing wells are screened from 25 to 260 feet.



SOURCE: Bing Maps, 2009; Pacific GeoScience, 2012; and ESA, 2012

SCWMA Compost Facility EIR . 207312

**Figure 27-1**  
Water Sampling Locations



Source: Sonoma County Central Landfill Annual Monitoring Reports, 2009-2011.

SCWMA Compost Facility, 207312

**Figure 27-2**

Groundwater Levels at Landfill Monitoring Wells in the Central Site Alternative Vicinity

## On-Site Monitoring, Leak Detection, and Water Quality

The Central Disposal Site is subject to ongoing monitoring based on state monitoring requirements for the landfill facility, in support of ongoing landfill operation and management. On-site monitoring includes water quality monitoring at a series of monitoring wells, noted previously, plus additional surface water monitoring locations. In discussing on site water quality, it is useful to note that the landfill was permitted in two phases. Initially permitted in 1971, the initial landfill area is referred to as Landfill 1, while the newer, more recently permitted landfill area is referred to as Landfill 2. Landfill 1 and Landfill 2 locations, along with the proposed composting area, are shown on Figure 27-1.

In May 2003, the County confirmed trace amounts of volatile organic compounds (VOCs) in the underdrain beneath the lined portion of Landfill 2. The source of the contamination was traced back to a design flaw in the liner anchor trench, which allowed landfill gas to migrate around the liner and into the underlying groundwater. An investigation also indicated that damage to the Landfill 2 liner was caused by operational error during on-site excavation activities (Sonoma County, 2012). The County initiated retrofit of the liner anchor trench and repair of the liner tear. Ongoing water quality monitoring has since shown considerable reductions in the concentration of VOCs detected, wherein multiple sampling events over the last year have indicated VOC concentrations below detection limits (Sonoma County, 2012). None of the VOC concentrations have exceeded the applicable California or U.S. EPA primary maximum contaminant levels (MCL) for drinking water (Sonoma County, 2012). Additionally, all water generated in the Landfill 2 underdrain has been collected into holding ponds, and has not been discharged into the environment (Sonoma County, 2012).

**Tables 27-1 to 27-3** provide a summary of key groundwater quality constituents within and adjacent to the proposed composting area, at the landfill monitoring well MW-1. Water quality testing completed on site included analyses for a suite of minerals, nitrogen, metals, and 35 individual VOCs. As shown, no VOCs were detected. Although VOC detections have been noted at other sampling sites, these are located downgradient of the existing landfill, and not in close proximity to the proposed compost facility. Additionally, primary state or federal maximum contaminant levels (MCLs) for drinking water quality have generally been attained for groundwater within the proposed compost facility or the landfill site (refer to **Tables 27-1 to 27-4**). The only constituent above the MCL in the MW-1 data shown below is the Total Dissolved Solids (TDS), which tested above the secondary MCL in two of the sampling periods in 2011 (510 mg/l measured compared to the MCL of 500 mg/l). Groundwater quality in the proposed compost facility can generally be characterized as having moderate to high TDS concentrations, neutral pH, and low to moderate nitrogen levels.

**TABLE 27-1**  
**GROUNDWATER QUALITY MONITORING DATA FOR THE CENTRAL SITE LANDFILL,**  
**WELL MW-1 (2009)**

<u>Sampling Site</u>	<u>Units</u>	<u>MW-1</u>	<u>MW-1</u>	<u>MW-1</u>	<u>MW-1</u>
<u>Date</u>		<u>2/2009</u>	<u>5/2009</u>	<u>8/2009</u>	<u>11/2009</u>
Alkalinity, Total	mg/L	280	280	290	290
Ammonia (as ammonia)	mg/L	ND	ND	0.82	ND
Chemical Oxygen Demand	mg/L	24	52	12	22
Nitrate, as N	mg/L	ND	0.74	0.26	ND
Nitrite, as N	mg/L	ND	ND	ND	ND
pH	pH Units	7.2	7.21	7.19	7.27
Specific Conductance	uS/cm	810	750	720	740
Sulfate	mg/L	46	46	42	41
Total Dissolved Solids	mg/L	430	430	400	410
Volatile Organic Compounds	ug/L	ND	ND	ND	ND
Barium*	mg/L	N/A	0.21	N/A	N/A
Chromium*	mg/L	N/A	0.016	N/A	N/A
Nickel*	mg/L	N/A	0.03	N/A	N/A
Vanadium*	mg/L	N/A	0.016	N/A	N/A
Zinc*	mg/L	N/A	0.021	N/A	N/A

SOURCE: Pacific Geoscience, 2010, 2011, and 2012; \* Heavy metals were sampled only during May. Other heavy metals were analyzed but not detected.

**TABLE 27-2**  
**GROUNDWATER QUALITY MONITORING DATA FOR THE CENTRAL SITE LANDFILL,**  
**WELL MW-1 (2010)**

<u>Sampling Site</u>	<u>Units</u>	<u>MW-1</u>	<u>MW-1</u>	<u>MW-1</u>	<u>MW-1</u>
<u>Date</u>		<u>2/2010</u>	<u>5/2010</u>	<u>8/2010</u>	<u>11/2010</u>
Alkalinity, Total	mg/L	340	290	300	280
Ammonia (as ammonia)	mg/L	ND	ND	ND	ND
Chemical Oxygen Demand	mg/L	12	31	26	19
Nitrate, as N	mg/L	2.4	1.9	0.64	0.43
Nitrite, as N	mg/L	0.034	ND	ND	ND
pH	pH Units	7.25	7.28	7.21	7.22
Specific Conductance	uS/cm	800	850	740	720
Sulfate	mg/L	43	47	43	41
Total Dissolved Solids	mg/L	430	460	420	360
Volatile Organic Compounds	ug/L	ND	ND	ND	ND
Barium*	mg/L	N/A	0.2	N/A	N/A
Chromium*	mg/L	N/A	0.011	N/A	N/A
Nickel*	mg/L	N/A	0.029	N/A	N/A
Vanadium*	mg/L	N/A	0.013	N/A	N/A
Zinc*	mg/L	N/A	0.022	N/A	N/A

SOURCE: Pacific Geoscience, 2010, 2011, and 2012; \* Heavy metals were sampled only during May. Other heavy metals were analyzed but not detected.

**TABLE 27-3**  
**GROUNDWATER QUALITY MONITORING DATA FOR THE CENTRAL SITE LANDFILL,**  
**WELL MW-1 (2011)**

<u>Sampling Site</u>	<u>Units</u>	<u>MW-1</u>	<u>MW-1</u>	<u>MW-1</u>	<u>MW-1</u>
<u>Date</u>		<u>2/2011</u>	<u>5/2011</u>	<u>8/2011</u>	<u>11/2011</u>
Alkalinity, Total	mg/L	340	350	310	280
Ammonia (as ammonia)	mg/L	ND	ND	ND	ND
Chemical Oxygen Demand	mg/L	22	22	51	59
Nitrate, as N	mg/L	2.0	2.0	1.3	0.38
Nitrite, as N	mg/L	ND	ND	ND	ND
pH	pH Units	7.18	7.23	7.14	7.52
Specific Conductance	uS/cm	800	840	770	710
Sulfate	mg/L	43	46	49	47
Total Dissolved Solids	mg/L	510	470	510	420
Volatile Organic Compounds	ug/L	ND	ND	ND	ND
Barium*	mg/L	N/A	0.15	N/A	N/A
Chromium*	mg/L	N/A	ND	N/A	N/A
Nickel*	mg/L	N/A	ND	N/A	N/A
Vanadium*	mg/L	N/A	ND	N/A	N/A
Zinc*	mg/L	N/A	ND	N/A	N/A

SOURCE: Pacific Geoscience, 2010, 2011, and 2012; \* Heavy metals were sampled only during May. Other heavy metals were analyzed but not detected.



**TABLE 27-4**  
**FEDERAL AND STATE PRIMARY AND SECONDARY MCLS**

	<u>Federal Primary</u>	<u>Federal Secondary</u>	<u>State Primary</u>	<u>State Secondary</u>
<u>Alkalinity, Total</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<u>Ammonia (as ammonia)</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<u>Chemical Oxygen Demand</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<u>Nitrate (mg/L)</u>	<u>10 (as N)</u>	<u>n/a</u>	<u>45 (as NO3)</u>	<u>n/a</u>
<u>Nitrite, as N (mg/L)</u>	<u>1</u>	<u>n/a</u>	<u>1</u>	<u>n/a</u>
<u>Total Nitrate/Nitrite, as N (mg/L)</u>	<u>10</u>	<u>n/a</u>	<u>10</u>	<u>n/a</u>
<u>pH (pH units)</u>	<u>n/a</u>	<u>6.5 to 8.5</u>	<u>n/a</u>	<u>n/a</u>
<u>Specific Conductance</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<u>Sulfate (mg/L)</u>	<u>n/a</u>	<u>250</u>	<u>n/a</u>	<u>250-600</u>
<u>Total Dissolved Solids (mg/L)</u>	<u>n/a</u>	<u>500</u>	<u>n/a</u>	<u>n/a</u>
<u>Volatile Organic Compounds*</u>	<u>varies</u>	<u>n/a</u>	<u>varies</u>	<u>n/a</u>
<u>Barium</u>	<u>2</u>	<u>n/a</u>	<u>1</u>	<u>n/a</u>
<u>Chromium</u>	<u>0.1</u>	<u>n/a</u>	<u>0.05</u>	<u>n/a</u>
<u>Nickel</u>	<u>n/a</u>	<u>n/a</u>	<u>0.1</u>	<u>n/a</u>
<u>Vanadium</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<u>Zinc</u>	<u>n/a</u>	<u>5</u>	<u>n/a</u>	<u>5</u>

\*Volatile Organic Compounds (VOCs) tested for included a suite of 34 individual VOCs. The state and federal governments retain various compound specific MCLs for VOCs. However, as shown in the tables below, VOCs were not detected during 2009 through 2011. Source: US EPA, 2012; CDPH, 2012

Surface water is also monitored as part of ongoing landfill operations. The closest surface water monitoring site to the proposed compost facility is the sampling site, “DITCH,” which is located about 700 feet east of the proposed compost facility. Other surface water monitoring sites are located primarily along the southern side of the landfill, along existing leachate and stormwater ponds. Site SW-1, which is located between two leachate ponds and downgradient of Landfill 1 is also included in **Table 27-5** because a portion of the stormwater from the proposed compost facility is expected to drain towards this site.

**TABLE 27-5**  
**SURFACE WATER QUALITY MONITORING DATA FOR THE CENTRAL SITE LANDFILL**

<u>Sampling Site</u>		<u>DITCH</u>	<u>DITCH</u>	<u>DITCH</u>	<u>DITCH</u>	<u>SW-1</u>	<u>SW-1</u>	<u>SW-1</u>	<u>SW-1</u>
<u>Date</u>	<u>Units</u>	<u>2/2011</u>	<u>5/2011</u>	<u>8/2011</u>	<u>1/2012</u>	<u>2/2011</u>	<u>5/2011</u>	<u>8/2011</u>	<u>1/2012</u>
Alkalinity, Total	mg/L	88	70	Dry	30	180	160	550	540
Ammonia (as ammonia)	mg/L	ND	0.6	Dry	1	ND	ND	0.26	ND
Bioassay (Rainbow Trout)	% Survival	N/A	N/A	Dry	100	N/A	N/A	N/A	100
Biochemical Oxygen Demand	mg/L	N/A	N/A	Dry	18	N/A	N/A	N/A	4
Chemical Oxygen Demand	mg/L	N/A	N/A	Dry	110	N/A	N/A	N/A	41
Dissolved Oxygen	mg/L	10.39	3.12	Dry	9.02	9.37	8.04	1.16	3.25
Nitrate, as N	mg/L	ND	0.31	Dry	1.3	0.28	0.33	ND	0.25
Nitrite, as N	mg/L	ND	0.029	Dry	0.035	0.012	0.011	ND	ND
pH	pH units	7.38	6.6	Dry	6.67	8.23	8.06	7.28	7.52
Specific Conductance	uS/cm	231	239	Dry	197	870	775	1992	1825
Sulfate	mg/L	4.0	4.3	Dry	6	220	170	71	81
Total Dissolved Solids	mg/L	120	120	Dry	230	490	490	1100	980
Total Suspended Solids	mg/L	ND	4.1	Dry	10	ND	4.1	140	1.7
Turbidity	NTU	2.40	5.76	Dry	6.68	3.36	2.28	33.9	2.35

SOURCE: Pacific Geoscience, 2010, 2011, and 2012.

## Flooding

No areas within or adjacent to the Central Site have been delineated as being within a Federal Emergency Management Agency (FEMA)-defined 100-year flood zone. The nearest delineated flood zone is located approximately 3 miles north of the site, along a waterway that is not hydrologically connected to the site. Peak drainage flows have not been quantified in support of this site.

## Stormwater

Stormwater would be managed on-site primarily via the installation and use of a stormwater retention pond. The proposed stormwater retention pond would maintain sufficient capacity so as to enable complete capture of a 25-year, 24-hour storm event including additional freeboard, as discussed in Section 4.7 of this Recirculated Draft EIR, Central Site Alternative, Project Description. In the event of a storm event that exceeds pond capacity, or in the event of multiple storms that together exceed available retention pond capacity, stormwater would be discharged from the proposed compost facility. Stormwater would be discharged either to Gossage or Stemple Creek directly or via existing discharge facilities located at the landfill, or be transported via pipeline to the Laguna WWTP, as discussed in Section 4.7 of this Recirculated Draft EIR, Central Site Alternative Project Description.

## Water Supply

Water supply requirements for the Central Site Alternative would be substantially less than the same as those indicated in Chapter 8, Hydrology and Water Quality (2011 Draft EIR) due to re-use of stormwater for the composting process, and the use of positive pressure ASP composting technology. Groundwater use would be approximately 16 AF/yr. Water would be supplied from the existing groundwater well that is located near the intersection of Meham and Stony Point Road, and constructed in the Petaluma Formation. The well was completed in 1996, and tests at that time indicated an available production rate of 300 gallons per minute (gpm). However, under current usage, the well is supplied with a pump that is ~~rated at 120~~ currently producing 155 gpm, at a depth of 302 feet. The well is presently being used in support of existing operations at the Central Disposal Site. ~~It is anticipated that the water supply required for the proposed compost facility at the Central Site would be met by this existing well, and that the volume of water needed for the Central Site could be supplied by this well.~~ In order to minimize the volume of groundwater pumping required, the project would ~~may~~ also include re-use of water collected in the on-site stormwater ponds, for composting operations. ~~As~~ Because the Central Site Alternative pad area would occupy approximately ~~225~~ 22 acres, it would not meet the minimum requirements (i.e., 40 acres or greater, etc.) of the California Water Code for a water supply assessment. Therefore, completion of a water supply assessment is not warranted.

## Wastewater

~~Wastewater treatment would be provided on site, according to one of the wastewater treatment options discussed in Chapter 8. However, note that for the Central Site Alternative, shallow groundwater is not anticipated on site, which may enable the implementation/use of an industrial septic system for wastewater treatment, and would result in fewer restrictions placed on potential applicable wastewater treatment options.~~

As discussed in Chapter 8 (2011 Draft EIR), the proposed composting facility would generate less than 2,000 gallons per day of sanitary wastewater, due to toilet flushes and other uses by up to approximately 40 facility employees. Wastewater treatment and management would occur via one of the options discussed in Chapter 8. Additionally, because shallow groundwater has been noted in select locations on site, and because much of the site is located on bedrock, the implementation/use of an industrial septic system for wastewater treatment is unlikely to be approved without a variance from Sonoma County PRMD. Implementation of a septic system on site may also be disfavored due to potential for interference with landfill monitoring wells. Therefore, it is likely that one of the other wastewater treatment options identified in Chapter 8 would be utilized.

## Permitting Requirements

The proposed compost facility would be required to acquire the following permits and compliance reports in order to protect water quality on site and downstream, pursuant to the requirements of the NCRWQCB.

## **Report of Waste Discharge**

The SCWMA would be required to submit a report of waste discharge (ROWD) and obtain a permit from the NCRWQCB, pursuant to the requirements of Title 27 of the California Code of Regulations. Title 27 contains specifications regarding waste containment, monitoring, liner specifications for ponds, and liner requirements for working areas. The ROWD is required to include specifications regarding liner design for applicable facilities, waste characterization for feedstock materials, and design for contact water/leachate disposal or reuse, as applicable.

## **NPDES General Permit for Discharges of Stormwater Associated with Construction Activities**

Implementation of the Central Site Alternative would result in land disturbance to an area that is greater than one acre. Land disturbances on projects of one acre or more require coverage under the statewide NPDES General Permit for Discharges of Stormwater Associated with Construction Activities (Construction General Permit). The SCWMA would be required to apply for coverage under this permit prior to the commencement of construction activity on-site. Conditions of the permit include requirements for the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) that identifies BMPs to implement and maintain to minimize pollutant discharges from a construction site, as well as other conditions as discussed on page 8-12 of the 2011 Draft EIR.

## **NPDES General Permit for the Discharge of Stormwater Associated with Industrial Activities**

Implementation of the Central Site Alternative would require acquisition of coverage under the statewide NPDES General Permit for the Discharge of Stormwater Associated with Industrial Activities (Industrial General Stormwater Permit; Order 97-03-DWQ). The existing statewide general permit has expired, and a revised permit is currently in draft form, and is undergoing public review. The revised permit may be completed prior to implementation of the Central Site Alternative. The permit requires preparation and implementation of a Storm Water Pollution Prevention Plan for the operation period, as well as other measures designed to minimize discharges of water quality pollutants during operations, and also requires implementation of ongoing monitoring of stormwater quality on site. Acquisition of coverage under the statewide Industrial General Stormwater Permit ~~This permit~~ would be required for the discharge of stormwater to surface waters, including Stemple Creek, Gossage Creek, or associated unnamed waterways.

## **Sonoma County Municipal Separate Storm Sewer Permit**

In 2009, Sonoma County was issued NPDES No. CA0025054 and associated Waste Discharge Requirements for municipal separate storm sewer systems (MS4 permit). The MS4 permit includes the Central Landfill area as well as the proposed compost facility site. As such, potential stormwater discharges from the Central site are required to adhere to the conditions outlined in the MS4 permit.

MS4 permits, including Sonoma County's MS4 permit, are typically designed to be applicable primarily to residential and commercial development areas. Such areas may discharge directly into municipal storm sewers and other related facilities, and permit requirements dictate that various

measures (best management practices) must be employed to manage water quality and minimize potential water quality impacts. The County's MS4 permit requires that volume based best management practices (BMPs) must be used on site in order to mitigate and treat stormwater volumes up to the 85<sup>th</sup> percentile, 24-hour storm event<sup>1</sup>, including all stormwater flows that may come onto the site as run-on from upstream. For flows that require treatment, specific BMPs are identified and deployed as a part of the permitting process.

The MS4 compliance process for the proposed compost facility is, however, somewhat different, because the proposed facility would include the installation of a stormwater retention pond to manage flows. As discussed previously, the pond would retain anticipated flows from the site, up to a 25-year, 24 hour storm event. Because the volume of such an event would substantially exceed the volume of an 85<sup>th</sup> percentile, 24-hour storm event, it is anticipated that the proposed stormwater retention pond would be sufficient to capture and entirely retain an 85<sup>th</sup> percentile storm event. Therefore, the proposed compost facility would not require implementation of additional measures or BMPs in order to obtain compliance with the County's MS4 permit.

## 27.3 Impacts and Mitigation Measures

### Significance Criteria

Significance criteria relevant to the Central Site are provided in Chapter 8, Hydrology and Water Quality (2011 Draft EIR). The following discussion of environmental impacts is limited to those potential impacts that could result in some level of potentially significant environmental change, as defined by the California Environmental Quality Act (CEQA). Implementation of the Central Site Alternative would not result in the installation or construction of housing facilities or other residences, and would not result in the installation of any facilities within a 100-year flood zone. Also, the Central Site Alternative would not disturb or otherwise increase the risk of failure of any levee or dam, and would not place facilities in an area that would be subject to inundation as a result of levee or dam failure. No large water bodies are located near the Central Site that would cause the area to be susceptible to seiche. Finally, the site is located well above sea level, such that it would not be affected in the event of a tsunami. No impact would occur under any of these categories, and therefore these impacts are not discussed further within this section.

### Impact Discussion

#### **Impact 27.1: The Central Site Alternative could violate a water quality standard or waste discharge requirement, or otherwise substantially degrade water quality. (Significant)**

As discussed in Chapter 8, Hydrology and Water Quality (2011 Draft EIR), during construction for the Central Site Alternative, the operation of heavy equipment, and other construction related activities could result in the release of water quality pollutants, including sediment, into natural waters. Potential impacts to water quality could occur during ~~both Phase 1 and Phase 2~~

<sup>1</sup> This is equivalent to approximately a 2-year, 24-hour storm event.

construction, which would involve substantial grading and earth moving activities, including disturbance to soils and surface sediments.

During the operation phase at the Central Site Alternative, routine composting operations could also result in the accumulation and release of pollutants to natural waters, as discussed in Chapter 8 (2011 Draft EIR). Water applied to compost piles would be managed such that no runoff would occur, with on-site stormwater runoff being directed into a retention pond~~proposed, 3.2-acre detention basin under Phase 1. Under Phase 2, the detention basin would be expanded to 4.1 acres detention basin,~~ sufficient to contain stormwater flows on site under expanded operations up to the 24-hour, 25-year storm event. Releases of these pollutants could result in a **significant** impact associated with degradation of water quality. Implementation of Mitigation Measure 27-1a would be required.

Leachate would be managed separately from stormwater on site. Specifically, leachate would be collected via the proposed on-site leachate collection system, would be temporarily stored as warranted in an on-site tank, and then re-applied to the compost piles as a fraction of total make-up water. Therefore, no releases of compost leachate or associated water quality pollutants are anticipated.

As discussed previously, sanitary wastewater would be treated via one of the wastewater treatment options discussed for Chapter 8 (2011 Draft EIR). The selected wastewater treatment and disposal system would comply with all County, State, and Federal permit conditions and requirements, including graywater standards as relevant, and would not discharge to surface waters. Therefore, disposal of graywater and/or treated wastewater on site would not result in a significant impact to water quality.

Adherence to the conditions of applicable permits would be required. As discussed above, conditions of applicable permits would include preparation of SWPPPs in support of stormwater quality control, completion of a ROWD including implementation of design measures for liners, waste containment, and design for contact water/leachate disposal and reuse, and other water quality protection requirements as applicable including compliance with the County's MS4 permit. Additionally, all operation stormwater would be contained or reused on site, and no discharge from the site would occur under normal operations. For a discussion of potential discharges during major storm events, refer to Impact 27.4.

With respect to groundwater quality during construction, the use of nitrogen-based explosives has shown, in a handful of cases, to potentially result in a net increase in the concentration of nitrates in groundwater. As shown in Table 27-1, nitrate concentrations on site are currently below the national maximum contaminant level (MCL) of 10 mg/L (as N). Limited evidence suggests that the use of explosives for blasting large volumes of rock, may in some cases result in a net increase in the concentration of nitrate in groundwater within affected areas. Evidence for such effects is, however, limited, and increases in nitrate concentration have not been documented at the vast majority of blasting sites.

Blasting on site would be restricted to areas where the rock outcrop to the south of the proposed compost facility intersects the portion of the proposed compost facility site that would be graded.

Additionally, blasting would be completed by a qualified blasting contractor and in accordance with federal, state, and local requirements. As a result, potential deleterious effects on water quality are not anticipated. However, due to the high level of uncertainty with respect to the effects of blasting on nitrate levels, and in order to ensure that potential nitrate contamination associated with blasting does not affect offsite wells, implementation of **Mitigation Measure 27.1b** would be required (Sonoma County Permit and Resource Management Department, 1997, 1998).

## **Mitigation Measures**

**Mitigation Measure 27.1a:** Implement Mitigation Measures 8.1a and 8.1b (2011 Draft EIR).

**Mitigation Measure 27.1b:** In order to ensure that construction related blasting does not result in the degradation of groundwater quality on site, the following blasting best management practices shall be implemented by the project proponent for all blasting during proposed compost facility construction:

- Blasting shall only be employed where ripping operations with a D8 bulldozer or larger cannot adequately loosen the rock to be removed;
- Blasting shall only be conducted by a licensed, certified professional consistent with federal, state, and local regulations;
- Explosive products shall be selected that are appropriate for site conditions and safe blast execution;
- Loaded explosives shall be detonated as soon as possible and shall not be left in the blastholes overnight, unless weather or other safety concerns reasonably dictate that detonation should be postponed;
- Explosive products shall be managed on-site so that they are either used in the borehole, returned to the delivery vehicle, or placed in secure containers for off-site disposal;
- Spillage around the borehole shall either be placed in the borehole or cleaned up and returned to an appropriate vehicle for handling or placement in secured containers for off-site disposal;
- Explosives shall be loaded to maintain good continuity in the column load to promote complete detonation. Industry accepted loading practices for priming, stemming, decking and column rise need to be attended to.

**Significance after Mitigation:** Less than Significant.

Implementation of the proposed mitigation would prevent or reduce potential for the emission of water quality pollutants, and thereby reduce potential impacts associated with water quality degradation.

**Impact 27.2: The Central Site Alternative could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table or conflict with Sonoma County General Plan policies regarding groundwater. (Significant)**

As discussed previously, the Central Site Alternative would use groundwater ~~on~~<sup>off</sup>-site, in order to provide water for operations, including potable water and water required for composting operations. The project may also include provisions for the re-use of water from the on-site ~~retention pond~~<sup>detention basin</sup>, to provide supplemental water for composting operations, and reduce the amount of groundwater that would be withdrawn in support of the project.

The amount of groundwater that would be withdrawn under the Central Site Alternative ~~would likely be expected to be equivalent to or~~ smaller than that discussed for Chapter 8 (2011 Draft EIR), ~~because the Central Site Alternative would have a lower compost throughput as compared to the proposed project. However, in order to provide a conservative (overestimate) estimate. Specifically, use of potential groundwater impacts, this analysis assumes that the Central Site would require the same volume of a negative pressure, uncovered ASP composting process on site would result in water as compared~~ use similar to the proposed project, that discussed in Chapter 8, (2011 Draft EIR), equivalent to approximately 130 acre-feet per year (AF/yr). Implementation of positive pressure covered ASP would result in the consumption of less water.

Under existing conditions, the existing compost facility located at the Central Site Landfill uses an estimated 43 AF/yr. The proposed facility would require less water, because the proposed positive pressure ASP system would require less water than the existing open windrow system. Based on preliminary calculations, it is anticipated that the proposed facility would require approximately 16 AF/yr of groundwater usage, equivalent to a net reduction in groundwater usage of approximately 27 AF/yr (Bakx, 2012). Therefore, implementation of the Central Site Alternative would result in a net benefit to groundwater levels. ~~Withdrawal of groundwater at this rate could result in a net increase in groundwater withdrawals on site. However, even if the full 130 AF/yr of groundwater were drawn under the Central Site Alternative, this volume of annual water withdrawal would be relatively small, and would not be substantially greater than the water use required consistent with existing usage, which supports operations at the existing landfill. Therefore, Pproject-related groundwater usage-use would not is not anticipated to significantly draw down the local or regional aquifers, and would not is not anticipated to result in significant reduction in the level of water in other nearby wells.~~

Installation of the project would result in the construction of impervious surfaces to support composting operations, across most of the project area. The existing area, where such construction would take place consists of relatively competent bedrock of the Franciscan Formation, and likely plays a minimal if any role at all as a recharge area. Further, based on California Department of Water Resources papers, the Franciscan Formation, and associated groundwater, is not considered a viable groundwater resource for domestic use. Therefore, groundwater recharge is expected to be minimal in the project area under existing conditions. Installation of impervious surfaces on top of these formations would not substantially reduce groundwater infiltration, and therefore would not interfere with recharge such that groundwater levels could be affected. Similarly, installation of the proposed stormwater retention pond, which would be lined to prevent percolation, would



not substantially reduce groundwater infiltration in comparison to existing conditions, such that groundwater levels would be affected. However, most of the project site would remain as pervious surfaces and adjacent areas would also remain pervious. Additionally, stormwater emanating from constructed impervious surfaces would be contained in the on-site retention pond detention basin, which could be lined to prevent percolation, depending on final site design and permitting. Therefore, the project is not anticipated to significantly alter groundwater levels on site or in adjacent areas.

Although the Central Site Alternative is not anticipated to result in reduced groundwater levels, implementation of Mitigation Measure 8.2a would be required in order to remain consistent with Sonoma County General Plan Policy WR-2d, as described previously in the discussion of the Sonoma County General Plan in Chapter 8, Hydrology and Water Quality (2011 Draft EIR). Also, in order to maintain compliance with Sonoma County General Plan Policies WR-4b, WR-4g, and WR-4k, implementation of Mitigation Measure 8.2b would be required. Without mitigation this impact would be **significant**.

### **Mitigation Measure**

**Mitigation Measure 27.2:** Implement Mitigation Measures 8.2a and 8.2b (2011 Draft EIR).

**Significance after Mitigation:** Less than Significant.

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**Impact 27.3: The Central Site Alternative could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site, or result in flooding on- or off-site. (Significant)**

Installation of the Central Site Alternative would not alter the course of a river or stream. However, construction activities would result in substantial earth movement and grading activities that would change existing drainage patterns on site. Much of the existing topography would be leveled, or partially leveled, to support composting operations. Similar to the discussion provided in Chapter 8, Hydrology and Water Quality (2011 Draft EIR), the Central Site Alternative could result in changes in localized flow patterns or runoff such that localized flooding could result in or increase the erosion or sedimentation on site or downstream. Without mitigation this impact would be **significant**.

### **Mitigation Measures**

**Mitigation Measure 27.3.** Prior to construction, a grading and drainage plan for the project site shall be completed, and SCMWA shall ensure that the recommendations from that document are incorporated into the project design. The plan shall quantitatively evaluate anticipated stormwater flows that would occur on site, and provide for the implementation of grading and stormwater management features that would minimize flooding, unintentional ponding, erosion, and sedimentation. Additionally, the plan shall quantify anticipated discharges from the Project site, up to the 100-year storm event (plus an extra 10 percent volume capacity to account for the effects of climate change), and ensure that stormwater management infrastructure would be sized appropriately so as to safely convey anticipated discharges to surface waters and/or the landfill's leachate management system. The plan

shall include anticipated sizings including engineering diagrams and maps for all stormwater management infrastructure.

Implement Mitigation Measures 8.3b. (2011 Draft EIR).

**Significance after Mitigation:** Less than Significant.

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**Impact 27.4: The Central Site Alternative could create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. (Significant)**

Implementation of the Central Site Alternative would result in construction of impervious surfaces and stormwater drainage facilities as discussed in ~~Chapter 8, Hydrology and Water Quality. Without mitigation this impact would be significant.~~ Section 4.7 of this Recirculated Draft EIR, Central Site Project Description. The proposed impervious surfaces on site would cover much of the compost facility site, including the pad areas underlying the active composting area, as well as proposed buildings, parking lots, and roads. Drainage from the proposed compost facility would be routed into an on-site stormwater retention pond, as discussed previously and in Section 4.7. However, during large storm events that exceed pond capacity, discharge from the site could result in additional flows being discharged from the site. In the event that discharge to natural waterways is selected as a potential stormwater management option, such discharges could exceed the capacity of existing storm channels and waterways. Without mitigation this impact would be significant, and Mitigation Measure 27.4a would be required. Mitigation Measure 27.4b could further reduce the potential impacts.

Potential discharges of stormwater to surface water during major storm events could also affect receiving water quality, where discharges could occur directly from the proposed compost facility into Gossage Creek and Stemple Creek, or via the landfill into Stemple Creek via the landfill's existing stormwater management and discharge facilities. If discharge to surface water is anticipated, acquisition of coverage under the Statewide Industrial Stormwater NPDES permit would be required. Adherence to the conditions of this permit would ensure that discharges of stormwater from the project site would not degrade downstream beneficial uses, and would not result in significant water quality impacts downstream.

As discussed previously, the Central Site is located in an area that is subject to the requirements of Sonoma County's MS4 permit, which identifies BMPs and other requirements for retaining and treating stormwater discharges up to the 85<sup>th</sup> percentile storm event (approximately equivalent to a 2-year, 24-hour event). Also discussed previously, stormwater from the site would be routed into the proposed stormwater retention pond, which would be sufficient to contain up to the 25-year, 24-hour storm event. Thus, the proposed stormwater retention pond would be of sufficient size to entirely capture and retain an 85<sup>th</sup> percentile storm event. This would result in no net discharge from the site during storm events, up to a 25-year, 24-hour storm event. The County's MS4 permit also stipulates that all stormwater run-on to the operational/composting pad area of the site must also be managed, with discharges of such water being additive to stormwater generated on site. Because the proposed facility is located at or very near the crest of a topographical ridge, stormwater

run-on to the site is anticipated to be limited. In areas where stormwater could run on to the site, stormwater run-on would be managed so as to ensure that run-on to operations areas would not occur. Therefore, requirements of the County's MS4 permit would not be triggered, and no further compliance or mitigation would be warranted.

As discussed previously, Stormwater discharges from the proposed Central Site Alternative could also be routed through the landfill's existing leachate collection system. Based on the anticipated stormwater retention pond sizing, during an average year, approximately 27.1 acre-feet of water would need to be routed through the landfill's existing leachate collection system during October through April, in order to maintain normal operation of the pond. The landfill's existing leachate pumping system is capable of handling a total of up to 400 gallons per minute (53.8 acre-feet per month). Upon buildout of the landfill, the calculated peak leachate flow will be 16.5 acre-feet per month, leaving at least 10 acre-feet per month of available capacity to support compost facility stormwater management. Thus, during an average year, for October through April, at least 70 acre-feet of pump capacity is available, or more than twice that needed for management of compost facility stormwater.

The wettest year on record for the Santa Rosa area was 1983, when approximately 63 inches of rainfall occurred. Under such conditions, discharges from the pond would reach 82.7 acre-feet. Thus, under very high rainfall conditions, discharges of stormwater directly to natural surface water would be required. Discharges of stormwater to natural surface waters could also occur during single, low frequency, high volume rainfall events, such as during a 100-year storm event, if the capacity of the landfill's leachate collection system is exceeded. Thus, management of stormwater via the landfill's leachate collection system would be feasible during average years and would not exceed existing conveyance capacities for the landfill. However, during very wet years or events, discharge of stormwater to natural surface waters would be required. Therefore, acquisition of coverage under the statewide General Industrial Stormwater Permit would also be required for this stormwater management option.

Stormwater managed via the landfill's leachate management system would be piped to the Laguna Treatment Plant. The Laguna Treatment Plant produces tertiary treated wastewater in accordance with federal, state, and local regulations, including a facility-specific NPDES permit. Adherence to the conditions of the plant's NPDES permit would be required, which would ensure that receiving water quality would not be significantly degraded by discharges from the plant. Therefore, all stormwater discharges would be managed for water quality based on NPDES permitting requirements, which would be sufficient to prevent degradation of natural waters, prevent degradation of beneficial use, and avoid additional water quality impacts or requirements for additional mitigation. For a discussion of capacity of the Laguna Treatment Plant, refer to Section 30, Central Site Public Services and Utilities.

## **Mitigation Measures**

### **Mitigation Measure 27.4. Implement Mitigation Measure 8.3b**

**Mitigation Measure 27.4a.** Prior to construction, a grading and drainage plan for the Central Site shall be completed, and the SCWMA shall ensure that recommendations from that document are incorporated into the project design. The study shall include the following:

- Engineering diagrams and maps of all proposed drainage facilities, sized so as to convey all stormwater flows from the composting site, up to 100-year storm conditions plus an extra 10 percent volume capacity to accommodate potential climate change conditions;
- Facilities shall include ditches, swales, stormwater retention ponds, and other stormwater conveyances, as needed to ensure that stormwater can be conveyed off site without causing additional flooding, erosion, or sedimentation on-site or downstream.
- Discharges from the site shall be routed into waterways or other stormwater management facilities that have sufficient capacity to contain anticipated stormwater flows without causing additional flooding, erosion, or sedimentation downstream.

**Mitigation Measure 27.4b.** In order to further reduce potential effects on natural waterways downstream, the following additional measures for stormwater management shall be implemented where possible:

1. Management of stormwater stored in the on-site retention pond for use as dust suppressant or for other uses at the landfill. Land application of water stored in the retention pond onto the landfill area would be subject to applicable state and local permitting.
2. Management of stormwater and compost leachate stored in the on-site retention pond for use as agricultural irrigation water. Water could be applied to an adjacent or nearby property in support of agricultural activities. Application of water for agricultural use would be subject to federal, state, and local requirements regarding the quality and use of discharged water.

**Significance after Mitigation:** Less than Significant.

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## 27.4 References

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# **CHAPTER 28 (RECIRCULATED)**

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## **Land Use and Agriculture/Central Site Alternative**

### **28.1 Introduction**

The information presented in this chapter is unique to the Central Site Alternative and the reader is referred to Chapter 9, Land Use and Agriculture (2011 Draft EIR), in cases where land use and agriculture setting information and/or impact analysis is the same as that previously discussed for the project site.

### **28.2 Setting**

The regional land use and agricultural setting discussion for Sonoma County is the same as the discussion in Chapter 9, Land Use and Agriculture- (2011 Draft EIR).

### **Central Site and Vicinity**

#### **Central Site Description**

A general description of the Central Site including location, natural features, structures and existing uses is included in Chapter 4, ~~Alternatives~~ 7 (Recirculated Version) Central Site Alternative Project Description. Additional information on biological resources is included in Chapter 25, Biological Resources.

#### **Surrounding Uses**

As with the project site, the Central Site is located within the Petaluma and Environs Planning Area of Sonoma County, where the majority of land is used for agricultural purposes. The immediate vicinity of the Central Site contains agricultural uses and open space. Single-family rural residences are scattered in the surrounding area and are often present on sites with agricultural operations, such as dairy farming and grazing. The closest residence to the Central Site composting area is approximately 500 feet northeast. Other residences are approximately 1,000 feet to the south, 4,500 feet to the east and 5,000 feet to the southeast. Dunham Charter School is located approximately 4,000 feet north of the Central Site. Urban development associated with the City of Cotati is located approximately 2.5 miles northeast of the Central Site. The Petaluma Municipal Airport is located approximately 8.5 miles southeast of the Central Site.

## Regulatory Framework

The regulatory settings for land use planning and agriculture are discussed below. The Countywide Integrated Waste Management Plan (CoIWMP) prepared pursuant to the California Integrated Waste Management Act, is discussed in Chapter 11, Public Services and Utilities (2011 Draft EIR).

### Land Use Planning

#### ***Sonoma County General Plan 2020***

The Central Site is located within the Petaluma and Environs Planning Area (Planning Area 8) of the General Plan (Sonoma County, 2008). Goals and policies specific to environmental issues areas discussed in this Draft EIR can be found in the regulatory section for each issue area. In addition, all General Plan policies were reviewed for potential inconsistencies after mitigation as discussed in Impact 28.2 below.

**Figure 28-1** presents Sonoma County General Plan land use designations for the Central Site and immediate vicinity. The Central Site has a General Plan Land Use Designation of Public/Quasi Public (PQP). The purpose of the PQP General Plan land use category is applied to sites “that serve the community or public need and are owned or operated by government agencies, non-profit entities or public utilities.” Permitted uses in the PQP category generally include waste disposal sites, sewage treatment plants, schools, parks, airports, hospitals among other public uses. Adjacent parcels are designated Land Extensive Agriculture.

#### ***Sonoma County Zoning Ordinance***

The Central Site is zoned Public Facilities (PF) with a B7 combining district. Details on the PF zoning are included in Chapter 9, Land Use and Agriculture (2011 Draft EIR). The B7 combining district specifies minimum parcel or lot size on the recorded final or parcel maps and specifies that lots shall not be further subdivided.

#### ***Federal Aviation Administration Advisory Circular for Hazardous Wildlife Attractants on or near Airports***

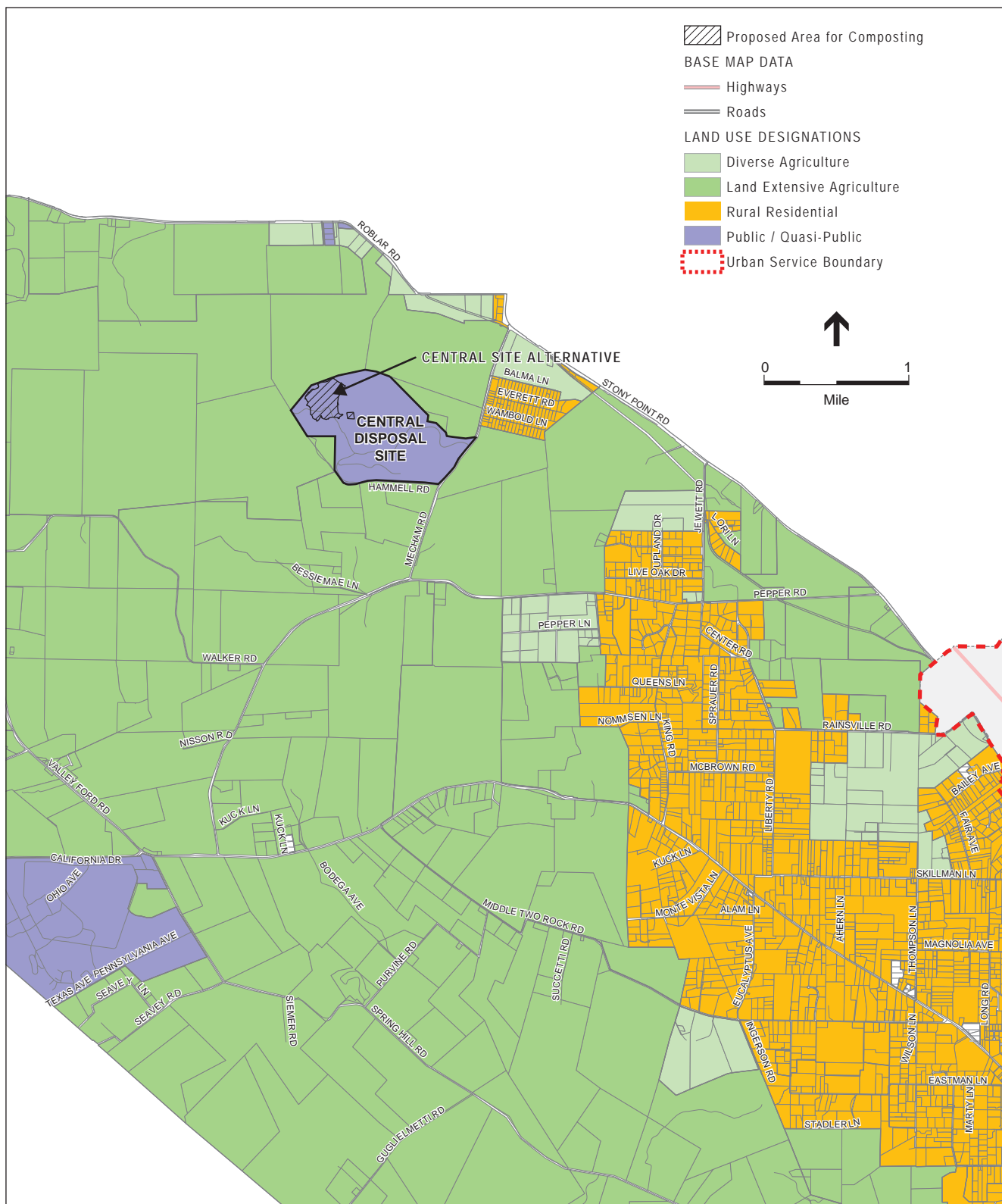
Federal Aviation Administration (FAA) Advisory Circular 150/5200-33B is discussed in Chapter 9 (2011 Draft EIR) including recommended distances of airports from composting operations. The Central Site is located outside of the 5-mile recommended separation for protection of approach, departure and circling airspace of nearby airports. The nearest airport is the Petaluma Municipal Airport, located approximately 8.5 miles southeast of the Central Site.

## Agriculture

#### ***California Land Conservation Act (Williamson Act)***

Chapter 9, Land Use and Agriculture (2011 Draft EIR), provides background information on the Williamson Act. The Central Site is not currently under a Williamson Act contract.





SOURCE: Sonoma County, 2008; and ESA, 2012

SCWMA Compost Facility EIR . 207312

**Figure 28-1**  
Central Site Land Use Map

***California Department of Conservation Farmland Mapping and Monitoring Program***

A summary of the Important Farmland Mapping and Monitoring Program (FMMP) is included in Chapter 9, Land Use and Agriculture (2011 Draft EIR). **Figure 28-2** provides a map of the FMMP classifications for the Central Site and surrounding vicinity. The proposed composting area within the Central Site contains land classified as Grazing Land, though the majority of the proposed composting area is classified as Urban and Built-Up Land. Areas surrounding the Central Site include Grazing Land and Farmland of Local Importance.

## **28.3 Impacts and Mitigation Measures**

### **Significance Criteria**

Refer to Chapter 9, Land Use and Agriculture, Section 9.3 (2011 Draft EIR) for significance criteria that are used in the impact analysis for the Central Site Alternative.

As with the project site, the Central Site is not located within the area of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan. Consequently, there would be no impact in regard to this criterion and accordingly, this issue is not discussed further.

### **Impact Discussion**

**Impact 28.1: The Central Site Alternative has the potential to physically divide an established community. (Less than Significant)**

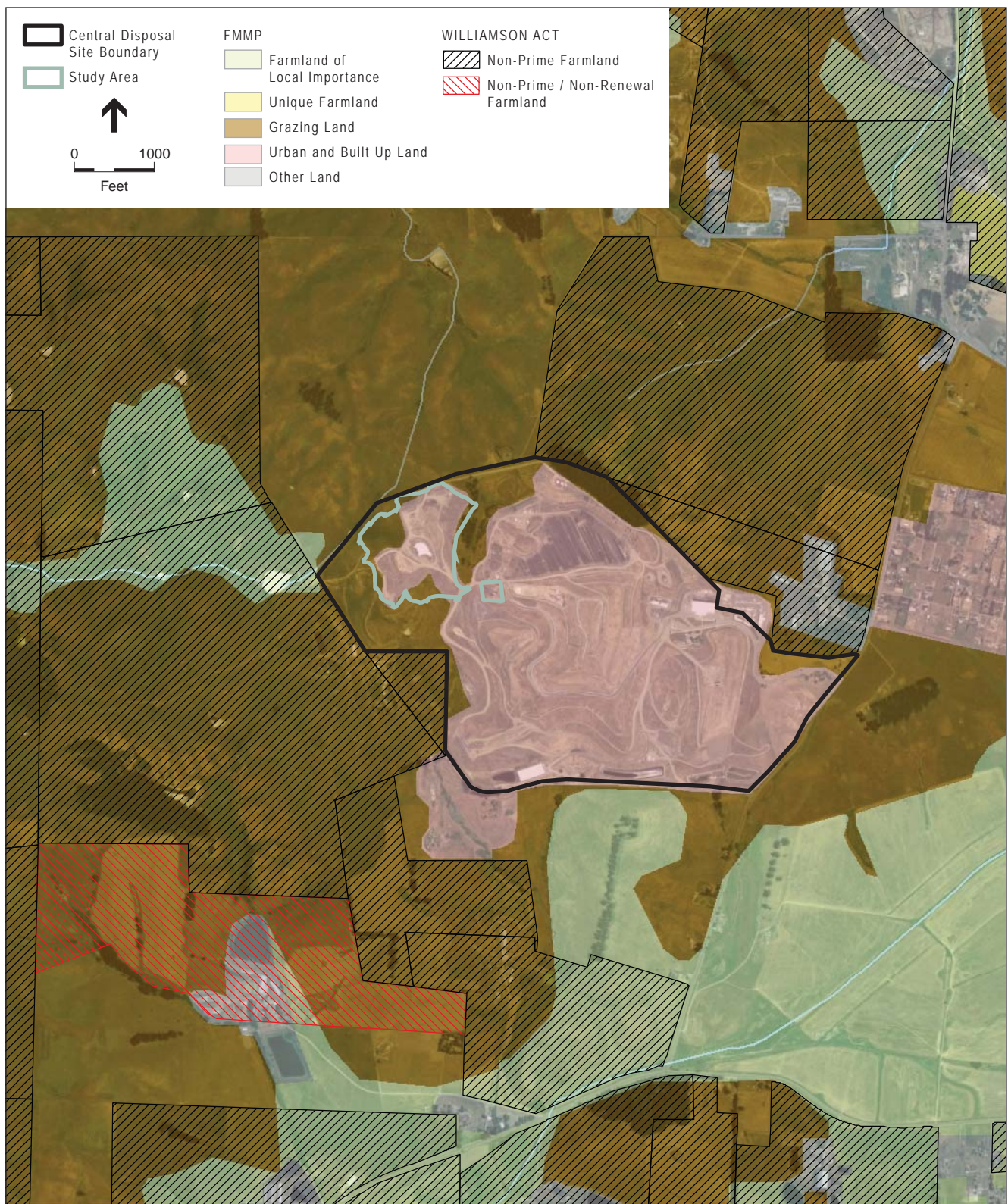
The Central Site Alternative would be located on a portion of the Central Disposal Site. The Central Site has a history of and currently supports similar uses to this alternative. The Central Site is surrounded by undeveloped parcels. Residential development increases to the northeast in proximity to the City of Cotati. The landfill does not create a physical barrier between residential areas or otherwise divide an established community; thus, impacts would be **less than significant**.

**Mitigation:** None Required.

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**Impact 28.2: The Central Site Alternative could conflict with the Sonoma County General Plan or Zoning Ordinance. (~~Less than Significant~~)**

The Central Site has a General Plan Land Use Designation of PQP and Zoning of PF which allows for the existing County compost operations and would allow for future similar uses. As this alternative does not propose a subdivision the alternative is consistent with the B7 zoning combining district.



SOURCE: Bing Maps, 2009; and ESA, 2012

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**Figure 28-2**  
 FMMP Land Classifications and  
 Williamson Act Contracts in the  
 Central Site Alternative Vicinity

The Sonoma County Permit and Resource Management Department conducted a General Plan consistency analysis (2011). The Central Site Alternative was found to be consistent with most policies of the General Plan. Water Resources Element Policy WR-2d states:

Continue the existing program to require groundwater monitoring for new or expanded discretionary commercial and industrial uses using wells. Where justified by the monitoring program, establish additional monitoring requirements for other new wells.

Monitoring of the groundwater well supplying the project in compliance with PRMD Policy 8-3-1 would be required as a condition of approval of any use permit to comply with this policy. The consistency analysis also discusses Objective OSRC-13.1 of the Open Space and Resource Conservation Element which relates to aggregate production. This Draft EIR assumes that the project would not sell aggregate and would not constitute a mining operation. Thus, the project would be consistent with the policy and objective discussed.

In most cases, the alternative would not conflict with the General Plan or Zoning Ordinance, however, as identified in Impact 29.2, the Central Site Alternative could expose persons to or generate noise levels in excess of standards in the General Plan. Therefore this consistency impact would be **significant and unavoidable**.

**Mitigation:** ~~None Required.~~ **Measure**

**Mitigation Measure 28.2:** Implement Mitigation Measures 29.2a through 29.2e to reduce operational noise impacts.

**Significance after Mitigation:** Significant and Unavoidable.

Implementation of Mitigation Measures 29.2 a through 29.2e would provide increased noise attenuation but not necessarily to a less than significant level. Noise levels could still occasionally exceed the standards in the General Plan.

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**Impact 28.3: The Central Site Alternative would result in the conversion of agricultural land, specifically Grazing Land. (Less than Significant)**

The Central Site would not result in any temporary or permanent conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as they are not located on the site, and thus LESA analysis was not conducted for the Central Site Alternative. The Central Site Alternative would result in the conversion of less than 15 acres of land containing the FMMP category of Grazing Land. Grazing Land is not included in the definition of “agricultural land” for the purpose of determining the significance of a potential impact (see Public Resources Code Section 21060.1(a)). In addition, ~~The~~ Central Site is not currently used for grazing. ~~and there~~ There are approximately 420,022 acres designated as potential grazing land within the County (California Department of Conservation, 2008). Thus, the alternative represents a conversion of approximately 0.004% of County Grazing Land to non-agriculture use. Although the project would reduce Grazing Land within Sonoma County by approximately 0.004%, it



would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. Therefore, this amount of conversion is considered **less than significant**.

**Mitigation:** None Required.

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**Impact 28.4: The Central Site Alternative would not conflict with an existing Williamson Act Contract. (No Impact)**

The Central Site Alternative does not contain land under a Williamson Act contract and thus there would be **no impact** under this alternative.

**Mitigation:** None Required.

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## 28.4 References

California Department of Conservation, 2008. California Farmland Conversion Report 2004-2006. Retrieved from: <http://www.consrv.ca.gov/dlrp/fmmp/pubs/2004-2006/Documents/2004-06%20Farmland%20Conversion%20Report.pdf>

Sonoma County, 2008. *Sonoma County General Plan 2020*. Sonoma County Permits and Resource Management Department, Sonoma, CA. Adopted by Resolution No. 08-0808 of the Sonoma County Board of Supervisors on September 23, 2008. Available at: <http://www.sonoma-county.org/prmd/gp2020/adopted/index.htm> .

Sonoma County Permit and Resource Management Department, 2011. General Plan Consistency Analysis – Central Site Alternative. April 18, 2011.



# **CHAPTER 29 (RECIRCULATED)**

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## **Noise/Central Site Alternative**

### **29.1 Introduction**

The information presented in this chapter is unique to the Central Site Alternative and the reader is referred to Chapter 10, Noise (2011 Draft EIR) in cases where noise setting information and/or impact analysis is the same for the Central Site Alternative.

### **29.2 Setting**

The setting section in Chapter 10, Noise (2011 Draft EIR) provides general setting information regarding noise and noise regulations in Sonoma County, the following sections provide noise setting information unique to the Central Site.

### **Sensitive Receptors**

Some land uses are considered more sensitive to ambient noise levels than others because of the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, hotels, schools, rest homes, and hospitals are generally more sensitive to noise than commercial and industrial land uses.

The Central Site is adjacent to the existing composting facility location. Sensitive receptors would be similar to the current scenario. The nearest potential sensitive receptors to the proposed Central Site Alternative would be residences approximately 500 feet northeast (Gray Property resident) and a farmhouse approximately 1,000 feet southwest. Residences along haul routes are sensitive receptors that could be affected by project-related traffic from construction and operations of a compost facility at the Central Site Alternative.

### **Blasting Noise and Vibration Terms and Principals**

The information below contains an overview of blasting terms and concepts that will help the reader to understand information presented in the Impacts section.

When explosive charges detonate in rock, they are designed so that most of the energy is used in breaking and displacing the rock mass. However, some of the energy can also be released in the form of transient stress waves, which in turn cause temporary ground vibration. Detonating charges also create rock movement and release of high-pressure gas, which in turn induce air-overpressure (blast noise), airborne dust and audible blast noise.

## Vibration Perception and Damage Criteria

The average person is quite sensitive to ground motion, and levels as low as 0.50 millimeters per second (mm/s) (equivalent to 0.02 inches per second [in/s]) can be detected by the human body when background noise and vibration levels are low. Vibration intensity is expressed as Peak Particle Velocity (PPV), which is simply the maximum speed that the ground moves while it temporarily shakes. Since ground-shaking speeds are very small, it is measured in inches per second (in/s). Frequency of motion or cycles per second is a measure of how many times a particle of ground moves back and forth (or up and down) in one second of time. Frequency is expressed in units of Hertz (Hz).

## Blast Noise (Air-Overpressure)

The term “blast noise” is a misleading because the largest component of blast-induced noise occurs at frequencies below the threshold-of-hearing for humans (16 to 20 Hz). Hence, the common industry term for blast-induced noise is “air-overpressure.” As its name implies, air-overpressure is a measure of the transient pressure changes. These low-intensity pulsating pressure changes, above and below ambient atmospheric pressure, are manifested in the form of acoustical waves traveling through the air.

When calculating maximum overpressure values, the absolute value of the greatest pressure change is used — regardless of whether it is a positive or negative change. The frequency of the overpressure (noise) is determined by measuring how many up-and-down pressure changes occur in one second of time. Blast noise occurs at a broad range of frequencies and the highest-energy blast noise usually occurs at frequencies below that of human hearing (<20 Hz).

When measurements include low frequency noise (2 Hz and higher) with a flat response, they are called “linear scale” measurements. Air-overpressure measurements are typically expressed in dB units and when the scale is linear, the unit designation is “dBL.” Regular acoustical noise measurements taken for the purpose of monitoring compliance with local noise ordinances almost always use weighted scales that discriminate against low frequency noise. Thus for a similar noise source, A-weighted and C-weighted scales will usually record significantly lower levels of noise. Differences between decibel scale measurements for individual blasts will vary depending on their unique frequency-intensity spectrums. Since full-range recording of blast-induced noise can only be done with linear (2-Hz response) instruments, it is imperative that all compliance specifications for blast-induced noise be expressed in dBL.

The regulatory limit defined by USBM, in State of California regulations, for air-overpressure measured with 2-Hz response seismographs is 133-dBL (0.014 psi). Damage to old or poorly glazed windows does not occur until air-overpressure reaches about 150 dBL. More importantly, since the decibel scale is a logarithmic ratio, the actual overpressure at 150 dBL is 0.092 psi, versus 0.013 psi at 133 dBL. Therefore, the actual pressure at the 133 dBL limit, is over seven times (0.0917/0.0129) lower than the threshold damage level at 150 dBL.



## Existing Noise Environment

The Central Site would be adjacent to the northwestern border of the existing composting site. The noise environment surrounding the Central Site would be similar to the existing operations site.

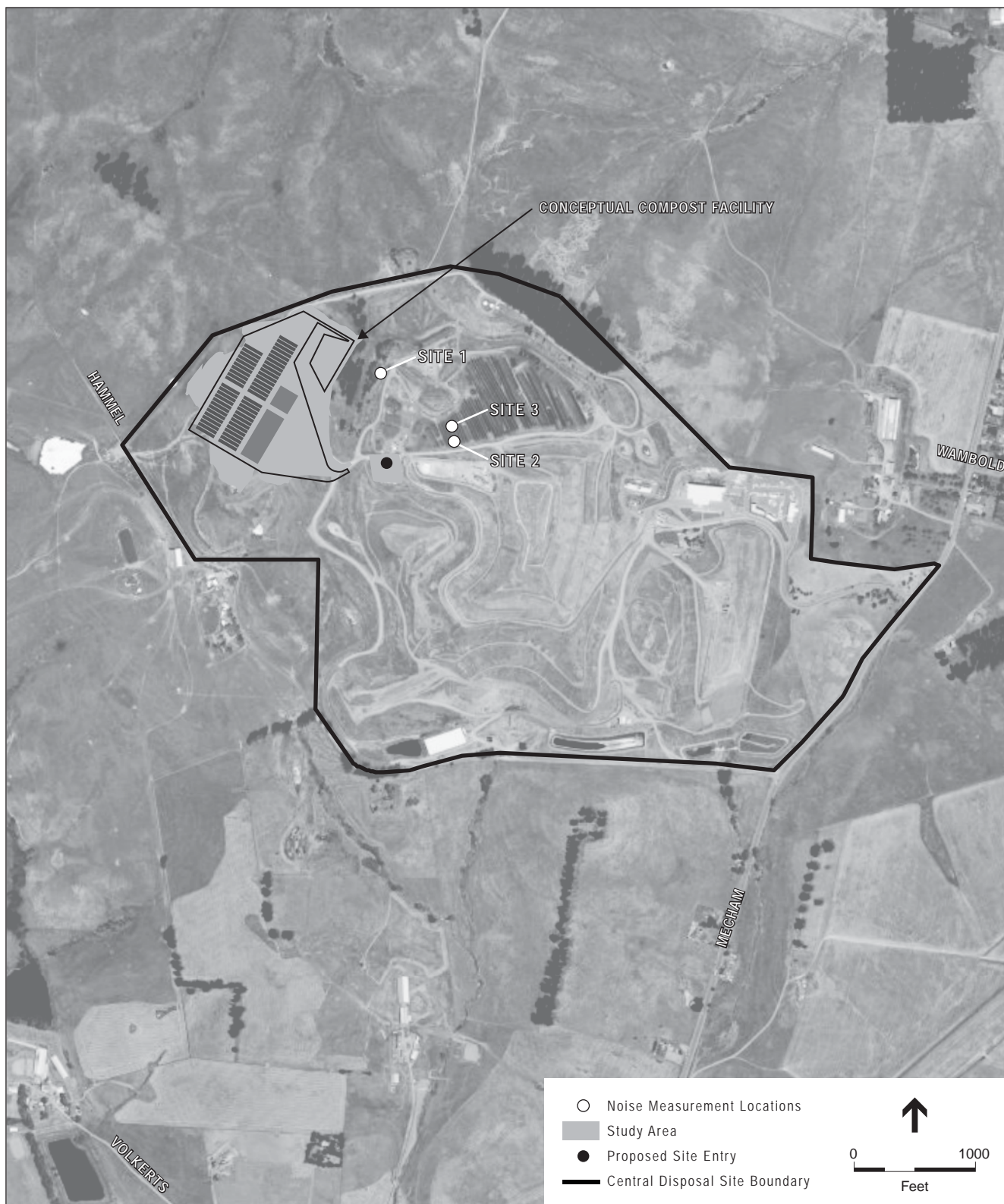
In order to characterize the existing operations environment at Sonoma Compost, Inc., short term and 24-hour noise measurements were conducted April 14<sup>th</sup> thru April 17, <sup>th</sup> 2009. These measurements were taken during the initial draft evaluation for Site 5A at the existing countywide compost site (Sonoma Compost, Inc). **Table 29-1** was extracted from **Table 10-2** and presents noise data for the exiting compost site. The locations of the noise measurements are shown in **Figure 29-1**. Noise plots of the Central Site long-term measurements are shown in **Figure 29-2** and **Figure 29-3**.

**TABLE 29-1**  
**SOUND-LEVEL MEASUREMENTS AT EXISTING FACILITY**

Location	Time Period	Leq(dBA)	Noise Sources
<u>Site 1.</u> Sonoma Compost, Inc. 340 Feet NW of Greenwaste Storage and Grinding Area	24– hour CNEL measurements were: Wed. Apr. 15: 67 dBA Thurs. Apr. 16: 57 dBA	Hourly Average Leq range: Apr 15: 44 – 73 Apr. 16: 44 - 61	Unattended noise measurements do not specifically identify noise sources.
<u>Site 1.</u> Sonoma Compost, Inc. 340 Feet NW of Greenwaste Storage and Grinding Area	Tues. April 14 11:38 – 11:48 a.m.	5-minute results: Leq's = 73, 73	Grinder 73 – 74 dBA Loader, Water truck
<u>Site 1.</u> Sonoma Compost, Inc. 340 Feet NW of Greenwaste Storage and Grinding Area	Fri. April 17 9:58 – 10:08 a.m.	5-minute results: Leq's = 72, 70	Grinding and loading equipment 70 dBA, Truck leaving site
<u>Site 2.</u> Sonoma Compost, Inc. 17 Meters from screen exhaust	Fri. April 17 11:07 – 11:12 a.m.	5-minute result: Leq = 75	Screen operation 73 – 75 dBA, Loader dumping material 75.5 dBA
<u>Site 3.</u> Sonoma Compost, Inc. Near Existing site on top of windrow parallel to scarab	Fri. April 17 11:16 – 11:18 a.m.	2-minute result: Leq = 77	Scarab at approximately 25 feet, 76 dBA

a All noise levels measured in decibels (dBA). Noise measurement data presented here using a Metrosonics dB-308 sound level meter, calibrated prior to use.

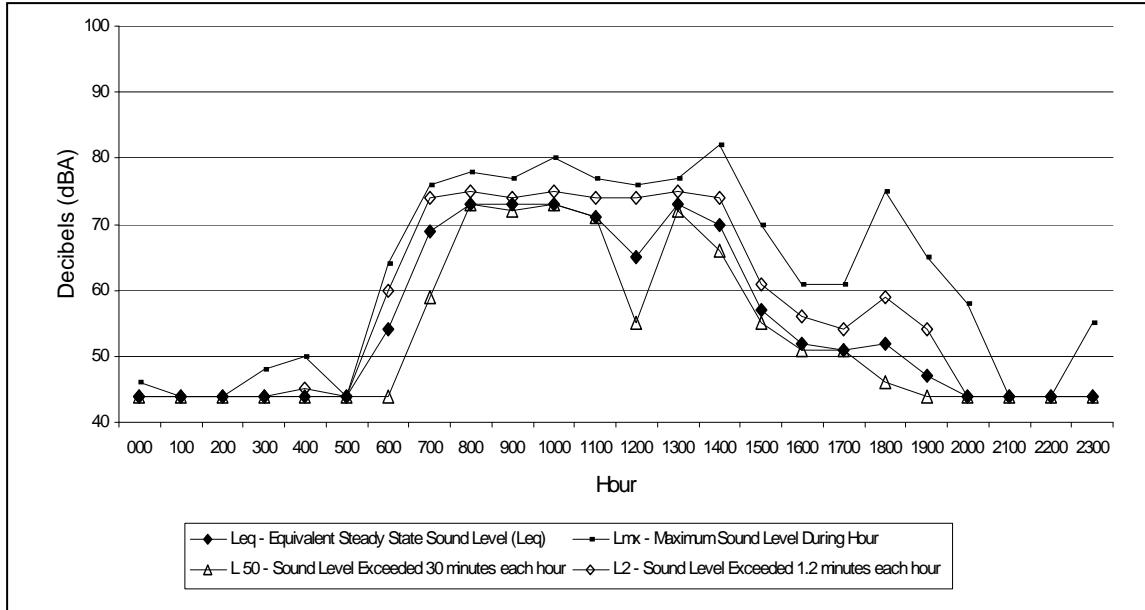
As shown in **Table 29-1**, the measured noise levels at Sonoma Compost, Inc. had hourly averages that range from 44 to 73 decibels (dBA). Noise levels at Sonoma Compost, Inc. are primarily a function of the distance from the existing equipment and trucks, with the higher noise averages occurring during operation hours, and the lowest noise levels occurring during the nighttime hours. There are few other noise sources in the vicinity of Sonoma Compost, Inc.



SOURCE: Bing Maps, 2009; and ESA, 2010

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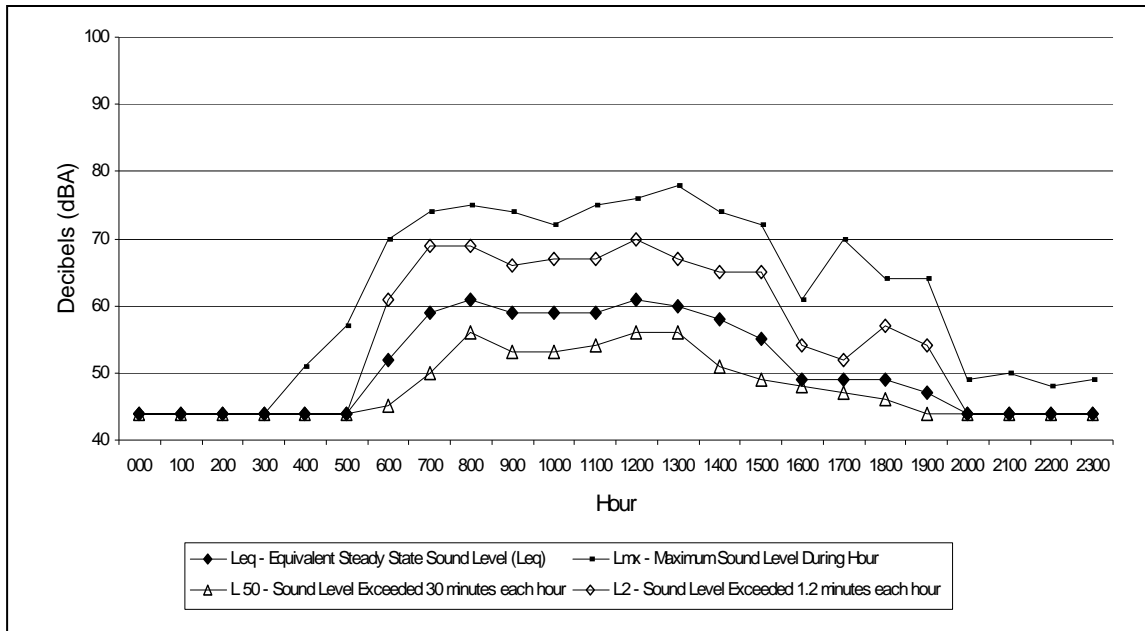
**Figure 29-1**  
Long and Short Term  
Noise Measurement Locations



SCWMA Compost Facility. 207312

**Figure 29-2**

Site 1: 340 Feet NW of Existing Compost Site  
Wednesday April 15, 2009



SCWMA Compost Facility. 207312

**Figure 29-3**

Site 1: 340 Feet NW of Existing Compost Site  
Thursday April 16, 2009

## 29.3 Impacts and Mitigation Measures

### Significance Criteria

Refer to Chapter 10, Noise, Section 10.3 (2011 Draft EIR) for significance criteria that are used in the analysis of noise impacts for the Central Site Alternative.

### Impact Discussion

**Impact 29.1: Construction at the Central Site Alternative could expose persons to or generate excessive noise levels. (Significant)**

Construction activity noise levels at and near the construction areas would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Construction-related material haul trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. **Table 29-2** shows typical noise levels during different construction stages. **Table 29-3** shows typical noise levels produced by various types of construction equipment.

Noise from construction activities generally attenuates at a rate of 6 to 7.5 dBA per doubling distance. Based on the proposed Central Site layout and terrain, an attenuation of 7.5 dBA will be assumed because the site is consistent with the characteristics of a “soft site.” The closest sensitive receptor would be the Gray residence approximately 500 feet from construction areas. However, the topography of the land would provide additional noise attenuation to this receptor. Residences along haul routes would also be exposed to increased traffic levels due to trucks around the Central Site Alternative. Construction traffic would not double the existing traffic in the area of the Central Site Alternative.

~~Build out of the Central Site Alternative would occur in two phases. Construction of the Central Site Alternative Both phases~~ would result in extensive grading and substantial truck trips ~~(approximately 32 trucks per day for Phase I and 92 trucks per day for Phase II)~~. The doubling of a moving noise source produces only a 3 dBA increase in sound pressure level which is barely detectable by the human ear (Caltrans, 2009). Construction would be temporary; approximately one year. The Central Site Alternative would only include the positive pressure ASP processing option due to limited space.

**Table 29-2** shows that excavation and finishing are the loudest phases of construction; the noise from these phases of construction activities would be up to 89 dBA at a reference distance of 50 feet. If attenuated out to 500 feet, this receptor would experience noise levels of approximately 64 dBA during finishing and excavation, the loudest of construction activities that would occur.

**TABLE 29-2  
TYPICAL CONSTRUCTION NOISE LEVELS<sup>a</sup>**

<b>Construction Phase</b>	<b>Noise Level<sup>a</sup> (dBA, Leq)</b>
Ground clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

a. Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

SOURCE: U.S. Environmental Protection Agency, Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, 1971.

**TABLE 29-3  
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT**

<b>Construction Equipment</b>	<b>Noise Level<sup>a</sup> (dBA, Leq at 50 Feet)</b>
Dump truck	88
Portable air compressor	81
Concrete mixer (truck)	85
Scraper	88
Jackhammer	88
Dozer	87
Paver	89
Generator	76
Backhoe	85
Rock Drilling	98

a. Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

SOURCE: Bolt, Baranek, and Newman, 1971; Cunniff, 1977.

Sonoma County generally decides upon daytime construction hours on a case-by-case basis. No construction noise thresholds exist as long as the construction is temporary. Without hourly restrictions on construction activities, noise from construction activities would be considered **significant**.

### **Mitigation Measure**

**Mitigation Measure 29.1:** Implement Mitigation Measure 10.1 (2011 Draft EIR).

**Significance after Mitigation:** Less than significant.

**Impact 29.2: Operation of the Central Site Alternative composting facility could expose persons to or generate noise levels in excess of standards established in the local general plans or noise ordinances, or applicable standards of other agencies. (Significant)**

The loudest equipment that would be in operation at the project site would be the grinder and ~~bulldozer~~ front-end loader. Equipment could operate continuously, but would be dependent on volume of incoming material (for grinder operations) and need to move materials (for loader operations). Chapter 24, Air Quality, assumed that for existing throughput, the front-end loaders and grinder operate an average of approximately 2.6 hours per day and 2.4 hours per day, respectively, and that the number of equipment would double in proportion to the doubled material throughput at maximum operations. The noise levels generated by the loudest expected operations equipment are shown in **Table 29-4**.

**TABLE 29-4  
DAYTIME NOISE LEVELS ASSOCIATED WITH PROJECT OPERATIONS AT THE NEAREST RECEPTORS**

Equipment	Reference Noise Level	Distance to Nearest Receptor	Maximum Noise Level of Equipment at Nearest Receptor (dBA)	Does equipment violate County daytime 30-Minute Standard (dBA)?	Attenuation needed to meet Standard
Grinder <sup>a</sup>	77 dBA at 200 feet	500	67	Yes	17 dBA
Grinder <sup>a</sup>	77 dBA at 200 feet	1000	60	Yes <sup>c</sup>	10 dBA
<del>Bulldozer</del> <sup>b</sup> oader <sup>b</sup>	<del>87-85</del> dBA at 50 feet	500	<del>62</del> <u>60</u>	Yes	<del>42-10</del> dBA
<del>Bulldozer</del> <sup>b</sup> oader <sup>b</sup>	<del>87-85</del> dBA at 50 feet	1000	<del>55</del> <u>53</u>	Yes <sup>c</sup>	<del>5-3</del> dBA

a. This reference noise level derives from multiple measurements from separate projects with similar conditions and equipment. The highest noise levels produced were used as reference levels providing the most conservative level available.

b. Reference noise level provided by Gunniff, 1977; Federal Transit Administration, 2006.

c. Although the noise levels from the equipment at 1,000 feet would exceed the Sonoma County General Plan noise standards based on distance alone, a ridge would further attenuate noise levels up to 8-10 dBA.

As seen in **Table 29-4** above, the residence closest to the grinder would result in levels of approximately 67 dB, at a distance of 500 feet. At this level, equipment would exceed the 30-minute ( $L_{50}$ ) daytime standards and would be considered a **significant** impact. Notably, the  $L_{50}$  standard is more restrictive than the County  $L_{25}$ ,  $L_8$ , and  $L_2$  standards. As indicated in Table 10-1 of the Draft EIR the daytime standard for  $L_{50}$  is 50 dBA. The standards are 55 dBA for up to 15 minutes in an hour ( $L_{25}$ ), 60 dBA for up to 5 minutes in an hour ( $L_8$ ) and 65 dBA for up to 1 minute in an hour ( $L_2$ ). Less attenuation would be needed to meet these standards ( $L_{25}$ ,  $L_8$  and  $L_2$ ) than the  $L_{50}$  30-minute standard (50 dBA).

In the case of aerated static piles (ASP), large blowers (fans) would push and/or pull the air through the piles. These blowers (fans) may operate 24 hours per day, although positive pressure systems (push fans) can be very intermittent with long off cycles. A ducting system would be used to direct air flows. Accurate noise levels during operation are unknown as the ASP details are conceptual and several types of systems by different vendors could be selected. A study documenting an ASP system contends that generation of noise from the is not a major issue as small 3 horse-power aeration blowers, a shop-sized air compressor, and a 15 horse-power exhaust fan were components of the

aeration system “would not generate appreciable noise” (Carter & Burgess, 2004). In the case of an ASP system, blowers are not expected to be as loud as the grinder or ~~loaders~~ ~~bulldozers~~, but they would operate intermittently or continuously 24 hours a day and in the case of nighttime operations, would be subject to the lower nighttime standards, of 45 dBA. Depending on various factors the blowers could exceed 45 dBA at night at the nearest receptor if not adequately attenuated. Without mitigation, operational noise at the Central Site would be considered a **significant** impact.

### **Mitigation Measures**

**Mitigation Measure 29.2a:** Implement Mitigation Measure 10.2 (ASP equipment control) (2011 Draft EIR).

**Mitigation Measure 29.2b:** The site design shall include sound walls or earthen berms and/or other sound insulating features (i.e., sound blankets or curtains) that would block the line of sight to the nearest sensitive ~~residences~~ ~~receptors~~ to the northeast and the south.

**Mitigation Measure 29.2c:** Operational equipment noise shall be minimized by muffling and shielding intakes and exhaust on equipment (per the manufacturer’s specifications).

**Mitigation Measure 29.2d:** The applicant shall keep the noisiest equipment operations away from the nearest residence as much as feasible.

**Mitigation Measure 29.2e:** The applicant shall fund appropriate sound insulation upgrades to the nearest residences, if residents are amenable to installing window/wall and/or door upgrades.

**Significance after Mitigation:** Significant and Unavoidable.

Implementation of Mitigation Measures ~~29.2 a, b and c~~ through 29.2e would provide increased noise attenuation, but not necessarily to a less than significant level at the nearest residence for exterior noise generated by grinder and loader operations. Noise levels could still occasionally exceed the requirements in County Table NE-2.

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### **Impact 29.3: Traffic associated with operation of the Central Site Alternative could result in an increase in ambient noise levels on nearby roadways used to access the project site. (Less than Significant)**

The Central Site Alternative would generate new motor vehicle trips on the local road network associated with the potential for an approximate ~~20 percent doubling increase~~ increase in operations by 2030. It is foreseeable that this ~~could~~ will correlate to a ~~20 percent doubling increase~~ increase in truck traffic associated with composting operations, in comparison to existing composting operations. Truck trips could begin as early as 7:00 a.m. These trips would be distributed over the existing local road network and would affect roadside noise levels at sensitive receptor locations.

To assess the impact of project traffic on roadside noise levels, noise level projections were made using the Federal Highway Administration's (FHWA) TNM Lookup 2.5 model for those road segments that would be used by the haul trucks and other vehicles (as determined in the Chapter 31, Traffic and Transportation) that would pass by sensitive receptors. The results of the modeling effort are shown in **Table 29-5**, below. The traffic volumes used for the modeling effort are morning weekday peak-hour volumes and weekend peak periods during periods when the compost facility is operating at peak production. Estimated noise levels under various Central Site Alternative scenarios are shown in **Table 29-5**. In analyzing the effects of traffic noise, the general rule is applied that in areas where traffic dominates the noise environment, the Leq during the peak-hour is roughly equivalent (within about 2 dBA) to the CNEL at that location (Caltrans, 1998).

As shown in **Table 29-5**, the Central Site Alternative traffic would cause a minimal permanent increase in noise levels (all less than 3 dBA) at locations near the Central Site Alternative vicinity. See the two columns in that table identified as "Incremental Increases from the Alternative". This impact would be considered **less than significant**. Notably, the County has already retrofitted 12 homes along Mecham Road with window and/or air conditioning improvements and has also developed sound walls/fences along 10 segments of Stony Point Road to minimize traffic noise.

**Mitigation:** None required.

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**TABLE 29-5**  
**AM PEAK-HOUR TRAFFIC NOISE LEVELS ALONG ROADWAYS IN THE CENTRAL SITE ALTERNATIVE VICINITY**

Roadway Segment <sup>1, 2</sup>	AM and Saturday Peak-Hour Noise Level, dBA, Leq									
	Existing (A)	Existing plus Alternative (B)	Incremental Increase from Alternative (B - A)	Significant? (Yes or No) <sup>3</sup>	Cumulative 2030 No Alternative (C)	Cumulative 2030 plus Alternative (D)	Incremental Increase (D-A)	Significant? (Yes or No) <sup>3</sup>	Incremental Increase from Alternative (D-C)	Cumulatively Considerable? (Yes or No) <sup>3</sup>
Stony Point north of SR 116	<del>65.6</del> 70.4	<del>70.4</del> 65.6	0.0	No	<del>69.7</del> 74.5	<del>69.7</del> 74.5	4.1	Yes	0.0	No
Stony Point north of SR 116 (Saturday)	<del>66.5</del> 71.8	<del>66.5</del> 71.8	0.0	No	<del>67.9</del> 73.3	<del>67.9</del> 73.3	1.54	No	0.0	No
Stony Point south of SR 116	<del>67.3</del> 72.0	<del>67.4</del> 72.0	0.40	No	<del>70.5</del> 75.3	<del>70.6</del> 75.4	<del>3.3</del> 3.4	Yes	0.1	No
SR 116 east of Stony Point	<del>67.4</del> 72.1	<del>67.4</del> 72.1	0.0	No	<del>70.9</del> 74.7	<del>70.9</del> 74.8	<del>2.6</del> 2.7	No	<del>0.0</del> 0.1	No
SR 116 west of Stony Point	<del>68.2</del> 73.0	<del>68.2</del> 73.0	0.0	No	<del>70.7</del> 75.5	<del>70.7</del> 75.5	<del>2.5</del> 2.5	No	0.0	No
Stony Point north of Mecham Rd.	<del>66.9</del> 71.7	<del>67.0</del> 71.7	0.04	No	<del>69.9</del> 74.6	<del>69.9</del> 74.8	<del>3.0</del> 3.1	Yes	<del>0.0</del> 0.2	No
Stony Point south of Mecham Rd.	<del>65.8</del> 70.5	<del>65.8</del> 70.5	0.0	No	<del>68.8</del> 73.6	<del>68.9</del> 73.7	<del>3.4</del> 3.2	Yes	<del>0.4</del> 0.1	No
Mecham Rd. west of Stony Point	<del>62.3</del> 64.6	<del>62.6</del> 64.6	0.03	No	<del>64.9</del> 67.1	<del>65.1</del> 67.7	<del>2.8</del> 3.1	<del>No</del> Yes	<del>0.2</del> 0.6	No
Mecham Rd. north-east of Site Access	<del>61.8</del> 64.0	<del>62.4</del> 64.0	0.03	No	<del>63.9</del> 66.5	<del>63.2</del> 67.1	<del>4.4</del> 3.1	<del>No</del> Yes	<del>0.2</del> 0.6	No
Mecham Rd. north-east of Site Access (Saturday)	<del>62.5</del> 65.7	<del>63.4</del> 65.7	0.06	No	<del>63.9</del> 66.3	<del>64.4</del> 67.3	<del>4.9</del> 1.6	No	<del>0.5</del> 1.0	No
Mecham Rd. south-west of Site Access	<del>60.9</del> 63.1	<del>60.6</del> 63.1	0.0	No	<del>65.9</del> 66.0	<del>65.9</del> 66.0	<del>5.9</del> 0.0	<del>Yes</del> No	0.0	No
Site Access west of Mecham Rd.	<del>55.4</del>	<del>57</del>	<del>4.9</del>	<del>No</del>	<del>55.4</del>	<del>57</del>	<del>4.9</del>	<del>No</del>	<del>4.9</del>	<del>No</del>

1. Road center to receptor distance is 15 meters (approximately 50 feet) for values shown in this table. Noise levels were calculated using the FHWA Traffic Noise Prediction Model (FHWA TNM) LookUp Program Software Version 2.1, 2007. Look-Up data generated by TNM Version 2.5. Prepared by US Department of Transportation, Research and Innovative Technology Administration, Volpe National Transportation Systems Center, Environmental Measurement and Modeling Division.

2. Vehicle mix based on existing truck percentages from the Transportation Section with the addition of project vehicle trips. The speed limit for these segments was assumed to be **55 for Stony Point and SR 116, 45 for Mecham Rd., and 20 miles per hour for the Site Access Road.**

3. Considered significant if the incremental increase in noise is greater than 3 dBA. and results in noise levels above those considered compatible with County Noise Goals (NE-1b). An increase of 3 dBA typically represents a noticeable increase in noise.

SOURCE: ESA, 20102012

**Impact 29.4: Blasting that would occur under the project would generate temporary airborne and groundborne noise and vibration. (Significant).**

Blasting would be required during construction for development of the Central Site Alternative. All blasting would be conducted in compliance with applicable federal and State blasting regulations. Blasting would be conducted by a qualified blasting expert pursuant to a blasting plan. The nearest permanent structure would be the residence approximately 400 feet to the northwest of potential blasting areas. Other structures at the existing Sonoma Compost facility could be at risk from blast impact at times prior the closure of the existing Sonoma Compost facilities. There is also concern for any landfill infrastructure that could be affected by blast vibrations. Without mitigation this impact would be potentially significant.

**Mitigation Measures**

**Mitigation Measure 29.4a:** A site specific blasting plan shall be prepared. The blasting plan shall ensure that ground motions do not exceed 0.5 in/s at the nearest residence and determine the appropriate vibration threshold for nearby structures at the time of the blasting.

**Mitigation Measure 29.4b:** The blasting plan shall require monitoring of ground vibration and air-overpressure at a minimum of two locations to ensure these effects remain under threshold levels. One location should be close to the nearest residential property. The second monitoring point should be the adjacent landfill property.

**Mitigation Measure 29.4c:** Blasting shall be limited to the same daytime hour restrictions that apply to the Central Disposal Site Landfill (s-the permitted blasting times are between 4:30 and 5:30 10:00 a.m. and 4:00 p.m.).

**Mitigation Measure 29.4d:** A blasting permit shall be obtained from the Sonoma County Sheriff's Department prior to any blasting.

**Mitigation Measure 29.4e:** Discuss the blast monitoring program with the stakeholders in the project area that could be affected by blasting vibration. Educate property owners as to what is being done and why. Obtain information on time periods that are sensitive to blast activity.

**Mitigation Measure 29.4f:** Conduct a pre-blast survey to determine the condition of existing structures, and to alert homeowners that some rattling may be expected but damage is not expected. Contacts should be provided so that damage claims and complaints can be monitored and responded to quickly.

**Mitigation Measure 29.4g:** Schedule blasts to occur at approximately the same time on each blast day. Include this information in public announcements.

**Mitigation Measure 29.4h:** The blast plan shall require sequential detonating of charges to minimize potential noise from blasting.

**Mitigation Measure 29.4i:** Implement Hydrology and Water Quality Mitigation Measure 27.1b, which limits blasting to situations where a D8 bulldozer cannot loosen the rock to be removed and requires blasting to be conducted by licensed certified personnel.

**Significance after Mitigation:** Less than Significant.

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**Impact 29.5: Increases in traffic from the Central Site Alternative in combination with other development would result in cumulative noise increases. (Less than Significant)**

A cumulative impact arises when two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant impacts, meaning that the project's incremental effects must be viewed in connection with the effects of past, current, and probable future projects.

To assess the cumulative impact of the Central Site Alternative traffic on roadside noise levels, noise level projections were made using the FHWA TNM Version 2.5 (2007). The cumulative traffic alone, which includes landfill traffic but excludes (without the Central Site Alternative traffic), will produce a significant increase in traffic noise levels without the implementation of the Central Site Alternative. Five roadway segments in **Table 29-5** indicate an increase of greater than 3 dBA for the cumulative plus Alternative condition. However the contribution from the traffic from the Central Site Alternative would have minimal effect on the future conditions. Thus, the incremental noise increases from the Central Site Alternative would not be cumulatively considerable and would have a **less than significant** cumulative impact on noise.

**Mitigation:** None required.

## 29.4 References

- Acker, Crystal, Environmental Specialist, Sonoma County Permit and Resource Management Department, telephone conversation, April 15, 2010.
- Caltrans, Technical Noise Supplement, 1998.
- Caltrans, Technical Noise Supplement, 2009.
- Carter & Burgess, Composting Design Narrative, November 2004. Accessed online April 7<sup>th</sup>, 2010: [http://www.cityhs.net/pdfs/pw/utilities/compost\\_design\\_narrative.pdf](http://www.cityhs.net/pdfs/pw/utilities/compost_design_narrative.pdf)
- Cunniff, Patrick, *Environmental Noise Pollution*, 1977.
- Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.
- FHWA Traffic Noise Prediction Model (FHWA TNM) LookUp Program Software Version 2.1, 2007. Look-Up data generated by TNM Version 2.5. Prepared by US Department of Transportation, Research and Innovative Technology Administration, Volpe National Transportation Systems Center, Environmental Measurement and Modeling Division.
- Sonoma County, *General Plan 2020 Noise Element*, September, 2008.
- Sonoma County Permit and Resource Management Department, Sonoma County Central Disposal Site Rock Extraction Project, Final Environmental Impact Report. July, 1998.
- U.S. Environmental Protection Agency, Bolt, Beranek, and Newman, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, 1971



## **CHAPTER 30 (RECIRCULATED)**

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### **Public Services and Utilities/Central Site Alternative**

#### **30.1 Introduction**

The information presented in this chapter is unique to the Central Site Alternative and the reader is referred to Chapter 11, Public Services and Utilities (2011 Draft EIR), in cases where public services and utilities setting information and/or impact analysis is the same for the Central Site as the project site.

#### **30.2 Setting**

##### **Water**

The Central Site is located at the Central Disposal Site which obtains water from an on-site well. The nearest public water supplier is Sonoma County Water Agency, which provides water to several areas of Sonoma County including the City of Cotati, northeast of the Central Site.

##### **Wastewater**

Residences and businesses in the vicinity of the Central Site utilize private wastewater treatment such as septic systems. The nearest municipal wastewater service is provided by the City of Cotati.

##### **Solid Waste**

The solid waste setting discussion is the same as that discussed in Chapter 11, Public Services and Utilities (2011 Draft EIR), for the project site.

##### **Electricity, Natural Gas, and Propane**

The Central Project Site receives its electricity from onsite generation of electricity from the Landfill Gas-To-Energy Plant with back-up power provided by PG&E. ~~As with the project site,~~ electrical service is provided to the area by Pacific Gas and Electric Company (PG&E). No natural gas service is provided to the Central Site. Propane gas delivery service is provided by several private companies in the area.

## Police

Law enforcement services to Central Site are provided by the Sonoma County Sheriff's Office with law enforcement along state routes provided by the California Highway Patrol. As with the project site, the Central Site is located within Sheriff's Office Zone 5. Chapter 11 (2011 Draft EIR) provides additional background on these law enforcement agencies.

## Fire Protection

Central Site fire protection and emergency medical services are provided by Rancho Adobe Fire Protection District (FPD). The FPD provides service to approximately 86 square miles of Sonoma County including the Town of Penngrove, City of Cotati and unincorporated areas of Petaluma.

The FPD is a combination fire district which includes full-time paid staff, part-time firefighters, volunteer firefighters and volunteer support. There are 15 full-time staff, 15 part-time firefighters, 6 volunteer firefighters, 1 part-time fire chief and an administrative assistant (Rancho Adobe FPD, 2010).

The FPD has three fire stations at the following locations:

- #1 East Cotati Avenue in Cotati
- 11000 Main Street in Penngrove
- 99 Liberty School Road in the unincorporated Petaluma area

The station on Liberty School Road is the closest station, approximately 3 miles southeast of the Central Site. The Central Site has a moderate risk associated with wildfire hazards (California Department of Forestry and Fire Protection, 2007). The nearest hospital that to the Central Site is Petaluma Valley Hospital, located approximately 7.5 miles southeast of the Central Site.

## Schools, Parks, Libraries

Schools in the vicinity of the Central Site include Dunham Elementary school, located approximately one mile north of the Central Site. There are no parks, recreation facilities or libraries within two miles of the Central Site.

## 30.3 Impacts and Mitigation Measures

### Significance Criteria

The significance criteria used for the Central Site analysis are the same as those used for the project site and discussed in Chapter 11, Public Services and Utilities (2011 Draft EIR).

The Central Site would not be served by municipal providers for potable water or ~~wastewater service~~ or affect existing providers of ~~these~~ wastewater supply services, thus there would be no impact to potable water or ~~wastewater~~ service providers related to the construction of new water or ~~wastewater~~

infrastructure. For impacts related to groundwater supply and wastewater discharge, see Chapter 27 (Hydrology and Water Quality). Since the project does not propose to add schools, parks or libraries and the project would not increase demands on these kinds of facilities, there would be no impacts to public schools, parks or libraries. The compost facility would be required to comply with CalRecycle regulations regarding composting operations found at Title 14, Chapter 3.1. Thus, the project would comply with regulations related to solid waste. As the project would have no effect on these issues, they are not discussed further in this document.

## Impact Discussion

### **Impact 30.1: The Central Site Alternative would generate solid waste which would require disposal at a landfill. (Less than Significant)**

The primary source of solid waste requiring disposal at the project would be residual waste within arriving feedstocks which could not be composted. These materials are currently sent to landfills and thus they do not represent a new waste stream. Employees and general administrative functions would generate a minor amount of trash which would require disposal. However, the project overall would result in a net reduction in the amount of solid waste sent to landfill due to the removal of compostable materials from the existing waste stream. This would result in additional capacity at landfills utilized by Sonoma County and thus would be **less than significant**.

**Mitigation:** None Required.

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### **Impact 30.2: The Central Site Alternative and implementation of certain mitigations, would increase energy demands. (Less than Significant)**

The Central Site Alternative would generate energy demands primarily in the form of electricity, propane, and petroleum based fuels (e.g., diesel and gasoline) from operation of buildings (e.g., lighting and heating/cooling), stationary processing equipment (e.g., grinders, blowers, etc.), and portable equipment (e.g., loaders, water trucks, forklifts, haul trucks, etc.). The specific electricity requirements of this alternative would be determined by PG&E after the operator submits a formal application for service. At that time, PG&E would review the application and identify what additional on- and/or off-site requirements would be needed to deliver electrical service to the site. This alternative would likely utilize electric appliances or propane gas for heating.

For the purposes of this CEQA review, it is estimated that ~~by 2019 the project~~ Central Site Alternative would require a total of 689 MWh/yr during initial operation, and that this value would increase in annual electrical demand of approximately 710 megawatt hours (MW hrs) compared to over the current demand lifetime of the existing facility, and as the volume of annual feedstock increases, to 1,016 MWh/yr by 2030. Any use of propane would be negligible on a regional basis. For details related to the estimated electrical demand that would be associated with this alternative, refer to Appendix AIR-5. The precise amount of petroleum fuel demand that would be required under this alternative is uncertain; however, based on estimated greenhouse gas emission estimates (see Chapter 24, Air Quality) for the Central Site Alternative and U.S. Energy Information Administration fuel coefficient data (USEIA, 2011), ~~by year 2019~~ by year 2030, it is expected that this alternative could require

the use of approximately 4250,000 combined gallons of diesel and gasoline each year- (includes both on-site equipment and on-road vehicles).

The Central Site Alternative would not include activities that would be considered to result in inefficient, wasteful, or unnecessary consumption of energy. In addition, the Central Site Alternative would not reduce or interrupt existing electrical or natural gas services due to insufficient supply. It should also be noted as discussed in Chapter 24, Air Quality, the Central Site Alternative would be inherently energy efficient by providing a local source of soil enrichment materials ~~and~~, potentially reducing the export of waste out of the County, and reducing the import of conventional fertilizer and soil conditioning products into the County. Also, because the Central Site Alternative would merely shift the location of the fuel consumption associated with off-road equipment and trucks from landfills to the project site, there would not likely be a net increase of fuel consumption in the region. Because the Central Site Alternative would be inherently energy efficient, would not substantially increase fuel consumption in the region, and the operator of the facility would pay improvement and operating costs for available electricity and/or natural gas, this impact would be **less than significant**.

**Mitigation:** None Required.

---

**Impact 30.3: The Central Site Alternative would require law enforcement services from the Sonoma County Sheriff's Office. (Less than Significant)**

Law enforcement services for this alternative would be provided by the Sonoma County Sheriff's Office. Calls for service to the Central Site would be typical of existing calls for service in the vicinity such as trespassing or vandalism. Calls for service from the existing composting facilities are rare. Typically criminal trespassing is associated with the adjacent landfill (Bakx, pers. comm., 2009). As with existing operations, the Central Site is not anticipated to create a volume of calls which would affect the ability of the Department to provide adequate law enforcement services to the general area, or require the construction or alteration of police facilities. Thus, effects to police protection services would be **less than significant**.

Increased traffic would result in additional responses for traffic enforcement and traffic control from local law enforcement. Traffic safety is addressed in Chapter 31, Traffic and Transportation, and would result in a **less-than-significant** impact with recommended mitigation.

**Mitigation:** None Required.

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**Impact 30.4: The Central Site Alternative would increase demand for fire protection and emergency medical services including response to wildland fires. (Less than Significant)**

Fire protection services and emergency medical services would be provided by the Rancho Adobe FPD. Response by the FPD to the Central Site would be primarily associated with potential structural or compost fires, medical emergencies, on-or off-site vehicular accidents and off-site wildland fires.



The composting process creates heat which can cause fires. Other fire causes such as smoking, arson and lightning are rare but could occur. Composting facilities in California are required to comply with CCR Title 14 composting regulations (Title 14, Chapter 3.1. Article 6, §17867(8)) which requires operations to provide fire prevention, protection and control measures, including but not limited to:

- Temperature monitoring of windrows and aerated static piles
- Adequate water supply for fire suppression
- Isolation of potential ignition sources from combustible materials
- Fire-lanes shall be provided to allow fire control equipment access to all operation areas.

In addition to those mentioned specifically within the composting regulations, standard operational measures which would minimize the duration and intensity of fires, as well as the likelihood of fires spreading off-site, include limiting the size of piles, ensuring a minimum amount of space between piles and employee training for fire emergencies. ~~Standard operational measures which aid in preventing fires include turning the windrows and watering the windrows.~~ When excessive temperatures or fires are detected, equipment including a water truck, front end loader, excavator, hose, and fire extinguishers would be available. As with existing operations, this alternative is not anticipated to create a volume of calls which would affect the ability of the fire departments to provide adequate services to the general area, or require the construction or alteration of fire protection facilities. Thus, effects to fire protection and emergency medical services would be **less than significant**. Fire prevention controls incorporated into the project would also reduce risks from wildland fire to a **less-than-significant** level.

**Mitigation:** None Required.

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**Impact 30.5: The Central Site Alternative would include new stormwater drainage facilities, the construction of which could create impacts. (Less than Significant)**

The Central Site Alternative would incorporate new on-site storm water drainage facilities which would route storm water to an on-site ~~retention~~detention pond- and associated facilities. The construction and operational impacts of the on-site drainage system are incorporated into the alternative's project description and thus analyzed throughout the document. ~~However, with an impact analysis regarding stormwater management contained in Chapter 27, Hydrology and Water Quality/Central Site, impacts could occur as a result of construction and operation of the on-site drainage system. The construction of on-site detention ponds and stormwater drainage facilities would reduce any impact on off-site public stormwater drainage facilities. Thus the impact of this alternative related to construction of new stormwater drainage facilities would be less than significant.~~ During high flow conditions, stormwater management on site could include, optionally, discharge to natural waterways and/or discharge to landfill's existing stormwater and leachate collection ponds. Discharges to these facilities could require the installation of new stormwater handling facilities, such as pipelines, outfall/discharge structures, and other stormwater management features on the landfill site. Unless stormwater facilities are appropriately sized and designed, additional stormwater infrastructure could be required, which would be considered a potentially significant impact.

Therefore, implementation of **Mitigation Measure 30.5** would be required. For additional discussion of the proposed stormwater management procedures, including anticipated operations and permitting requirements, please refer to Section 27, Central Site Hydrology and Water Quality.

**Mitigation Measure 30.5:** Implement Mitigation Measure 27.3.

**Impact Significance After Mitigation:** Less than Significant.

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**Impact 30.6: The Central Site Alternative could require or result in the construction of new wastewater treatment facilities, the construction of which could cause significant environmental effects. (Less than Significant)**

The Central Site Alternative could (optionally) include the conveyance of stormwater generated on site to the Laguna WWTP, via an existing leachate pond and pipeline infrastructure that is managed by the landfill. Under existing conditions, when the water contained in the leachate ponds reaches a certain height, pumps are turned on that push the water along an existing 8-inch, 5-mile-long pipeline that carries the water to the ~~when ponds at the landfill reach capacity, additional stormwater is discharged via an existing pipeline to the~~ Laguna WWTP. Based on conversations with landfill and preliminary engineering calculations, there is anticipated to be sufficient capacity available in the existing pond, pump, and pipeline system to convey at least 27.1 acre-feet per month of water, wherein the proposed compost facility would require up to an average of 16.5 acre-feet per month of available capacity during an average water year. Flows that exceeded available capacity would be routed to surface water discharge. Therefore, conveying stormwater along the landfill's leachate system would not require the installation of new pump or piping facilities to convey the water to the Laguna WWTP. ~~and Laguna WWTP personnel, there is anticipated to be sufficient capacity available in the existing pipeline to support the conveyance of stormwater from the proposed composting site, which would be commingled with stormwater and leachate from the landfill, to the Laguna WWTP.~~ For additional information regarding stormwater management on site, including optional management scenarios, refer to Section 4.7, Project Description, and Section 27, Central Site Hydrology and Water Quality.

At the Laguna WWTP, stormwater from the composting site would be treated in accordance with the facility's wastewater treatment process. As discussed in greater detail in Section 4.7 of this Recirculated Draft EIR, Project Description, the facility includes tertiary level treatment with UV disinfection. The Laguna WWTP maintains a total wet weather treatment capacity of 64 mgd (weekly average). Based on preliminary discussions with Laguna WWTP personnel, the facility does not currently operate at its wet weather capacity, and additional temporary raw water storage on site is anticipated to be sufficient, in combination with available capacity, to enable treatment of the anticipated additional flows from the proposed composting facility. Therefore, sufficient capacity at the Laguna WWTP is anticipated to be available without the construction of additional facilities. This impact is considered less than significant.

**Mitigation:** None Required.

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## 30.4 References

In addition to those references listed in Chapter 11, Public Services and Utilities (2011 Draft EIR), the following references were used:

Bakx, William, 2009. Owner of Sonoma Compost Company, telephone conversation, June 16, 2009.

California Department of Forestry and Fire Protection, 2007. Sonoma County Fire Hazard Severity Zones in State Responsibility Area Map. Available online at: <http://www.firescape.us/images/sonomafireseveritysra.pdf>. Adopted by CAL FIRE on November 7, 2007.

Rancho Adobe Fire Protection District. Fire Protection District Information. Available online at: <http://www.rancho-adobe-fire.org/> Last updated February 23, 2010.



## **CHAPTER 31 (RECIRCULATED)**

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# **Traffic and Transportation/Central Site Alternative**

## **31.1 Introduction**

The analyses in this chapter provide information on the local roadway network, operating levels of service, potential impact of traffic associated with the Central Site Alternative, traffic and bicycle/pedestrian safety, road wear, and identification of mitigation measures necessary to mitigate potential significant impacts.

The transportation analysis is prepared for five scenarios, including:

- Existing (2009);
- Near-Term Cumulative Base (Year 2011);
- Near-Term Cumulative Base with Project (Year 2011);
- Long-Term Cumulative Base (Year 2030); and
- Long-Term Cumulative Base with Project (Year 2030)

Traffic count data and LOS calculations for this analysis are provided in Appendix TRAFFIC-3 (Revised). 2011 was selected as a base year in order to maintain comparability with other alternatives, as evaluated in the 2011 Draft EIR.

## **31.2 Setting**

The transportation system in the Central Site Alternative region is composed of an interconnected network of State, County, local roadways, and bicycle facilities. Major roadways in the Central Site Alternative area are described below.

## **Roadway System and Site Access**

The Central Site surrounding roadway network is shown on **Figure 14-8**. The Central Site Alternative area is served primarily by a network of rural two-lane roadways. These roadways typically lack curbs and sidewalks. The Central Site is located in Sonoma County and is accessed via Meham Road. The Central Site is approximately 8 miles north of the City of Petaluma, and 5 miles southwest of the City of Rohnert Park. Regional access to the area is provided by U.S. Highway 101 (U.S. 101) and State Route 116 (SR 116).

*U.S. Highway 101* is a principal north-south freeway in Sonoma County, extending northward to Mendocino County, and southward to Marin County and points beyond. U.S. 101 provides access to/from the Central Site via a full interchange at Gravenstein Highway (SR 116) and a split interchange (from the south only at Railroad Avenue, and to the south only at Stony Point Road / Pepper Road-SR 37). U.S. 101 carries average daily traffic (ADT) volumes of 86,000 to 146,000 ~~92,000~~ vehicles between south of Railroad Avenue-SR 37 and ~~ADT volumes of 86,000 vehicles~~ south-north of Gravenstein Highway-SR 116 (Caltrans, 2010).

*State Route 116* is a major, generally ~~east-west~~ north-south route in Sonoma County, extending between SR 1 in the west and SR 121 in the east, and providing direct access to U.S. 101. In the Central Site Alternative vicinity, SR 116 (~~Gravenstein Highway~~ Stage Gulch Road west of Adobe Road) is a two-lane rural arterial with 12-foot-wide travel lanes and no paved shoulders. The posted speed limit on SR 116 is 55 miles per hour (mph). SR 116 (~~Gravenstein Highway~~ Stage Gulch Road) carries an ADT of 15,100 to 22,500 vehicles between west of Stony Point Road and west of U.S. 101 ~~3,200 vehicles in front of Central Site~~. SR 116 (~~Lakeville Highway~~) is a four-lane major arterial west of Frates Road (ADT of 25,000 vehicles) and a two-lane arterial with paved shoulders and an ADT of 16,000 vehicles to the north of Stage Gulch Road (Caltrans, 2010).

*Stony Point Road* is a two-lane rural principal arterial roadway, and extends in a north-south direction roughly parallel to U.S. 101. Stony Point Road contains approximately 12-foot wide travel lanes plus turn lanes at intersections. North of Pepper Road, Stony Point Road contains approximately four- to six-foot wide paved shoulders; and south of Pepper Road contains narrow or unpaved shoulders. There is gradual vertical and horizontal curvature in the road; as with U.S. 101, Stony Point Road rises in the vicinity of the Cotati grade. Stony Point Road contains a *prima facie* 55 mile per hour (mph) speed limit<sup>1</sup> along the proposed project haul route.

*Pepper Road* extends between Valley Ford Road and Stony Point Road. This roadway is classified as a rural major collector road west of Mecham Road, and a rural minor collector road east of Mecham Road. Pepper Road has approximately 12-foot travel lanes with approximately six-foot wide paved shoulders west of Mecham Road, with shoulders narrowing to two to three feet in width east of Mecham Road. There is gradual horizontal and vertical curvature to the road. Pepper Road contains a *prima facie* 55 mph speed limit. East of Mecham Road, Pepper Road contains a signed advisory 50 mph curve west of King Road. There is a 25 mph school speed zone on Pepper Road in the vicinity of Jewett Road.

*Mecham Road* is a two-lane rural major collector roadway that runs roughly north-south between Stony Point Road and Pepper Road. Mecham Road contains 12-foot travel lanes plus approximately six-foot wide paved shoulders. There is gradual vertical and horizontal curvature to the road. Mecham Road has a posted speed limit of 45 mph east of Hammel Road, and a *prima facie* 55 mph speed limit west of Hammel Road. Mecham Road provides direct access to the Central Landfill, and therefore, contains notable heavy truck traffic.

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<sup>1</sup> Unposted speed limits are known as “prima facie” speed limits.

## Existing Traffic Operating Conditions

### ***Study Intersections***

Intersection analysis was conducted at the proposed Central Site Alternative access driveway and at two intersections on Stony Point Road:

1. Central Site Driveway at Mecham Road (side-street stop controlled)
2. Stony Point Road at Mecham Road (signalized)
3. Stony Point Road at Gavenstein Highway (SR 116) (signalized)

### ***Existing Peak Weekday and Weekend Traffic Volumes***

Based on potential significant effects associated with the Central Site, it was determined that weekday a.m. and weekend peak hour conditions would be evaluated. Twenty-four hour volume counts were taken on Mecham Road at the site access driveway and on Stony Point Road north of Roblar Road for two weeks (14 consecutive days) in May, 2010. The machine count volumes were used to determine the peak-hour through volumes on the main haul routes. Based on the daily machine counts, the weekday a.m. peak hour was identified as 8:00 to 9:00 a.m., and the weekend peak hour was found to be 12:00 p.m. to 1:00 p.m.<sup>2</sup> Intersection peak period turning movement volumes collected for the EIR are provided in Appendix TRAFFIC-3 (Revised).

### ***Intersection Level of Service Analysis Methodology***

The operation of a local roadway network is commonly measured and described using a grading system called Level of Service (LOS). The LOS grading system qualitatively characterizes traffic conditions associated with varying levels of vehicle traffic, ranging from LOS A (indicating free-flow traffic conditions with little or no delay experienced by motorists) to LOS F (indicating congested conditions where traffic flows exceed design capacity and result in long delays). This LOS grading system applies to both roadway segments and intersections. The LOS calculation methodology for intersections is dependent on the type of traffic control device, traffic signals or stop signs. A detailed description of the LOS methodologies used for this analysis is provided in Chapter 12, Transportation and Traffic (*Intersection Level of Service Analysis Methodology*).

As shown in **Table 31-1**, the study intersections currently operate at acceptable levels of service (LOS C or better) during the weekday a.m. peak-hour, and weekend midday peak hour. LOS calculation sheets are provided in Appendix TRAFFIC-3 (Revised).

### ***Peak Hour Signal Warrants***

To assess the need for signalization of stop-controlled intersections, the *California Manual on Uniform Traffic Control Devices* describes eight signal warrants (Caltrans, 2012-2010). Meeting

<sup>2</sup> The p.m. peak hour condition was not analyzed for the following reasons: the current compost facility closes at 3:00 p.m., as would the project facility; and the p.m. peak hour of background traffic on area roadways occurs after 4:00 p.m.. Therefore, there would be no measurable p.m. peak-hour vehicle contribution of project traffic during the p.m. peak hour.

**TABLE 31-1**  
**PEAK-HOUR INTERSECTION LEVELS OF SERVICE (LOS)**  
**EXISTING CONDITIONS<sup>a</sup>**

Intersection	Traffic Control <sup>b</sup>	Weekday AM		Weekend Midday	
		Delay <sup>c</sup>	LOS	Delay <sup>c</sup>	LOS
Mecham Road at Central Site Access Driveway	SSSC	10.2	B	11.9	B
Mecham Road at Stony Point Road	Signal	11.8	B	17.0	B
Gravenstein Highway (SR 116) at Stony Point Road	Signal	22.8	C	23.6	C

a. Worst movement LOS at side-street stop-controlled intersections; overall intersection LOS at signalized intersections.

b. Signal = Signal controlled, SSSC = Side-street stop (sign) controlled.

c. Average Delay expressed in terms of Seconds per Vehicle.

SOURCE: ESA, 2010 using TRAFFIX and the Transportation Research Board 2000 *Highway Capacity Manual* operations analysis methodologies, and weekday a.m. peak-hour volumes from Sonoma County Central Landfill Traffic Study (Crane Transportation Group, 2009).

one of the signal warrants could justify signalization of an intersection; however, the full set of warrants should be considered as part of an evaluation and survey before the decision to install a signal is made. Peak hour volume warrant (Warrant 3) analysis for urban conditions was conducted for this study. The results of the traffic signal warrant analysis are provided for each analysis scenario and the signal warrant calculations are provided in Appendix TRAFFIC-3 (Revised). The peak hour volume traffic signal warrant is not met at the intersection of Mecham Road / Project Site Access during the weekday a.m. or weekend peak hours under Existing Conditions.

### ***Planned Roadway Improvements***

The 2009 / 2014 Sonoma County Capital Project Plan does not list any roadway improvement projects as funded or scheduled for Mecham Road in the vicinity of the Central Site Alternative. Improvements scheduled for Stony Point Road would not affect the study intersections.

### **Existing Vehicle Speed on Project Haul Roads**

In order to evaluate existing travel speeds on Central Site Alternative haul routes, speed data was collected at two locations during the same time period (May 4-May 17, 2010) as the 24-hour traffic count data. The two locations are:

- Mecham Road west of the access driveway
- Stony Point Road north of Roblar Road

The posted speed limit on Mecham Road near the project driveway is 45 mph. Stony Point Road has a posted speed of 55 mph.

The 85th percentile speed collected on Mecham Road was 52 mph.<sup>3</sup> The mean, or 50th percentile average speed, was approximately 46 mph, with a 10 mph pace speed between 40 and 50 mph.<sup>4</sup>

<sup>3</sup> The 85th percentile speed is the speed at or below which 85 percent of the motorists drive on a given road unaffected by slower traffic or poor weather. This speed indicates the speed that most motorists on the road consider safe and reasonable under ideal conditions.



Overall, the speed survey indicates vehicles on Mecham Road are currently traveling at speeds higher than the posted speed limit.

Data collected on Stony Point Road found that the 85th percentile speed was 57 mph. The mean, or 50th percentile average speed, was approximately 51 mph, with a 10 mph pace speed between 45 and 55 mph. Overall, the speed survey indicates vehicles on Stony Point Road are currently traveling at speeds lower than the posted speed limit.

### ***Pedestrian and Bicycle Traffic***

A description of pedestrian and bicycle facility categories is provided in Chapter 12, Transportation and Traffic, Section 12.2 (*Pedestrian and Bicycle Traffic*).

Within the vicinity of Central Site, there are currently no designated pedestrian or bike facilities. The 2010 Sonoma County Bicycle and Pedestrian Plan classifies Mecham Road as proposed Class II bicycle lanes (Priority 3) and Pepper Road as a Class III bicycle route (Priority 2 west of Mecham Road, and Priority 1 east of Mecham Road).<sup>5</sup>

Week-long traffic counts documented between 20 and 50 bicyclists on Mecham Road, and over 100 bicyclists on Stony Point Road, in May 2010 (see Appendix TRAFFIC-3 (Revised)).

## **Regulatory Framework**

The development and regulation of the Central Site Alternative area transportation network primarily involves state and local jurisdictions. All roads within the Central Site Alternative area are under the jurisdiction of state and local agencies. State jurisdiction includes permitting and regulation of the use of state roads, while local jurisdiction includes implementation of state permitting, policies, and regulations, as well as management and regulation of local roads. Applicable state and local laws and regulations related to traffic and transportation issues are discussed below.

### ***California Department of Transportation***

The California Department of Transportation (Caltrans) manages interregional transportation, including management and construction of the California highway system. In addition, Caltrans is responsible for permitting and regulation of the use of state roadways. Heavy trucks accessing Central Site would use roadways that fall under Caltrans' jurisdiction, primarily U.S. 101 and SR 116. Caltrans requires that permits be obtained for transportation of oversized loads and transportation of certain materials, and for construction-related traffic disturbance.

### ***Sonoma County***

Mecham Road is under the jurisdiction of Sonoma County. County policies and regulations regarding the design, use, or obstruction of roadways are detailed in the Sonoma County General Plan 2020 *Circulation and Transit Element* (Sonoma County, 2008). The majority of these goals

<sup>4</sup> Pace speed is the 10 mph range in which the majority of vehicles are traveling.

<sup>5</sup> The Sonoma County Bicycle and Pedestrian Advisory Committee has prioritized each individual project included in the 2010 Bicycle and Pedestrian Master Plan into one of three categories (Priority 1: High; Priority 2: Medium; and Priority 3: Low).

and policy guidelines in the Circulation and Transit Element pertain to the development and planning of roadways and transit systems.

The *Draft 2009 Countywide Transportation Plan* for Sonoma County provides further guidance for transportation planning and associated goals and policies (SCTA, 2009). This plan focuses on the design and implementation of improvements to the county circulation system, including roadways, bikeways, and rail service.

Sonoma County's General Plan 2020 Circulation and Transit Element Objectives related to level of service standards include:

Objective CT-3.1 Maintain LOS C or better on roadway segments unless a lower LOS has been adopted.

Objective CT-3.2 Maintain LOS D or better at roadway intersections.

Objective CT-3.3 Allow the above levels of service to be exceeded if it is determined to be acceptable due to environmental or community values, or if the project(s) has an overriding public benefit that outweighs lower levels of service and increased congestion.

## 31.3 Impacts and Mitigation Measures

### Intersection Operating Conditions

#### Hours of Operation

The existing composting facility located at the Sonoma County Central Disposal Site (Sonoma Compost Company) currently accepts material during the hours of 7:00 a.m. to 3:00 p.m. Monday through Saturday, with general operation of the facility during the hours of 6:30 a.m. to 5:30 p.m.<sup>6</sup> Although the project may be open to the public on Sundays, the hours of operation would not change for the Central Site Alternative.

#### Project Trip Generation

The vehicle trip generation for the Central Site Alternative was estimated by reviewing annual historical Sonoma County Waste Management Agency (SCWMA) data for green material and wood waste processed at the Central Compost Facility. Additional data was received from Sonoma Compost Company, the private company that manages the compost operation under contract to the County. is estimated to be less than the currently operations at currently operating facility. The current facility currently accepts approximately 100,000 tons of material per year. This material is delivered via haul trucks (standard garbage trucks) with average loads of 5.5 tons, mixed organic material (MOM) trucks with average loads of 15.7 tons, and self haul vehicles (passenger cars with trailers, pickup trucks, etc.), which average 0.47 tons per load. The Central Site Alternative would only include the ASP processing option due to limited space. Under Near-Term Cumulative Conditions, the facility would be able to process approximately 40,000 tons of

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<sup>6</sup> The facility is permitted to accept material on Sundays too, but due to budgetary considerations, the site is currently closed to the general public on Sundays.

~~material. At buildout, the facility would be able to process approximately 110,000 tons of material.~~

As shown in Table 12-4 (Chapter 12, Traffic and Transportation, of the 2011 Draft EIR), the existing compost facility daily and peak-hour trip generation is as follows:

Weekday: 352 daily trips; 38 a.m. peak-hour trips

Weekend: 484 daily trips; 98 peak-hour trips

The current compost facility stops accepting material daily at 3:00 p.m. Acceptance of organic material at the Central Site Alternative would also end at that time, and therefore, there would be no measurable p.m. peak hour vehicle contribution of project traffic on roads serving the Central Site.

The Sonoma Countywide Composting Feasibility Study, September 2005 projected 2030 levels of green waste at 200,000 tons per year and wood waste at 23,000 tons per year (a projected growth rate of about three percent per year). The projections were developed from Sonoma County Waste Management Agency historical data, and State of California, Department of Finance estimates of population growth in Sonoma County between 2000 and 2030. The 2030 estimates were used for this analysis to develop future estimates of trip generation for the proposed compost facility. The use of the 2030 waste projections likely provides a conservatively high estimate given recent annual levels of green waste at below no more than 100,000 tons. As shown in Table 12-6 (Chapter 12, Traffic and Transportation, of the 2011 Draft EIR), the estimated 2030 compost facility daily and peak-hour trip generation is as follows:

Weekday: 803 daily trips; 87 a.m. peak-hour trips

Weekend: 1,116 daily trips; 225 peak-hour trips

Because the existing facility is at the Central Site, the relevant analysis of potential impacts associated with expanded composting operations at the Central Site is based on the net increase in trips to the Central Site, which would be the difference between the trips shown in Tables 12-4 and 12-6 of the 2011 Draft EIR (see above), plus trips associated with the Commercial Food Waste Composting Program. On the basis of estimates in the 2007 Sonoma County Waste Characterization Study, “percent capture” rates estimated by SCWMA, anticipated capacity (ten tons) of vehicles carrying the food waste, and assumed weekday-only deliveries (i.e., 250 days per year), the Commercial Food Waste Composting Program would generate about 20 one-way trips per day to the Central Site. The net increase in daily and peak-hour trips to the Central Site would be as follows:

Weekday: 471 daily trips; 51 a.m. peak-hour trips

Weekend: 632 daily trips; 127 peak-hour trips

## **Project Vehicle Distribution Patterns**

Project-related traffic would be distributed originate primarily (about 67 percent) to the north and northwest of Central Site, and, Trucks traveling from to the site would exit U.S. 101 at the

SR 116 ~~Lakeville~~ (Gravenstein Highway) exit and continue south on Stony Point Road to Mecham Road. The return trip would follow a reverse route (i.e., north on Mecham Road and Stony Point Road to SR 116 (Gravenstein Highway) and to U.S. 101. Haul trucks would proceed west to the site access road. Project-related traffic originating to the south and southeast of the Central Site would exit U.S. 101 at the Railroad Avenue exit, turn left onto Railroad Avenue, turn right onto Stony Point Road, then turn left onto Mecham Road. The return trip would follow a similar reverse route (i.e., north on Mecham Road, turn right onto Stony Point Road, and proceed to the U.S. 101 on-ramp at the intersection of Stony Point Road / Pepper Road. This is the current traffic pattern for access to the site under existing operations at the site. Some trips generated by the Commercial Food Waste Composting Program would travel on local roads from and to the cities of Cotati and Rohnert Park. However, given the relatively low populations of those cities compared to other areas of Sonoma County, the Program-generated trips on Cotati and Rohnert Park roads would be too low to have a significant effect on traffic flow.

## Traffic Volume Growth Rate

Year 2011 (Near-Term Cumulative) and 2030 (Long-Term Cumulative) Central Site area growth in traffic volumes were developed using the recently updated Sonoma County Transportation Authority (SCTA) Transportation Demand Model (2005-2035).

The applied growth rates were developed based primarily on the link volume data (ADT and p.m. peak hour) from the SCTA model for roads in the vicinity of the Central Site access road. The model provided baseline 2005 and forecast 2035 for daily and p.m. peak hour directional volumes. Within the general area of Central Site, an overall ~~49-67~~ percent increase in peak-hour traffic was forecasted for the 30-year model growth projection. A ~~4.5-1.7~~ percent annual growth rate was developed and applied to the intersection volumes ~~on Stage Gulch Road~~ during the weekday a.m. and weekend peak hours based on the SCTA link volume data.<sup>7</sup>

## Significance Criteria

According to Appendix G of the CEQA *Guidelines*, a project that would “cause an increase in traffic which is substantial in relation to existing traffic load and capacity of the street system” may be deemed to have a significant adverse impact on the environment.

## Sonoma County Significance Criteria

The following applicable County significance criteria were used to judge the transportation impacts<sup>8</sup>:

- At County intersections, the project would have a significant impact if the project’s traffic would cause an intersection currently operating at an acceptable level of service (LOS D or better) to operate worse than the County’s LOS D standard (i.e., at LOS E or F). This criterion applies to all signalized, all-way stop-controlled, and side street stop-controlled intersections with project traffic volumes over 30 vehicles per hour per intersection approach or per exclusive left-turn movement.

<sup>7</sup> The SCTA model does not generate traffic volumes for the weekday a.m. and weekend peak hours, and the annual growth rate for those peak-hour periods was assumed to be the same as for the weekday p.m. peak hour.

<sup>8</sup> These significance criteria are from the County traffic study guidelines, which are consistent with County General Plan guidelines, and are treated as an elaboration of the latter.

- If a County intersection currently operates, or is projected to operate, worse than the County LOS standard (i.e., at LOS E or F), then the project's impact would be significant if it causes the average vehicle delay to increase by five seconds or more. The delay will be determined by comparing intersection operations with and without the project's traffic for both the existing baseline and project future conditions. This criterion applies to all signalized, all-way stop-controlled, and side street stop-controlled intersections with project traffic volumes over 30 vehicles per hour per intersection approach or per exclusive left-turn movement.
- The County traffic study guidelines indicate that a project would result in a significant impact if it failed to meet minimum standards for any of the following areas of analysis:
  - On-site and Frontage Improvements – Proposed on-site circulation and street frontage would not meet the County's minimum standards for roadway or driveway design, or potentially would result in safety hazards, as determined by the County in consultation with a registered traffic engineer.
  - Emergency Access – The project site would have inadequate emergency access.
  - Alternative Transportation – The project would provide inadequate facilities for alternative transportation modes (e.g., bus turnouts, bicycle racks, pedestrian pathways) and/or the project would create potential conflicts with adopted policies, plans, or programs supporting alternative transportation.
  - Road Hazards – Hazards are increased due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment, heavy pedestrian or truck traffic).
  - Vehicle Queues – The addition of project traffic would cause the 95<sup>th</sup> percentile queue length to exceed roadway turn lane storage capacity.
  - Signal Warrants – The addition of the project's vehicle or pedestrian traffic would cause an intersection to meet or exceed Caltrans' signal warrant criteria.
  - Turn Lanes – The addition of project traffic would cause an intersection to meet or exceed criteria for provision of a right- or left-turn lane on an intersection approach.
  - Sight Lines – The project constructs an unsignalized intersection (including driveways) or adds traffic to an existing unsignalized intersection approach that does not have adequate sight lines based upon Caltrans criteria for state highway intersections and County criteria for County roadway intersections.

In addition, for purposes of this EIR, the following additional significance criterion was used to judge the transportation impacts:

- The project would have a significant impact to roadwear if it would increase heavy truck traffic volumes that would increase the Traffic Index (TI) by more than 1.5 on roadways built to accommodate heavy truck traffic, and by more than 0.5 on other roadways, or would add vehicles whose weight exceeds weight limit restrictions on the affected roadway.

## Impact Discussion

### Near-Term Cumulative Base (Year 2011)

The Central Site Alternative if approved would begin operations sometime in 2011. 2011 was selected as a near-term cumulative base year in order to maintain consistency with the other

Alternatives discussed and evaluated in the 2011 Draft EIR. The results of the LOS analysis for Near-Term Cumulative Base Conditions are summarized in **Table 31-2**.

Near-term Cumulative Base traffic conditions at the study intersections are projected to operate at acceptable levels of service (LOS C or better) during both peak hours. The peak-hour traffic volume signal warrant is not met at the Mecham Road at Central Site Access Driveway intersection under any of the near-term peak-hour conditions.

**TABLE 31-2**  
**PEAK-HOUR INTERSECTION LEVELS OF SERVICE (LOS)**  
**NEAR-TERM CUMULATIVE BASE CONDITIONS<sup>a</sup>**

Intersection	Traffic Control <sup>b</sup>	Scenario	Weekday AM		Weekend Midday	
			Delay <sup>c</sup>	LOS	Delay <sup>c</sup>	LOS
Mecham Road at Central Site Access Drwy	SSSC	Existing	10.2	B	11.9	B
		Near-Term Base	10.3	B	12.1	B
Mecham Road at Stony Point Road	Signal	Existing	11.8	B	17.0	B
		Near-Term Base	11.9	B	17.2	B
Gravenstein Hwy (SR 116) at Stony Point Rd	Signal	Existing	22.8	B	23.6	C
		Near-Term Base	23.4	C	24.2	C

a. Worst movement LOS at side-street stop-controlled intersections; overall intersection LOS at signalized intersections.

b. Signal = Signal controlled, SSSC = Side-street stop (sign) controlled.

c. Average Stopped Delay expressed in terms of Seconds per Vehicle.

SOURCE: ESA, 2010 using TRAFFIX and the Transportation Research Board 2000 *Highway Capacity Manual* operations analysis methodology.

## Near-Term Cumulative Base Plus Project Traffic Impacts

**Impact 31.1: The Central Site Alternative would contribute to Near-Term Cumulative traffic volumes at the study intersection during the weekday a.m. and weekend peak hour. (Less than Significant)**

Near-Term Cumulative Base plus Project conditions are defined as Near-Term Cumulative Base plus traffic added by the Central Site Alternative. Estimated vehicle trip generation for the Central Site Alternative is the existing trip generation described above (as shown in Table 12-4 in the 2011 Draft EIR). Project impacts are then identified by comparing the LOS results under Near-Term Cumulative plus Project conditions to those. ~~would be approximately 60 percent less than under current operating conditions at the facility, as site capacity for processing would substantially less than exists under current operations at the site.~~ As such, the ~~current traffic volumes on the haul routes under Near-Term Cumulative Base conditions would not be increased due to implementation of the reduced and the addition of Central Site Alternative, and the levels of service would be unchanged from those shown in Table 31-2. generated traffic would not increase delays above Near-Term Cumulative Conditions.~~ This impact would be **less than significant**.

**Mitigation Measure:** None Required.

## Near-Term Cumulative Traffic Safety

### ***Access Road Improvements***

**Impact 31.2: The Central Site Alternative could worsen traffic safety due to design features or incompatible uses. (Less than Significant)**

The Central Site composting facility would be accessed via the existing site access road via Mecham Road. As described above, the Central Site Alternative would not increase traffic volumes on the haul routes (including the site access road) under Near-Term Cumulative Base conditions. ~~However, truck traffic under the proposed project would be less than under existing operating conditions at the project site.~~ As sight distance and roadway geometrics are adequate to accommodate the projected traffic, this is a **less than significant** impact.

**Mitigation Measure:** None Required.

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### ***Alternative Transportation***

**Impact 31.3: The Central Site Alternative would create potential conflicts with adopted policies, plans, or programs supporting alternative transportation. (Significant)**

As discussed in the Setting, the *2010 Sonoma County Bicycle and Pedestrian Master Plan* classifies Mecham Road as proposed for Class II bicycle lanes and Pepper Road as a proposed Class III bicycle route. Although no official bikeways exist on these facilities, week-long traffic counts documented between 20 and 50 bicyclists on Mecham Road, and over 100 bicyclists on Stony Point Road, in May 2010.

Although the project would not prevent the county from implementing bicycle improvements included in the Bicycle and Pedestrian Master Plan, project-generated increase in traffic volumes on Mecham Road and Pepper Road would create potential conflicts with the plan to provide Class II bike lanes and a Class III bike route. In addition, debris falling from project vehicles could cause safety issues for bicyclists along the haul route, and this impact is considered **significant**.

### **Mitigation Measures**

**Mitigation Measure 31.3a:** Implement Mitigation Measure 12.3a (2011 Draft EIR).

**Mitigation Measure 31.3b:** The operator shall be required to conduct regular sweeping of the intersection of Mecham Road at the Central Site access road so that the intersection remains free of debris and dirt that may accumulate from exiting trucks.

**Significance after Mitigation:** Less than Significant.

## Road Hazards

**Impact 31.4: The Central Site Alternative would generate turning movements by heavy vehicles to and from Mecham Road, and could increase the potential for conflicts between Central Site Alternative traffic and through traffic. (Less than Significant)**

The Central Site Alternative access driveway would operate at an acceptable level of service during peak hours of background traffic under near-term cumulative conditions, and project-generated traffic would be the same as less than under existing conditions. The project would have a **less than significant** impact.

**Mitigation:** None Required.

## Long-Term Cumulative Base (Year 2030)

Year 2030 was selected as the subject year for buildout of the proposed compost facility, given the assumed first year of operation of the Central Site Alternative (2011) and the 20-year forecasts developed for the *Sonoma Countywide Composting Feasibility Study*. The results of the LOS analysis for Long-Term Cumulative Base conditions are summarized in **Table 31-3**.

**TABLE 31-3  
PEAK-HOUR INTERSECTION LEVELS OF SERVICE (LOS)  
LONG-TERM CUMULATIVE BASE CONDITIONS**

Intersection	Traffic Control <sup>b</sup>	Scenario	Weekday AM		Weekend Midday	
			Delay <sup>c</sup>	LOS	Delay <sup>c</sup>	LOS
Mecham Road at Central Site Access Drwy	SSSC	Existing	10.2	B	11.9	B
		Long-Term Base	44.9/12.3	B	46.2/12.8	C/B
Mecham Road at Stony Point Road	Signal	Existing	11.8	B	17.0	B
		Long-Term Base	18.9	B	19.9	B
Gravenstein Hwy (SR 116) at Stony Point Rd	Signal	Existing	22.8	B	23.6	C
		Long-Term Base	121.1	F	44.0	D

a. Worst movement LOS at side-street stop-controlled intersections; overall intersection LOS at signalized intersections.

b. Signal = Signal controlled, SSSC = Side-street stop (sign) controlled.

c. Average Stopped Delay expressed in terms of Seconds per Vehicle.

SOURCE: ESA, 2010 using TRAFFIX and the Transportation Research Board 2000 *Highway Capacity Manual* operations analysis methodology.

Under Long-Term Cumulative Base traffic conditions, the access intersection would operate at acceptable levels of service (LOS C or better) during the weekday a.m. and weekend peak hours. The intersection of Stony Point Road and SR 116 would operate at unacceptable LOS F during the weekday a.m. peak hour.

## Long-Term Cumulative Base plus Project Impacts

**Impact 31.5: The Central Site Alternative would contribute to Long-Term Cumulative traffic volumes at the study intersection during the weekday a.m. and weekend peak hour. (Less than Significant)**



Long-Term Cumulative Base plus Project conditions are defined as Long-Term Cumulative Base conditions plus traffic added by the Central Site Alternative. As described under Project Trip Generation above, at project buildout, the Central Site Alternative would generate an additional 471 trips per weekday (with 51 a.m. peak-hour trips), and 632 trips per weekend day (with 127 peak-hour trips). ~~have up to approximately 15 percent higher capacity over Long-Term Cumulative Base Conditions.~~ Project impacts are then identified by comparing the LOS results under Long-Term Cumulative Base plus Project conditions to those under Long-Term Cumulative Base conditions. The results of the LOS analysis for Long-Term Cumulative Base plus Project conditions are summarized in **Table 31-4**.

**TABLE 31-4**  
**PEAK-HOUR INTERSECTION LEVELS OF SERVICE (LOS)**  
**LONG-TERM CUMULATIVE BASE PLUS PROJECT CONDITIONS**

<u>Intersection</u>	<u>Traffic Control<sup>b</sup></u>	<u>Scenario</u>	<u>Weekday AM</u>		<u>Weekend Midday</u>	
			<u>Delay<sup>c</sup></u>	<u>LOS</u>	<u>Delay<sup>c</sup></u>	<u>LOS</u>
<u>Mecham Road at Central Site Access Drwy</u>	<u>SSSC</u>	<u>Existing</u>	<u>10.2</u>	<u>B</u>	<u>11.9</u>	<u>B</u>
		<u>Long-Term Base</u>	<u>12.3</u>	<u>B</u>	<u>12.8</u>	<u>B</u>
		<u>Long-Term Plus Project</u>	<u>13.5</u>	<u>B</u>	<u>15.3</u>	<u>C</u>
<u>Mecham Road at Stony Point Road</u>	<u>Signal</u>	<u>Existing</u>	<u>11.8</u>	<u>B</u>	<u>17.0</u>	<u>B</u>
		<u>Long-Term Base</u>	<u>18.9</u>	<u>B</u>	<u>19.9</u>	<u>B</u>
		<u>Long-Term Plus Project</u>	<u>20.7</u>	<u>C</u>	<u>22.6</u>	<u>C</u>
<u>Gravenstein Hwy (SR 116) at Stony Point Rd</u>	<u>Signal</u>	<u>Existing</u>	<u>22.8</u>	<u>B</u>	<u>23.6</u>	<u>C</u>
		<u>Long-Term Base</u>	<u>121.1</u>	<u>F</u>	<u>44.0</u>	<u>D</u>
		<u>Long-Term Plus Project</u>	<u>127.4</u>	<u>F</u>	<u>49.8</u>	<u>D</u>

a. Worst movement LOS at side-street stop-controlled intersections; overall intersection LOS at signalized intersections.

b. Signal = Signal controlled, SSSC = Side-street stop (sign) controlled.

c. Average Stopped Delay expressed in terms of Seconds per Vehicle.

SOURCE: ESA, 2010 using TRAFFIX and the Transportation Research Board 2000 Highway Capacity Manual operations analysis methodology.

~~An increase of that level would not alter vehicle trips to and from the Central Site along the haul route to a degree that would be apparent to the average driver, and average vehicle delays at the study intersections would increase less.~~ As a result of the addition of project-generated traffic, the service level of the Gravenstein Highway (SR 116) / Stony Point Road intersection would remain at LOS F during the weekday a.m. peak hour, but the average vehicle delay would increase by more than the five-second threshold of significance. The project would have a **less than significant** impact on cumulative traffic conditions.

**Mitigation Measure:** ~~None Required.~~

**Mitigation Measure 31.5:** Prior to Year 2030, SCWMA shall modify the traffic signal timing settings at the intersection of Gravenstein Highway (SR 116) / Stony Point Road to better accommodate traffic volumes during the a.m. peak hour.

Specific timing changes shall be established based on actual traffic volumes under the future-year conditions, but as an example of the delay reduction that can be achieved based on the estimated 2030 traffic volumes, increasing the cycle length from 60 seconds to

65 seconds would reduce the average vehicle delay by more than the five-second threshold of significance, and would mitigate the project's impact on cumulative traffic conditions.

**Significance After Mitigation:** Less than significant; however, if implementation of Mitigation Measure 31.5 was not approved by Caltrans (the jurisdiction responsible for SR 116), the impact would be Significant and Unavoidable.

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## **Long-Term Cumulative Traffic Safety**

### ***Access Road Improvements***

**Impact 31.6: The Central Site Alternative could worsen traffic safety due to design features or incompatible uses. (Less than Significant)**

The Central Site composting facility would be accessed via the existing site access road via Mecham Road. As described under Project Trip Generation above, at project buildout, the Central Site Alternative would generate an increase of 51 a.m. peak-hour trips and 127 weekend peak-hour trips. However, truck traffic under the proposed project would only nominally increase (i.e., up to 15 percent) at project buildout. As Because the existing sight distance and roadway geometrics meet the needs of current use and are adequate to accommodate the projected traffic, this is a **less than significant** impact.

**Mitigation:** None Required.

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### ***Road Hazards***

**Impact 31.7: The Central Site Alternative would generate turning movements by heavy vehicles to and from Mecham Road, and could increase the potential for conflicts between Central Site Alternative traffic and through traffic. (Less than Significant)**

The Central Site Alternative would cause an ~~incremental increase (up to 15 percent)~~ in traffic including heavy trucks on Mecham Road at buildout of the project. However, as described above, the Central Site Alternative access driveway would operate at an acceptable level of service during peak hours of background traffic under long-term cumulative conditions, even with ~~incremental~~ increases in traffic. The number of trucks slowing to make the turning movement into the existing landfill site would not substantially increase the potential for vehicle conflicts above current operating conditions. The project would have a **less than significant** impact.

**Mitigation:** None Required.

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## **Roadwear Impacts**

**Impact 31.8: The Central Site Alternative would contribute to the degradation of pavement on public roads. (Less than Significant)**

The truck trips generated by the Central Site Alternative would cause incremental damage and wear to roadway pavement surfaces along the haul route; ~~however, truck traffic under the proposed project would be less than under existing operating conditions at the project site and at buildout would only increase by up to 15 percent.~~ The degree to which this impact would occur depends on the roadway's design (pavement type and thickness) and its current condition. Freeways and state routes, such as U.S. 101 and SR 116, are designed to handle a mix of vehicle types, including heavy trucks, and thus, the Central Site Alternative's impact on those facilities would be negligible. Local roadways are generally not designed to accommodate heavy vehicles, and truck travel on these roads would have the potential to adversely affect the pavement condition; however, Mecham Road and Stony Point Road each have a higher Traffic Index<sup>9</sup> (TI) because these roadways currently carry substantial amounts of traffic, including trucks (e.g., to/from Central Landfill). Roadway damage can include conditions such as loose asphalt and potholes that have the potential to make driving conditions less safe. Roadways significantly affected from Central Site Alternative truck traffic would have to be upgraded to support heavy trucks.

The capability of a roadway to handle a traffic load is measured by deflection testing, coring, and visual condition surveys of the road. These methods allow the roadway's TI to be assessed. Typically, TI ratings of 7.0 to 9.0 are calculated for roadways that are not expected to carry appreciable amounts of truck traffic. Higher TI values of 9.0 to 10.0 are typical of major arterial roadways with heavy truck traffic, and values of 10.0 or more are common for freeways and freeway ramp systems. The effects on pavement life from passenger cars, pickups, and two-axle, four-wheel trucks are considered to be negligible.

To evaluate the Central Site Alternative impact on roadway condition and maintenance, the estimated TI for current and Central Site Alternative conditions was calculated for roadway segments on Mecham Road and Stony Point Road. The TI was calculated in accordance with the procedures specified in the Caltrans *Highway Design Manual* on the basis of a 20-year roadway design period (the standard period used by Caltrans) and on vehicle classification data collected on the roadways during May 2010. Detailed vehicle classification data is provided in Appendix TRAFFIC-3 (Revised). A summary of the TI calculations for roadways on the Central Site Alternative haul route are presented in **Table 31-5**.

**TABLE 31-5**  
**CALCULATED TRAFFIC INDEX (TI) FOR CENTRAL SITE ALTERNATIVE HAUL ROUTES<sup>a</sup>**

<b><u>Roadway</u></b>	<b><u>Existing</u></b>	<b><u>Existing plus Project</u></b>
Mecham Road (south of Stony Point Road)	<u>10.5</u>	<u>11.2</u>
Stony Point Road (north of Roblar Road)	<u>11.2</u>	<u>11.5</u>

a. Traffic Indices in this table represent values calculated on the basis of existing and project truck traffic volumes, and Equivalent Single-Axles Load factors in the Caltrans *Highway Design Manual*.

**Bold** typeface signifies a significant impact.

SOURCE: ESA, 2009 and the Caltrans *Highway Design Manual* 2006a 2012 Traffic Index methodology.

<sup>9</sup> The Traffic Index is a logarithm-based scale that indicates the ability of the pavement structure to support the repetitive wheel and axle loads of large trucks, given a sound structural roadway subbase.

The existing TIs for Mecham Road and Stony Point Road in the vicinity Central Site are 10.5 and 11.2, respectively. The addition of Central Site Alternative daily truck traffic would increase the TI for each road by less than the 1.5 threshold of significance for roadways built to accommodate heavy truck traffic, and the proposed project's impact on pavement degradation would be less than significant because the haul routes are currently designed to accommodate heavy truck traffic.

**Mitigation:** None Required.

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## **Construction**

### **Impact 31.9: Project construction would result in temporary increases in truck traffic and construction worker traffic. (Significant)**

~~Please see the discussion of Impact 12.8 discussion in Chapter 12, Traffic and Transportation. This impact would have the same effects as Impact 12.8. Without mitigation, this impact would be significant.~~

Project construction activities would generate offsite traffic that would include the initial delivery of construction vehicles and equipment to the project site, the daily arrival and departure of construction workers, the delivery of materials throughout construction, and the removal of construction debris. The number of truck trips day-to-day would vary, would not be substantial, and would be spread over the course of those days when delivery of materials and/or removal of debris is needed.

Leveling the project site would generate an excess of about 115,000 cubic yards of soil (i.e., approximately 421,000 cubic yards of excavated soil offset by approximately 306,000 cubic yards of soil used for fill on the site). Excess soil would be transferred to the landfill site using only roads interior to the landfill for temporary stockpile and/or other uses on site. Therefore, management of excess soil during construction would not result in any change in off-site truck trips during the construction process.

Construction-generated traffic would be temporary, and therefore, would not result in any long-term degradation in operating conditions on any roadways in the project locale. The impact of construction-related traffic would be a temporary, intermittent lessening of the capacities of study area roadways because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles. However, given the proximity of the project site to regional roadways (i.e., U.S. 101), construction trucks would have relatively direct routes. Most construction traffic would be dispersed throughout the day. Thus, the temporary increase would not significantly disrupt daily traffic flow on any of the area roadways.

Although the impact from the number of vehicles would be less than significant, truck movements could have an adverse effect on traffic flow in the area caused by the slower speeds of these trucks and longer turning maneuvers. As such, the impact is considered **significant**.

## Mitigation Measure

**Mitigation Measure 31.9:** Implement Mitigation Measure 12.8 (2011 Draft EIR).

**Significance after Mitigation:** Less than Significant.

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## 31.4 References

AASHTO. (American Association of State Highway and Transportation Officials). A Policy on Geometric Design of Highways and Street. 2001.

California Department of Transportation (Caltrans) – Traffic Data Branch. *2009 Traffic Volumes on California State Highways*. Available online at: <http://www.traffic-counts.dot.ca.gov>.

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Crane Transportation Group, Sonoma County Central Landfill Traffic Impact Study, June 16, 2009.

County of Sonoma General Services, Capital Project Plans: Five Year Capital Project Plan for 2009 to 2014. Available online at: <http://sonoma-county.org/gs/administration/cpp.htm>, Accessed May 2010.

Sonoma County - County Bicycle and Pedestrian Master Plan, adopted April 2010.

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Sonoma County Transportation Authority, 2009 Countywide Transportation Plan for Sonoma County, draft April 2009. Available online at <http://www.sctainfo.org/ctp.htm>, accessed April 2009.

Sonoma County Transportation Authority, Traffic Model Outputs: ADT and PM Peak Hour for 2005 and 2035, contact Christopher Barney, June 17, 2009.

Transportation Research Board, *2000 Highway Capacity Manual*.



# **CHAPTER 32 (RECIRCULATED)**

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## **Aesthetics/Central Site Alternative**

### **32.1 Introduction**

This chapter discusses the existing visual character of the Central Site and analyzes the potential for the alternative to affect the existing visual characteristics and views of the Central Site. A site visit was conducted on May 19, 2010 to evaluate views from the Central Site and from the surrounding area. The information presented in this chapter is unique to the Central Site and the reader is referred to Chapter 13, Aesthetics; (2011 Draft EIR), in cases where aesthetic setting information and/or impact analysis is the same for the Central Site as the project site.

### **32.2 Setting**

#### **Regional Characteristics**

The Central Site is also located within the Petaluma and Environs Planning Area. The regional characteristics of this area are discussed in Chapter 13, Aesthetics; (2011 Draft EIR). The Central Site is located in a rural and agrarian area, within the existing Central Disposal Site, just west of the City of Cotati.

#### **Central Site Characteristics**

The Central Site is located on and adjacent to the Central Disposal Site land. The site is adjacent to the existing composting facility, and no structures are present within the project footprint. The immediate vicinity includes rural residences, grazing lands, and open space. The Central Site is located in an area with rolling hills. Site elevation ranges from approximately 350 to 650 feet above mean sea level. The Central Site is not within an area designated as a community separator or scenic landscape unit. In the vicinity of the project, Valley Ford Road and Bodega Avenue are designated as scenic corridors by Sonoma County.

#### **Viewpoints**

Due to the nature of the terrain, the Central Site composting area would not be visible from the majority of the surrounding area. A definition of short-range and long-range is provided in Chapter 13, Aesthetics; (2011 Draft EIR). Due to the location of the composting area on the Central Site, there are no short-range views of the site. Based on a review of aerial photography and May 2010 site visit, several viewpoints were chosen to characterize off-site views. These viewpoints are

shown on **Figure 32-1**. The long-range affected views (over one-quarter mile from the site) include public roadways and private properties in the vicinity.

The Central Site is also intermittently visible for motorists along Roblar Road, Pepper Road and Mecham Road. The site is not visible from Highway 101.

### ***Long-Range Views***

Long-range views of the Central Site include public roadways and private properties. Private properties include single-family rural residences and commercial agricultural operations such as dairy farming or grazing. **Figure 32-2a and 2b** provides photographs of several long-range views of the Central Site. The Central Site is visible from Pepper Road (Viewpoint 1) and portions of Roblar Road (Viewpoints 5 and 6), although views from Roblar Road (Viewpoint 4) are primarily obscured by eucalyptus trees on the hill north of the Central Site. Motorist views along these roadways are short due to the speed of travel, and intermittent due to topography. There is not a direct view of the site from Mecham Road (Viewpoints 2 and 3) due to a hill and trees between the road and the Central Site.

## **Visual Sensitivity**

The Sonoma County's Permit and Resource Management Department provides Visual Assessment Guidelines which are discussed in Chapter 13, Aesthetics- (2011 Draft EIR). The Central Site would be considered of moderate visual quality. The Central Site and the surrounding vicinity are rural and characterized by agricultural uses and open space on rolling hills. The Central Site is not located within a scenic corridor setback (defined as 30 percent of the depth of the lot to a maximum of 200 feet from the centerline of the roadway), and the site's zoning and land use designation do not identify it as a protected scenic resource. The rolling hills and agricultural use on the Central Site contribute to the rural character along the nearby scenic corridors. The site itself does not contain individual landscape or architectural features with significant aesthetics value.

## **Regulatory Environment**

### **California Scenic Highway Program and Scenic Corridor Protection Program**

The State's Scenic Highway Program is described in Chapter 13, Aesthetics- (2011 Draft EIR). The nearest state designated scenic highway to the project area is State Route 116, located 2.25 miles northeast of the Central Site (California Scenic Highway Mapping System, 2007).





SOURCE: DeLorme Street Atlas USA, 2000; and ESA, 2010

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**Figure 32-1**  
Viewpoint Map



Viewpoint 1. View from Pepper Road, looking north



Viewpoint 5. View from Dunham Elementary School, looking south



Viewpoint 6. View from Roblar Road, looking southeast

## Sonoma County General Plan 2020

The relevant objectives and policies of the Sonoma County General Plan 2020 for aesthetic issues are discussed in Chapter 13, Aesthetics- (2011 Draft EIR). The Central Site is not located within a community separator area or scenic landscape unit. A scenic landscape unit is located approximately 1 mile northeast of the Central Site. Valley Ford Road and Bodega Avenue are designated as scenic corridors (Sonoma County, 2008).

## 32.3 Impacts and Mitigation Measures

### Significance Criteria

The significance criteria are the same as those discussed in Chapter 13, Aesthetics- (2011 Draft EIR).

### Impact Discussion

#### **Impact 32.1: The Central Site Alternative would alter the visual character of the Central Site. (Significant)**

While SCWMA is not required to use County Visual Assessment Guidelines, they provide a useful method for analyzing visual impacts within Sonoma County. As discussed in the Visual Sensitivity setting information above, the Central Site is considered of moderate visual sensitivity. The visual dominance of the Central alternative is dependent on many elements or characteristics of the development (See Chapter 13, Aesthetics, **Table 13-2**- (2011 Draft EIR)). Building structures would be single-story and neutral in color. Without screening, the visual dominance of the Central Site Alternative would be co-dominant or dominant. In terms of significance, under the County Visual Assessment Guidelines, a co-dominant project would not be considered significant in an area of moderate sensitivity, however, a dominant project would be considered significant in the same area (See Chapter 13, Aesthetics, **Table 13-3**- (2011 Draft EIR)). Due to the subjective nature of the assessment it is possible that the dominance of this alternative for off-site viewers is a **significant** impact. Implementation of **Mitigation Measure 32.1**, visual screening, would reduce impacts to sensitive viewers from the north and south.

#### **Mitigation Measure**

**Mitigation Measure 32.1:** The alternative shall incorporate landscaping or other screening measures, such as the use of native trees and/or a vegetated berm, along the ~~northwestern~~northern and southern boundaries of the Central Site composting area. The proposed screening measures along the northern boundary of the composting area shall be sufficient in height to screen views of composting facilities from Roblar Road.

**Significance after Mitigation:** Less than significant.

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**Impact 32.2: The Central Site alternative could result in the production of new sources of light and/or glare. (Significant)**

The Central Site Alternative does not contain components which are anticipated to create a substantial amount of glare such as metal or glass; however, Mitigation Measure 32.1 discussed above would aid in reducing day-time glare. Typical hours of operation for the alternative would be between 7:00 a.m. and 4:00 p.m., Monday through Sunday. The site could operate infrequently during the permitted evening hours, for activities such as temperature monitoring. Within the Central Site composting area, existing nighttime lighting is associated with farm structures, residences, and automobiles traveling along nearby roadways. This lighting is of low-intensity and dispersed. The Central Site Alternative would introduce new nighttime lighting sources for security and operational purposes. This impact is **significant**.

**Mitigation Measure**

**Mitigation Measure 32.2:** Implement Mitigation Measure 13.2- (2011 Draft EIR).

**Significance after Mitigation:** Less than significant.

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## 32.4 References

California Scenic Highway Mapping System, 2007. Officially Designated and Eligible Scenic Highways in Sonoma County. Last updated 12-07-2007. Available at:  
[http://www.dot.ca.gov/hq/LandArch/scenic\\_highways/index.htm](http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm)

Sonoma County, 2008. *Sonoma County General Plan 2020*. Sonoma County Permits and Resource Management Department, Sonoma, CA. Adopted by Resolution No. 08-0808 of the Sonoma County Board of Supervisors on September 23, 2008. Available at:  
<http://www.sonoma-county.org/prmd/gp2020/adopted/index.htm>.



## Appendix 2011 DEIR Mitigation Measures (Sites 5A and 40)







**TABLE 2-1  
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 5A)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
5. Air Quality			
<b>Impact 5.1:</b> Construction of the project (associated with either windrow or ASP option) could generate short-term emissions of criteria air pollutants: ROG, NOx, CO, PM10, and PM2.5 that could contribute to existing nonattainment conditions and further degrade air quality.	<p><b>Mitigation Measure 5.1: Construction Emission Controls.</b> During construction, the SCWMA shall require the construction contractor to implement the measures that are specified under BAAQMD's basic and additional construction mitigation procedures. These include:</p> <ul style="list-style-type: none"><li>• <u>Basic Control Measures.</u> These measures are required for all construction projects in the BAAQMD jurisdiction:<ul style="list-style-type: none"><li>○ All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.</li><li>○ All haul trucks transporting soil, sand, or other loose material off-site shall be covered.</li><li>○ All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.</li><li>○ All vehicle speeds on unpaved roads shall be limited to 15 mph. Signage with this speed restriction shall be imposed where appropriate and applicable.</li><li>○ All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.</li><li>○ Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.</li><li>○ All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.</li><li>○ Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.</li></ul></li><li>• <u>Additional Control Measures.</u> Since unmitigated construction emissions would exceed the BAAQMD thresholds, the SCWMA and its contractors shall implement the following additional control measures <u>during</u> project construction:<ul style="list-style-type: none"><li>○ All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.</li><li>○ All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.</li><li>○ Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.</li><li>○ Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is</li></ul></li></ul>	S	SU

KEY: S - Significant

SU – Significant and Unavoidable

LS – Less than Significant

LSM – Less than Significant with Mitigation

NI – No Impact

**TABLE 2-1**  
**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 5A)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
	<p>established.</p> <ul style="list-style-type: none"> <li>o The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.</li> <li>o All trucks and equipment, including their tires, shall be washed off prior to leaving the site.</li> <li>o Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.</li> <li>o Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.</li> <li>o Minimizing the idling time of diesel powered construction equipment to two minutes.</li> <li>o The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NOx reduction and 45 percent PM reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.</li> <li>o Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).</li> <li>o Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM.</li> <li>o Requiring all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.</li> </ul>		
<b>Impact 5.2:</b> Operation of the project (windrow composting option) would result in emissions of criteria air pollutants at levels that would substantially contribute to a potential violation of applicable air quality standards or to nonattainment conditions.	<p><b>Mitigation Measure 5.2a: Composting VOC Reduction via Pseudo-Biofilters.</b> The SCWMA shall implement the following control measure to reduce off-gas emissions from composting organic materials:</p> <ul style="list-style-type: none"> <li>• Apply finished compost as a pseudo-biofilter to cap active windrows. Estimated VOC <u>reduction</u> of 75 percent (CIWMB, 2007).</li> </ul> <p><b>Mitigation Measure 5.2b: Fugitive Dust Control.</b> The SCWMA shall implement best management practices for fugitive dust emission control, including, but not limited to the following:</p> <ul style="list-style-type: none"> <li>• Water exposed surfaces two times per day, except during rainy days.</li> <li>• All vehicle speeds on unpaved roads shall be limited to 15 mph. Signage with this speed restriction shall be imposed where appropriate and applicable.</li> </ul>	S	LSM
<b>Impact 5.3:</b> Operation of the project (ASP composting option) would result in emissions of criteria air pollutants at levels that would not substantially contribute to a potential violation of applicable air quality standards or to nonattainment conditions.	<b>Mitigation Measure 5.3:</b> Implement Mitigation Measure 5.2b (Fugitive Dust Control).	S	LSM

KEY: S - Significant      SU – Significant and Unavoidable      LS – Less than Significant      LSM – Less than Significant with Mitigation      NI – No Impact

**TABLE 2-1  
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 5A)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
<b>Impact 5.4:</b> Project traffic (associated with either windrow or ASP composting option) would generate localized CO emissions on roadways and at intersections in the project vicinity.	None required.	LS	LS
<b>Impact 5.5:</b> Operation of the project (associated with either windrow or ASP composting option) could create objectionable odors affecting a substantial number of people.	<b>Mitigation Measure 5.5: Odor Control.</b> The SCWMA shall develop and comply with an Odor Impact Minimization Plan (OIMP) pursuant to the requirements of the California Code of Regulations, Title 14, Division 7, Chapter 3.1, Article 3, Section 17863.4.	S	LSM
<b>Impact 5.6:</b> Implementation of the project (windrow composting option) may lead to increases in exposure of sensitive receptors in the vicinity to certain toxic air contaminants from various stationary and mobile sources.	<b>Mitigation Measure 5.6:</b> Implement Mitigation Measure 5.2a (Pseudo-Biofilters).	S	LSM
<b>Impact 5.7:</b> Implementation of the project (ASP composting option) may lead to increases in exposure of sensitive receptors in the vicinity to certain toxic air contaminants from various stationary and mobile sources.	None required.	LS	LS
<b>Impact 5.8:</b> Construction and operation of the project (windrow composting option) could result in a cumulatively considerable increase in greenhouse gas emissions.	<p><b>Mitigation Measure 5.8a: Develop Annual GHG Inventory.</b> The applicant shall become a reporting member of The Climate Registry. Beginning with the first year of composting and continuing for the duration of the project operations, the SCWMA shall conduct an annual inventory of GHG emissions, and report these to The Climate Registry. The annual inventory shall be conducted according to The Climate Registry protocols and third-party verified by a verification body accredited through The Climate Registry.</p> <p><b>Mitigation Measure 5.8b: Greenhouse Gas Emissions Reduction Plan.</b> SCWMA shall prepare and make available to the public a Greenhouse Gas Emissions Reduction Plan (GHG plan) containing strategies to ensure that GHG emissions do not exceed 1,100 MT CO<sub>2</sub>e per year. The SCWMA shall implement the approved GHG plan, which will include, but not be limited to, the following measures:</p> <ul style="list-style-type: none"> <li>The SCWMA shall power on-road and off-road vehicles with electricity and/or alternative fuels (such as biodiesel and compressed natural gas) where available.</li> <li>If the SCWMA is unable to reduce emissions to below 1,100 MT CO<sub>2</sub>e per year using the above measures, the SCWMA shall offset all remaining project emissions above that threshold. Any offset of project emissions shall be demonstrated to be real, permanent, verifiable, enforceable, and additional. To the maximum extent feasible, as determined by the SCWMA in coordination with the BAAQMD, offsets shall be implemented locally. Offsets may include but are not limited to, the following (in order of preference): <ol style="list-style-type: none"> <li>Onsite offset of project emissions, for example through development of a renewable energy generation facility or a carbon sequestration project (such as a forestry or wetlands project for which inventory and reporting protocols have been adopted). If the SCWMA develops an offset project, it must be registered with the Climate Action Reserve or otherwise approved by the BAAQMD in order to be used to offset project emissions. The number of offset credits</li> </ol> </li> </ul>	S	LSM

KEY: S - Significant

SU – Significant and Unavoidable

LS – Less than Significant

LSM – Less than Significant with Mitigation

NI – No Impact

**TABLE 2-1  
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 5A)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
	<p>produced would then be included in the annual inventory, and the net (emissions minus offsets) calculated.</p> <p>2. Funding of local projects, subject to review and approval by the BAAQMD, that will result in real, permanent, verifiable, enforceable, and additional reduction in GHG emissions. If the BAAQMD or Sonoma County develops a GHG mitigation fund, the applicant may instead pay into this fund to offset GHG emissions in excess of the significance threshold.</p> <p>3. Purchase of carbon credits to offset emissions to below the significance threshold. Only carbon offset credits that are verified and registered with the Climate Action Reserve, or available through a County-approved local GHG mitigation bank or fund, may be used to offset project emissions.</p>		
<b>Impact 5.9:</b> Construction and operation of the project (ASP composting option) could result in a cumulatively considerable increase in greenhouse gas emissions.	<b>Mitigation Measure 5.9:</b> Implement Mitigation Measures 5.8a (Develop Annual GHG Inventory) and 5.8b (Greenhouse Gas Emissions Reduction Plan).	S	LSM
<b>Impact 5.10:</b> The project (windrow composting option), together with anticipated cumulative development in the Bay Area Air Basin, would contribute to regional criteria pollutants.	<b>Mitigation Measure 5.10:</b> Implement Mitigation Measures 5.1 (Construction Emission Controls), 5.2a (Composting VOC Reduction via Pseudo-Biofilters), and 5.2b (Fugitive Dust Control).	S	SU
<b>Impact 5.11:</b> The project (ASP composting option), together with anticipated cumulative development in the Bay Area Air Basin, would contribute to regional criteria pollutants.	<b>Mitigation Measure 5.11:</b> Implement Mitigation Measures 5.1 (Construction Emission Controls) and 5.2b (Fugitive Dust Control).	S	SU
<b>Impact 5.12:</b> Cumulative risk from all past, present and reasonably foreseeable sources within 1,000 feet of the project (associated with either windrow or ASP composting option) would expose sensitive receptors to PM2.5 and TACs which may lead to adverse health effects.	None required.	LS	LS
<b>6. Biological Resources</b>			
<b>Impact 6.1:</b> Implementation of the project could result in indirect impacts to Coastal Brackish Marsh, a CDFG listed Sensitive Habitat and a USFWS-designated Critical Habitat for the Central California Coast Steelhead Evolutionary Significant Unit (ESU).	<b>Mitigation Measure 6.1:</b> The SCWMA shall ensure the protection of the Coastal Brackish Marsh and Central California Coast Steelhead ESU habitats through Application of Best Management Practices (BMPs) <sup>1</sup> to Provide Effective Erosion and Sediment Control. BMPs would reduce indirect impacts to Coastal Brackish Marsh, Central California Coast Steelhead ESU habitats, and other waters of the U.S. that could occur as a result of sedimentation and siltation from construction activities. These BMPs shall be selected to achieve maximum sediment removal and represent the best available technology that is economically achievable. The performance and effectiveness of these BMPs shall be determined either by visual means, where applicable (i.e., observation of above-normal sediment release), or by actual	S	LSM

<sup>1</sup> The term “Best Management Practices” refers to a wide variety of measures taken to reduce pollutants in stormwater and other non-point source runoff. Measures range from source control, such as use of permeable pavement, to treatment of polluted runoff, such as detention basins and constructed wetlands. Further, the effectiveness of a particular BMP is highly contingent on the context in which it is applied and the method in which it is implemented. BMPs are best used in combination to most effectively remove target pollutants.

KEY: S – Significant      SU – Significant and Unavoidable      LS – Less than Significant      LSM – Less than Significant with Mitigation      NI – No Impact

**TABLE 2-1  
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 5A)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
	<p>water sampling in cases where the verification of containment reduction or elimination (inadvertent petroleum release) is required to determine adequacy of the measure. BMPs to be implemented as part of this mitigation measure shall include, but are not limited to, the following measures:</p> <ul style="list-style-type: none"> <li>BMPs for temporary erosion control (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) shall be employed for disturbed areas, stockpiled soil, and along culverts and drainage ditches on the site and in downstream offsite areas that may be affected by construction activities. Requirements for the placement and monitoring of the BMPs shall become part of the contractor's project specifications. Performance and adequacy of the measures shall be determined visually by site construction management and verified by the SCWMA as appropriate.</li> <li>Dirt and debris shall be swept from paved areas in the construction zone on a daily basis as necessary to remove excessive accumulations of silt, mud or other debris. Sweeping and dust removal shall be implemented by the contractor and oversight of these operations shall be the responsibility of the construction site superintendent.</li> <li>On areas that would have vegetative cover, grass or other vegetative cover shall be established on bare soils within the construction site as soon as possible after disturbance. If grass is chosen, a native seed mix shall be used. At minimum, vegetative application shall be completed by September 15th to allow for plant establishment. No disturbed surfaces or stockpile areas would be left without erosion control measures in place during the period of October 1 through April 30. The application, schedule, and maintenance of the vegetative cover shall be the responsibility of the contractor and requirements to establish a vegetative cover shall be included in the construction contractor's project specifications.</li> <li>If discharges of sediment or hazardous substances to drainage ways are observed, construction shall be halted until the source of contamination is identified and remediated. Visual indications of such contamination would include an oily sheen or coating on water, and noticeable turbidity (lack of clarity) in the water.</li> </ul> <p>Additional BMPs which would be implemented are listed under Mitigation Measure 8.1. BMPs would be reviewed and approved by the San Francisco Bay Regional Water Quality Control Board, as part of the NPDES General Permit for Discharges of Stormwater Associated with Construction Activities.</p>		
<b>Impact 6.2:</b> Implementation of the project has the potential to result in a loss of waters of the United States and/or waters of the state, including drainages, saline emergent wetlands, freshwater emergent wetlands, and seasonal wetlands.	<p><b>Mitigation Measure 6.2:</b> Compensate for Loss and Disturbance of Jurisdictional Waters of the U.S. and/or Waters of the State Resulting from Construction Activities.</p> <ul style="list-style-type: none"> <li>The SCWMA shall prepare a wetland delineation prior to project construction, the results of which will determine the type and acreage of wetland habitat present on the project site, for verification by the Corps. Following the verification, if jurisdictional wetlands and/or other waters of the U.S. occur within the project site, the SCWMA shall obtain and comply with federal and state permit requirements pertaining to impacts to wetlands and/or waters of the U.S., including a Section 404 permit and a Section 401 Water Quality Certification. If it is determined that there are no Waters of the U.S. on the project site, SCWMA shall prepare a report of waste discharge under the Porter Cologne Act.</li> <li>The SCWMA shall protect wetland habitats that occur near the project site by installing</li> </ul>	S	LSM

KEY: S - Significant

SU – Significant and Unavoidable

LS – Less than Significant

LSM – Less than Significant with Mitigation

NI – No Impact

**TABLE 2-1  
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 5A)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
	<p>environmentally sensitive area fencing at least 20 feet from the edge of the feature. Depending on site-specific conditions and permit requirements, this buffer may be wider than 20 feet. The location of the fencing shall be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications shall contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.</p> <ul style="list-style-type: none"> <li>The SCWMA shall comply with the no net loss of wetland habitat and no significant impacts to potential jurisdictional features policy. The project shall compensate for the unavoidable loss of wetlands at a ratio no less than 1:1. Compensation shall take the form of wetland preservation or creation in accordance with Corps and CDFG mitigation requirements, as required under project permits. Preservation and creation may occur onsite through a conservation agreement or offsite through purchasing credits at a Corps approved mitigation bank. Compensation may be a combination of onsite restoration/creation, off-site restoration, or mitigation credits. Final compensation will be determined in consultation with the Corps.</li> <li>A draft restoration, mitigation and monitoring plan shall be developed in accordance with the Corps' federal guidelines (33 CFR 332.4(c)/40 CFR 230.92.4(c). The plan shall describe how wetlands shall be created and monitored over a minimum period of time.</li> <li>If the results of the wetland delineation, as verified by the Corps, indicate that project activities may result in a substantial modification to a river, stream, or lake the SCWMA shall submit an application for a Section 1602 Streambed Alteration Agreement to the CDFG.</li> </ul>		
<b>Impact 6.3:</b> Implementation of the project has the potential to result in adverse impacts to special status species as defined in this section. Implementation of the project could result in direct and indirect impacts to the tricolored blackbird, Point Reyes bird's-beak, soft bird's-beak, and Marin knotweed.	<p><b>Mitigation Measure 6.3a:</b> Perform Preconstruction Surveys for Sensitive Avian Species. Prior to the start of construction, SCWMA shall be required to conduct preconstruction surveys in areas containing suitable habitat for tricolored blackbirds within 0.5 miles of proposed project activities if the construction is scheduled to occur during the March 1 to October 31 of any given year.</p> <p>Surveys shall be conducted in both the breeding and non-breeding season to confirm presence/absence of resident birds. Breeding season for tricolored blackbird is mid-March through mid-July.</p> <p>If active nests or presence of special status avian species are recorded within 500 feet of project activities SCWMA shall consult with CDFG regarding suitable measures to avoid impacting breeding effort. Measures may include, but are not limited to:</p> <ol style="list-style-type: none"> <li>Maintaining a 50-meter buffer around each active nest; no construction activities shall be permitted within this buffer except as approved by CDFG.</li> <li>Depending on conditions specific to each nest, and the relative location and rate of construction activities, it may be feasible for construction to occur as planned within the buffer without impacting the breeding effort. In this case (to be determined in consultation with CDFG), bird behavior shall be monitored daily by a qualified biologist during construction within the buffer. The biologist shall have the authority to halt all construction within the buffer in the event that project activities are impacting the breeding effort. The biologist shall immediately inform the construction manager and CDFG. Construction activities within the buffer shall cease until the nest is no longer active as determined by the biologist.</li> </ol>	S	LSM

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**TABLE 2-1  
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 5A)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
	<p><b>Mitigation Measure 6.3b:</b> Prior to project implementation, the SWCMA shall hire a qualified botanist to perform preconstruction surveys for rare plant species listed in <b>Table 6-3</b> (located in <b>Appendix BIO-1</b>) that have any potential to occur within the project site. The qualified botanist shall conduct preconstruction surveys for rare plants during the appropriate season, according to CDFG guidelines for rare plant surveys (CDFG, 2009d) (<b>Appendix BIO-2</b>), and within suitable habitat prior to construction. The general blooming period for the special-status plant species that have the highest potential to occur within the project site are as follows:</p> <ul style="list-style-type: none"> <li>• Marine knotweed: May through August</li> <li>• Point Reyes birds-beak: June through October</li> <li>• Soft birds-beak: July through November</li> </ul> <p>If rare plant species are found during these surveys, the project would propose avoidance, minimization, and/or compensation measures to CDFG and USFWS for their approval. These measures may include, but are not restricted, to the following:</p> <ol style="list-style-type: none"> <li>1. Minimizing impacts by restricting removal of plants to a few individuals of a relatively large population;</li> <li>2. Transplanting plants to suitable habitat outside the project site, either within SCWMA-owned land or off-site. SCWMA shall coordinate with the appropriate resource agencies and local experts to determine whether transplantation is feasible. If the agencies concur that transplantation is a feasible mitigation measure, a qualified botanist shall develop and implement a transplantation plan through coordination with the appropriate agencies. The special-status plant transplantation plan shall involve identifying a suitable transplant site; moving the plant material and seed bank to the transplant site; collecting seed material and propagating it in a nursery; and monitoring the transplant sites to document recruitment and survival rates.</li> <li>3. Monitoring affected populations or relocated populations to document potential project-related impacts;</li> <li>4. Restoring or enhancing occupied habitat on-site or at another location; and/or</li> <li>5. Protecting occupied habitat for the species on-site or at another regional location. If special-status plants are protected on site, environmentally sensitive area fencing (orange construction barrier fencing) shall be installed around special-status plant populations. The environmentally sensitive area fencing shall be installed at least 20 feet from the edge of the population. The location of the fencing shall be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications shall contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.</li> </ol>		

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**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 5A)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
7. Cultural Resources			
<b>Impact 7.1:</b> The project could have an adverse effect on a known archaeological site (CA-SON-202/H).	<p><b>Mitigation Measure 7.1:</b> Evaluate CA-SON-202/H for its eligibility to the National Register of Historic Places and the California Register of Historical Resources and implement an archaeological data recovery program. In the interest of preventing unnecessary disturbance of a potentially-significant archaeological resource, evaluation of the resource should occur after the final determination of the project area. If the site cannot be avoided through redesign, it should be evaluated for its eligibility to the National and California Registers. This should be accomplished by constructing a detailed Archaeological Research Design and Treatment Plan (ARDTP). The ARDTP should be prepared by an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology in consultation with an affiliated Native American representative. The ARDTP shall contain, at a minimum:</p> <ul style="list-style-type: none"><li>• A prehistoric and historic-period archaeological research context using existing documents;</li><li>• An archaeological sensitivity study and testing plan that identifies expected property types, historical development, relevant research issues and themes, project impacts, and an archaeological testing plan that would identify potentially significant archaeological features and deposits; and</li><li>• An outline of criteria implemented by CEQA and Section 106 of the NHPA if applicable, to evaluate archaeological features and deposits that address relevant research issues.</li></ul> <p>If it is determined that a legally-significant archaeological resource is present and that the project could have an adverse effect on the site, the Sonoma County Waste Management Agency (SCWMA) shall:</p> <ul style="list-style-type: none"><li>• Design and implement an Archaeological Data Recovery Program (ADRP). The ADRP shall identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The ADRP should be prepared by an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology in consultation with an affiliated Native American representative. The ADRP shall identify the scientific/historic research questions applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery should be limited to the portions of the historic property that could be adversely affected by the project. Destructive data recovery methods should not be applied to portions of the archaeological resource if nondestructive methods are practical. The results of the ADRP should be presented in a report that contains methods, analysis, report production, laboratory analysis, and appropriate curation of materials. A public outreach program should be implemented that includes information on the site and Coast Miwok traditional lifeways.</li></ul>	S	LSM
<b>Impact 7.2:</b> The project could inadvertently discover cultural resources.	<p><b>Mitigation Measure 7.2:</b> The SCWMA shall halt work if cultural resources are discovered during ground-disturbing activities. If cultural resources are encountered, all activity in the vicinity of the find shall cease until it can be evaluated by a qualified archaeologist and a Native American representative. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones.</p>	S	LSM

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		Before Mitigation	After Mitigation
	<p>Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. If the archaeologist and Native American representative determine that the resources may be significant, they shall notify the SCWMA and shall develop an appropriate treatment plan for the resources. The archaeologist shall consult with Native American representatives in determining appropriate treatment for prehistoric or Native American cultural resources.</p> <p>In considering any suggested mitigation proposed by the archaeologist and Native American representative, SCWMA shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed in other parts of the project area while mitigation for cultural resources is being carried out.</p>		
<b>Impact 7.3:</b> The project could inadvertently discover human remains.	<b>Mitigation Measure 7.3:</b> Halt work if human skeletal remains are identified during construction. If human skeletal remains are uncovered during project construction, work should immediately halt within 50 feet of the find. SCWMA shall contact the Sonoma County coroner to evaluate the remains and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. If the County coroner determines that the remains are Native American, SCWMA would contact the Native American Heritage Commission (NAHC), in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by AB 2641). The NAHC would then identify the person(s) thought to be the Most Likely Descendent of the deceased Native American, who would then help determine what course of action should be taken in dealing with the remains.	S	LSM
<b>Impact 7.4:</b> The project could inadvertently discover paleontological resources.	<b>Mitigation Measure 7.4:</b> The paleontologist shall halt work if paleontological resources are identified during construction. If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing activities, all ground disturbing activities within 50 feet of the find shall be halted until a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate salvage measures in consultation with the project sponsor and in conformance with Society of Vertebrate Paleontology Guidelines (SVP, 1995; SVP, 1996). If the paleontologist determines the fossil find is unique or significant, and worthy of salvage, measures would focus on identifying an institution willing and able to accept the specimen, plaster jacketing the specimen, and promptly removing the specimen from the construction site for study in a paleontology lab.	S	LSM

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ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 5A)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
8. Hydrology and Water Quality			
Impact 8.1: The project could violate a water quality standard or waste discharge requirement, or otherwise substantially degrade water quality.	<p><b>Mitigation Measure 8.1a:</b> To control and manage shallow groundwater that is pumped during temporary construction activities, as well as stormwater runoff, SCWMA shall prepare and implement a SWPPP as required under the General Construction Permit for Discharges of Storm Water Associated with Construction Activities, for all construction phases of the project. The SWPPP shall identify pollutant sources that may affect the quality of stormwater discharge and shall require the implementation of BMPs to reduce pollutants in storm water discharges.</p> <p>BMPs may include, but would not be limited to:</p> <ul style="list-style-type: none"><li>Excavation and grading activities in areas with steep slopes or directly adjacent to open water shall be scheduled for the dry season only (April 30 to October 15), to the extent possible. This will reduce the chance of severe erosion from intense rainfall and surface runoff.</li><li>If excavation occurs during the rainy season, storm runoff from the construction area shall be regulated through a storm water management/erosion control plan that shall include temporary onsite silt traps and/or basins with multiple discharge points to natural drainages and energy dissipaters. Stockpiles of loose material shall be covered and runoff diverted away from exposed soil material. If work stops due to rain, a positive grading away from slopes shall be provided to carry the surface runoff to areas where flow would be controlled, such as the temporary silt basins. Sediment basins/traps shall be located and operated to minimize the amount of offsite sediment transport. Any trapped sediment shall be removed from the basin or trap and placed at a suitable location onsite, away from concentrated flows, or removed to an approved disposal site.</li><li>Temporary erosion control measures (such as fiber rolls, staked straw bales, detention basins, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) shall be provided until perennial revegetation or landscaping is established and can minimize discharge of sediment into nearby waterways. For construction within 500 feet of a water body, appropriate erosion control measures, including fiber rolls and other erosion control measures listed above, shall be placed between the potential source of sediment and the water body.</li><li>Sediment shall be retained onsite by a system of sediment basins, traps, or other appropriate measures.</li><li>No disturbed surfaces will be left without erosion control measures in place during the rainy season, from October 15th through April 30th.</li><li>Erosion protection shall be provided on all cut-and-fill slopes. Revegetation shall be facilitated by mulching, hydroseeding, or other methods and shall be initiated as soon as possible after completion of grading and prior to the onset of the rainy season (by October 15).</li><li>A vegetation and/or engineered buffer shall be maintained, to the extent feasible, between the construction zone and all surface water drainages including riparian zones.</li><li>Vegetative cover shall be established on the construction site as soon as possible after disturbance.</li><li>BMPs selected and implemented for the project shall be in place and operational prior to the onset of major earthwork on the site. The construction phase facilities shall be maintained regularly and</li></ul>	S	LSM

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**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 5A)**

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	<p>cleared of accumulated sediment as necessary. Effective mechanical and structural BMPs that will be implemented at the project site include the following:</p> <ul style="list-style-type: none"> <li>○ Mechanical storm water filtration measures, including oil and sediment separators or absorbent filter systems such as the Stormceptor® system, can be installed within the storm drainage system to provide filtration of storm water prior to discharge.</li> <li>○ Vegetative strips, high infiltration substrates, and grassy swales can be used where feasible throughout the development to reduce runoff and provide initial storm water treatment.</li> <li>○ Roof drains shall discharge to natural surfaces or swales where possible to avoid excessive concentration and channelizing storm water.</li> <li>○ Permanent energy dissipaters can be included for drainage outlets.</li> <li>○ The water quality detention basins shall be designed to provide effective water quality control measures including the following: <ul style="list-style-type: none"> <li>– Maximize detention time for settling of fine particles;</li> <li>– Establish maintenance schedules for periodic removal of sedimentation, excessive vegetation, and debris that may clog basin inlets and outlets;</li> <li>– Maximize the detention basin elevation to allow the highest amount of infiltration and settling prior to discharge.</li> </ul> </li> <li>● Hazardous materials such as fuels and solvents used on the construction sites shall be stored in covered containers and protected from rainfall, runoff, vandalism, and accidental release to the environment. All stored fuels and solvents will be contained in an area of impervious surface with containment capacity equal to the volume of materials stored. A stockpile of spill cleanup materials shall be readily available at all construction sites. Employees shall be trained in spill prevention and cleanup, and individuals shall be designated as responsible for prevention and cleanup activities.</li> <li>● Equipment shall be properly maintained in designated areas with runoff and erosion control measures to minimize accidental release of pollutants.</li> </ul> <p>The SWPPP shall also specify measures for removing sediment from water pumped for trench dewatering before the water is released to waterways. Specific sediment removal techniques shall include as warranted, but not limited to:</p> <ul style="list-style-type: none"> <li>● Use of settling ponds or large storage tanks (Baker tanks) to allow the settling out of entrained sediments;</li> <li>● Use of physical filters to remove sediment, such as a sand or screen filter, or other filtration method</li> <li>● Use of chemical flocculants, to facilitate the settling out of suspended sediments.</li> </ul> <p><b>Measure 8.1b:</b> To ensure that accidental releases of fuels and other potentially water quality pollutants during project operations do not result in water quality degradation, SCWMA shall, prior to commencement of project operation, complete and adhere to the recommendations provided in a spill prevention and control plan. The plan shall provide for compliance with local, state, and federal regulations regarding storage and use of fluids on site, and shall include, but not limited to:</p>		

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		Before Mitigation	After Mitigation
	<ul style="list-style-type: none"> <li>Storage and handling criteria for fuels, oils, lubricants, antifreeze, and other fluids that minimize fluid release</li> <li>Operational spill prevention measures including staff training for the recognition and proper handling of potentially hazardous fluids</li> <li>Cleanup procedures that, in the event of a spill, provide for identification and response procedures to contain spills, and properly dispose of contaminated soils or other materials, so as to minimize water quality effects.</li> </ul>		
<b>Impact 8.2:</b> The project could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table or conflict with Sonoma County General Plan policies regarding groundwater.	<p><b>Mitigation Measure 8.2a:</b> Sonoma County General Plan Policy WR-2d requires that all large scale commercial and industrial groundwater users implement a groundwater monitoring program. The project operator shall implement a groundwater level monitoring program to evaluate drawdown of groundwater in accordance with county groundwater monitoring standards. In the event that unacceptable rates of groundwater drawdown are indicated, as dictated by County policy, the project operator shall work with Sonoma County to identify alternative source(s) of water supply, to be implemented in lieu of or in tandem with on-site groundwater pumping. Other viable water supply options may include drawing water from a well at a different location, or use of a separate or supplementary water supply system, such as recycled water or surface water.</p> <p><b>Mitigation Measure 8.2b:</b> Prior to construction, SCWMA shall complete a study assessing the potential for implementation of the following water conservation measures on site:</p> <ol style="list-style-type: none"> <li>Use of water-conserving design measures that incorporate green building principles and water conserving fixtures;</li> <li>Use of stormwater retained in the stormwater detention pond to supplement groundwater supplies in support of composting operations; and</li> <li>Potential for use of graywater produced on site as a supplemental water source for composting operations.</li> <li>Potential for use of additional process water from other industrial sources such as wineries.</li> </ol> <p>Recommendations from the study, including but not limited to the implementation of the four measures listed above, shall be incorporated into project design, in order to reduce groundwater consumption and pumping, and maintain consistency with the Sonoma County General Plan.</p> <p><b>Mitigation Measure 8.2c:</b> Prior to the initiation of construction activities, SCWMA shall ensure that the project adheres to PRMD permitting requirements for the implementation of this facility, which would result in the use of groundwater sourced from a low-lying area in support of the project. As required by PRMD, SCWMA shall complete a hydrogeologic study to evaluate groundwater supply that is likely to be available to the project. Additionally, to the extent required by PRMD, SCWMA may also be required to complete a saltwater intrusion analysis in support of the project. SCWMA shall prepare these evaluations and submit to PRMD for review, in accordance with PRMD technical standards and submission requirements. Implementation of this mitigation measure would ensure that SCWMA adheres to PRMD requirements for the project.</p>	S	LSM

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ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 5A)**

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		Before Mitigation	After Mitigation
<b>Impact 8.3:</b> The project could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site, or result in flooding on- or off-site.	<p><b>Mitigation Measure 8.3a:</b> Prior to construction, a hydrologic and flooding study shall be completed for the two unnamed drainages on site, and SCWMA shall ensure that recommendations from the study are incorporated into project design. The study shall include the following:</p> <ul style="list-style-type: none"> <li>Assessment of maximum (100-year event) flood flow rate (which shall include an extra 10 percent flow rate to accommodate potential climate change conditions) along the affected drainages;</li> <li>Assessment shall include an evaluation of flows derived from the watershed upstream of the project site, as well as on-site sources that would be discharged to the affected drainages, as relevant; and</li> <li>Based on these assessments, the study shall specify sizing, capacity, facility location, and outfall location and rate needed to convey a 100-year flood (plus an extra 10 percent volume capacity to accommodate potential climate change conditions) event without causing an increase (as compared to existing conditions) in flooding or other backup of water on site or downstream.</li> </ul> <p><b>Mitigation Measure 8.3b:</b> Prior to construction, a grading and drainage plan for the project site shall be completed, and the SCWMA shall ensure that recommendations from that document are incorporated into project design. The study shall include the following:</p> <ul style="list-style-type: none"> <li>Quantification of stormwater flows on site, up to 100-year storm conditions (which will include an extra 10 percent volume capacity to accommodate potential climate change conditions);</li> <li>Composting area engineering diagrams and maps of proposed drainage facilities, sized so as to convey and contain all stormwater flows from the composting area on site, up to 100 year storm conditions plus an extra 10 percent volume capacity to accommodate potential climate change conditions;</li> <li>Sizing of detention ponds so as to ensure adequate capacity for stormwater storage throughout the rainy season</li> <li>Engineering diagrams and maps of proposed drainage facilities for areas of the site that are not hydrologically connected to the composting area. Facilities shall include ditches, swales, stormwater retention ponds, and other stormwater conveyances, as needed to ensure that stormwater can be conveyed off site without causing additional flooding, erosion, or sedimentation on site or downstream.</li> </ul>	S	LSM
<b>Impact 8.4:</b> The project could create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	<b>Mitigation Measure 8.4:</b> Implement Mitigation Measure 8.3b	S	LSM
<b>Impact 8.5:</b> The project would be located within a FEMA-defined 100-year floodplain, and would result in the displacement of flood waters.	None feasible.	S	SU
<b>Impact 8.6:</b> The project could expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	None required.	LS	LS

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<b>Impact 8.7:</b> Inundation of the project site could result due to seiche, tsunami, or mudflow.	None required.	LS	LS
<b>9. Land Use Planning and Agriculture</b>			
<b>Impact 9.1:</b> The project has the potential to physically divide an established community.	None required.	LS	LS
<b>Impact 9.2:</b> The project has the potential to conflict with the Sonoma County General Plan and Zoning Ordinance, resulting in adverse physical effects.	None feasible.	S	SU
<b>Impact 9.3:</b> The project would result in the conversion of agricultural land, specifically Farmland of Local Importance.	None required.	LS	LS
<b>Impact 9.4:</b> The project would conflict with an existing Williamson Act Contract.	<b>Mitigation Measure 9.4:</b> The County, Applicant or existing property owner would complete one of the following options: <ol style="list-style-type: none"> <li>1. File a notice of nonrenewal which would begin a 9-year non-renewal process. At the end of this period the Williamson Act contract would be terminated.</li> <li>2. Terminate the contract by public acquisition pursuant to the Williamson Act. Public acquisition of Williamson Act lands results in termination of the contract following a consultation process with the County administrating body and the DOC. Public acquisition of contracted lands must meet two criteria (California Government Code §51292): <ol style="list-style-type: none"> <li>a. The location is not based primarily on a consideration of the lower cost of acquiring land in an agricultural preserve.</li> <li>b. If the land is agricultural land covered under a contract pursuant to this chapter for any public improvement, that there is no other land within or outside the preserve on which it is reasonably feasible to locate the public improvement.</li> </ol> </li> </ol>	S	LSM
<b>Impact 9.5:</b> The project has the potential to conflict with airport operations.	<b>Mitigation Measure 9.5:</b> The following measures would be implemented to reduce risks associated with wildlife hazards near Gness Field Airport: <ul style="list-style-type: none"> <li>• Prior to construction of the facility, a Construction and Design Best Management Practices Evaluation will be conducted. This evaluation will include review of design specifications and construction plans and practices to identify potential areas to reduce wildlife hazard attractants.</li> <li>• When operation of the project commences, a Wildlife Hazard Assessment (WHA) would be conducted by a wildlife damage management biologist. The WHA would be prepared pursuant to FAA guidelines (coverage of daily and seasonal occurrences which typically entails a year of observations and monitoring) to determine the extent and type of wildlife hazards attracted to the site and whether a Wildlife Hazard Management Plan (WHMP) would be required.</li> <li>• Upon completion of the WHA, a WHMP will be developed if warranted. The WHMP may include standard measures such as wire grids or netting over the stormwater detention pond, use of auditory repellents and/or falconry to discourage birds from the site, covering compost piles, and/or enclosed areas for incoming feedstock. The program would be periodically re-evaluated to revise bird control techniques as necessary.</li> </ul>	S	LSM

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10. Noise			
<b>Impact 10.1:</b> Project construction could expose persons to or generate excessive noise levels.	<b>Mitigation Measure 10.1:</b> Construction of the new facility shall occur only during daytime between the hours of 7 a.m. – 7 p.m. Monday thru Friday, 9 a.m. – 5 p.m. Saturday, and no construction on Sunday.	S	LSM
<b>Impact 10.2:</b> Operation of the project could expose persons to or generate noise levels in excess of standards established in the local general plans or noise ordinances, or applicable standards of other agencies.	<b>Mitigation Measure 10.2:</b> ASP equipment that would operate at night shall be required to be attenuated to a level that does not exceed 45 dBA at the nearest residences. If post-construction monitoring indicates higher nighttime noise levels from the ASP equipment at sensitive receptor locations, then additional noise barriers (such as fences or walls that block any direct line of site to receptors) or sound insulated equipment enclosures would be required to attenuate operations noise to acceptable levels.	S	LSM
<b>Impact 10.3:</b> Traffic associated with operation of the project would result in an increase in ambient noise levels on nearby roadways used to access the project site.	None required.	LS	LS
<b>Impact 10.4:</b> Increases in traffic from the project in combination with other development would result in cumulative noise increases.	None required.	LS	LS
11. Public Services and Utilities			
<b>Impact 11.1:</b> The project would generate solid waste which would require disposal at a landfill.	None required.	LS	LS
<b>Impact 11.2:</b> The project, and implementation of certain mitigation, would increase energy demands.	None required.	LS	LS
<b>Impact 11.3:</b> The project would require law enforcement services from the Sonoma County Sheriff's Office.	None required.	LS	LS
<b>Impact 11.4:</b> The project would increase demand for fire protection and emergency medical services including response to wildland fires.	None required.	LS	LS
<b>Impact 11.5:</b> The project would include new stormwater drainage facilities, the construction of which could create impacts.	None required.	LS	LS
12. Traffic and Transportation			
<b>Impact 12.1:</b> The project would contribute to Near-Term Cumulative traffic volumes at the study intersection during the weekday a.m. and weekend peak hour.	None required.	LS	LS

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Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
<b>Impact 12.2:</b> The project could worsen traffic safety due to design features or incompatible uses.	<p><b>Mitigation Measure 12.2a:</b> Prior to the start of project operations, SCWMA shall widen (to County standards) the Twin House Ranch Road cross-section between Lakeville Road and the project site to provide two 12-foot-wide lanes, a dedicated left-turn lane and shared through-right turn lane on the Twin House Ranch Road intersection approach to Lakeville Road, and a dedicated southbound right-turn lane on Lakeville Road of a length and turning radius sufficient to fully accommodate southbound right-turning trucks from Lakeville Road separated from the southbound through traffic flow.</p> <p><b>Mitigation Measure 12.2b:</b> Prior to the start of project operations, SCWMA shall install a traffic refuge area (about 200 feet long) on Lakeville Road to accommodate left turning vehicles from Twin House Ranch Road.</p> <p>The refuge area would align opposite to the existing northbound left-turn lane on Lakeville Road and would allow left-turning vehicles from Twin House Ranch Road to cross one lane of through traffic at a time.<sup>2</sup></p> <p>This intersection is located within Sonoma County's jurisdiction, and thus implementation of these mitigation measures would require encroachment permits from the County. The current paved surface on Lakeville Road is 36 feet (two 12-foot-wide travel lanes and two six-foot-wide shoulders). However, the current paved surface at the study intersection is approximately 45 feet and accommodates a northbound left turn lane (11 feet wide, 160 feet long), and a southbound paved apron (9 to 18 feet wide, 125 feet long) that facilitates right turns onto Twin House Ranch Road. It is estimated that a maximum right-of-way width of 60 feet would be required to construct a southbound right-turn lane, a northbound refuge area, and two 12-foot-wide through lanes and maintain the six-foot-width shoulder on the east side of Lakeville Road.</p>	S	LSM
<b>Impact 12.3:</b> The project would create potential conflicts with adopted policies, plans, or programs supporting alternative transportation.	<p><b>Mitigation Measure 12.3a:</b> The operator of the facility shall ensure that all contract haul trucks are covered to prevent spillage of materials onto haul routes.</p> <p><b>Mitigation Measure 12.3b:</b> The operator shall conduct regular sweeping of the intersection of Lakeville Road / Twin House Ranch Road to keep it free of debris and dirt that may accumulate from exiting trucks.</p>	S	LSM
<b>Impact 12.4:</b> The project would generate turning movements by heavy vehicles to and from Lakeville Road at Twin House Ranch Road, increasing the potential for road hazard conflicts between project traffic and through traffic.	<p><b>Mitigation Measure 12.4a:</b> Prior to the start of project operations, SCWMA shall post warning signs on Lakeville Road 250 feet in advance of the access driveway (Twin House Ranch Road) that cautions drivers about truck traffic entering and exiting the roadway.</p> <p>The warning signs shall follow guidelines set forth in the <i>California Manual on Uniform Traffic Control Devices</i> (Caltrans, 2010).</p> <p><b>Mitigation Measure 12.4b:</b> SCWMA shall implement intersection improvements identified in Mitigation Measures 12.2a and 12.2b.</p>	S	LSM

<sup>2</sup> *California Highway Design Manual (Section-403.7 Refuge Areas)* states that “The shadowing effect of traffic islands may be used to provide refuge areas for turning and crossing vehicles. Adequate shadowing provides refuge for a vehicle waiting to cross or enter an uncontrolled traffic stream. Similarly, channelization also may provide a more efficient crossing of two or more traffic streams by permitting drivers to select a time gap in one traffic stream at a time.”

KEY: S – Significant      SU – Significant and Unavoidable      LS – Less than Significant      LSM – Less than Significant with Mitigation      NI – No Impact



**TABLE 2-1  
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 5A)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
<b>Impact 12.5:</b> The project would contribute to Long-Term Cumulative traffic volumes at the study intersection during the weekday a.m. and weekend peak hour. This would be a significant impact during the a.m. and weekend peak hour.	<p><b>Mitigation Measure 12.5a:</b> Implement Mitigation Measure 12.2b (install a 200-foot-long traffic refuge area on Lakeville Road to accommodate left turning vehicles from Twin House Ranch Road).</p> <p>Implementation of Mitigation Measure 12.2b would improve the LOS at the Lakeville Road and Twin House Ranch Road intersection to LOS C or better during the weekday a.m. peak hour and weekend peak hour, as drivers turning from Twin House Ranch Road left onto Lakeville Road would be able to select a time gap in one traffic stream at a time (as described in Footnote 11). As the intersection would operate at an acceptable LOS after mitigation, the project would have a less-than-significant impact.</p> <p><b>Mitigation Measure 12.5b:</b> Prior to Year 2030, SCWMA shall install a traffic refuge area (about 200 feet long) on Lakeville Road to accommodate left turning vehicles from Stage Gulch Road.</p> <p>Implementation of Mitigation Measure 12.5b would improve the LOS at the Stage Gulch Road and Lakeville Highway – Lakeville Road intersection to LOS C during the weekday a.m. peak hour, as drivers turning from Stage Gulch Road left onto Lakeville Road would be able to select a time gap in one traffic stream at a time (as described in Footnote 11). As the intersection would operate at an acceptable LOS after mitigation, the project would have a less-than-significant impact.</p>	S	LSM
<b>Impact 12.6:</b> The project would generate turning movements by heavy vehicles to and from Lakeville Road at Twin House Ranch Road, increasing the potential for road hazard conflicts between project traffic and through traffic.	<p><b>Mitigation Measure 12.6a:</b> Implement Mitigation Measure 12.4a (posting of warning signs on Lakeville Road in advance of Twin House Ranch Road that cautions drivers about truck traffic entering and exiting the roadway).</p> <p><b>Mitigation Measure 12.6b:</b> SCWMA shall implement intersection improvements identified in Mitigation Measures 12.2a and 12.2b.</p>	S	LSM
<b>Impact 12.7:</b> The project could contribute to the degradation of pavement on public roads.	<b>Mitigation Measure 12.7:</b> Implement Mitigation Measure 12.2a (widen Twin House Ranch Road to County standards between Lakeville Road and the project site), which would increase the pavement's Traffic Index to support the project-generated heavy truck traffic. Improving the road to County standards will lessen the degradation of the pavement due to the project.	S	LSM
<b>Impact 12.8:</b> Project construction would result in temporary increases in truck traffic and construction worker traffic.	<p><b>Mitigation Measure 12.8:</b> The construction contractor(s) shall develop a construction management plan for review and approval by the Sonoma County Department of Transportation and Public Works. The plan shall include at least the following items and requirements to reduce, to the maximum extent feasible, traffic congestion during construction of this project and other nearby projects that could be simultaneously under construction:</p> <ul style="list-style-type: none"> <li>• A set of comprehensive traffic control measures that include designating construction access routes and scheduling of major truck trips and deliveries to avoid peak traffic hours and designated construction access routes; and</li> <li>• Notification of adjacent property owners and public safety personnel regarding scheduled major deliveries.</li> </ul>	S	LSM

KEY: S - Significant

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**TABLE 2-1  
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 5A)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
13. Aesthetics			
Impact 13.1: The project would alter the visual character of the project site.	None required.	LS	LS
Impact 13.2: The project could result in the production of new sources of light and/or glare.	Mitigation Measure 13.2: The following measures are based on recommendations within Sonoma County's Visual Assessment Guidelines and the Sonoma County General Plan. These measures shall be incorporated into the project design: <ul style="list-style-type: none"><li>Exterior lighting shall be downward casting and fully shielded to prevent glare.</li><li>Lighting shall not wash out structures or any portions of the site.</li><li>Light fixtures shall not be located at the periphery of the property and shall not spill over onto adjacent properties or into the sky.</li><li>Flood lights shall not be used.</li><li>Parking lot fixtures should be limited in height (20-feet).</li><li>All parking lot and/or street light fixtures shall use full cut-off fixtures.</li><li>Lighting shall shut off automatically after closing and security lighting shall be motion-sensor activated.</li><li>Night time lighting shall be limited to the minimum necessary to provide for security and safety.</li></ul>	S	LSM

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**TABLE 2-2**  
**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 40 ALTERNATIVE)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
15. Air Quality/Site 40			
<b>Impact 15.1:</b> Construction of the Site 40 Alternative (associated with either windrow or ASP option) could generate short-term emissions of criteria air pollutants: ROG, NOx, CO, PM10, and PM2.5 that could contribute to existing nonattainment conditions and further degrade air quality.	<b>Mitigation Measure 15.1:</b> Implement Mitigation Measure 5.1 (Construction Emission Controls).	S	SU
<b>Impact 15.2:</b> Operation of the Site 40 Alternative (windrow composting option) would result in emissions of criteria air pollutants at levels that would substantially contribute to a potential violation of applicable air quality standards or to nonattainment conditions.	<b>Mitigation Measure 15.2a:</b> Implement Mitigation Measure 5.2a (Composting VOC Reduction via Pseudo-Biofilters). <b>Mitigation Measure 15.2b:</b> Implement Mitigation Measure 5.2b (Fugitive Dust Control).	S	LSM
<b>Impact 15.3:</b> Operation of the Site 40 Alternative (ASP composting option) would result in emissions of criteria air pollutants at levels that would substantially contribute to a potential violation of applicable air quality standards or to nonattainment conditions.	<b>Mitigation Measure 15.3:</b> Implement Mitigation Measure 5.2b (Fugitive Dust Control).	S	LSM
<b>Impact 15.4:</b> Site 40 Alternative traffic (associated with either windrow or ASP composting option) would generate localized CO emissions on roadways and at intersections in the site vicinity.	None required.	LS	LS
<b>Impact 15.5:</b> Operation of the Site 40 Alternative (associated with either windrow or ASP composting option) could create objectionable odors affecting a substantial number of people.	<b>Mitigation Measure 15.5:</b> Implement Mitigation Measure 5.5 (Odor Control).	S	LSM
<b>Impact 15.6:</b> Implementation of the Site 40 Alternative (windrow composting option) may lead to increases in chronic exposure of sensitive receptors in the vicinity to certain toxic air contaminants from various stationary and mobile sources.	<b>Mitigation Measure 15.6:</b> Implement Mitigation Measure 15.2a (Pseudo-Biofilters).	S	SU
<b>Impact 15.7:</b> Implementation of the Site 40 Alternative (ASP composting option) may lead to increases in chronic exposure of sensitive receptors in the vicinity to certain toxic air contaminants from various stationary and mobile sources.	None required.	LS	LS

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**TABLE 2-2  
ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 40 ALTERNATIVE)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
<b>Impact 15.8:</b> Construction and operation of the Site 40 Alternative (windrow composting option) could result in a cumulatively considerable increase in greenhouse gas emissions.	<p><b>Mitigation Measure 15.8a: Develop Annual GHG Inventory.</b> The applicant shall become a reporting member of The Climate Registry. Beginning with the first year of composting and continuing for the duration of the Site 40 Alternative operations, the SCWMA shall conduct an annual inventory of GHG emissions, and report these to The Climate Registry. The annual inventory shall be conducted according to The Climate Registry protocols and third-party verified by a verification body accredited through The Climate Registry.</p> <p><b>Mitigation Measure 15.8b: Greenhouse Gas Emissions Reduction Plan.</b> SCWMA shall prepare and make available to the public a Greenhouse Gas Emissions Reduction Plan (GHG plan) containing strategies to ensure that GHG emissions do not exceed 1,100 MT CO<sub>2</sub>e per year. The SCWMA shall implement the approved GHG plan, which will include, but not be limited to, the following measures:</p> <ul style="list-style-type: none"> <li>• The SCWMA shall power on-road and off-road vehicles with electricity and/or alternative fuels (such as biodiesel and compressed natural gas) to the extent feasible.</li> <li>• The SCWMA shall provide negative pressure buildings for indoor composting and treat collected air in a biofilter or air scrubbing system, if feasible.</li> <li>• If the SCWMA is unable to reduce emissions to below 1,100 MT CO<sub>2</sub>e per year using the above measures, the SCWMA shall offset all remaining Site 40 Alternative emissions above that threshold. Any offset of Site 40 Alternative emissions shall be demonstrated to be real, permanent, verifiable, enforceable, and additional. To the maximum extent feasible, as determined by the SCWMA in coordination with the BAAQMD, offsets shall be implemented locally. Offsets may include but are not limited to, the following (in order of preference):               <ol style="list-style-type: none"> <li>1. Onsite offset of Site 40 Alternative emissions, for example through development of a renewable energy generation facility or a carbon sequestration project (such as a forestry or wetlands project for which inventory and reporting protocols have been adopted). If the SCWMA develops an offset project, it must be registered with the Climate Action Reserve or otherwise approved by the BAAQMD in order to be used to offset Site 40 Alternative emissions. The number of offset credits produced would then be included in the annual inventory, and the net (emissions minus offsets) calculated.</li> <li>2. Funding of local projects, subject to review and approval by the BAAQMD, that will result in real, permanent, verifiable, enforceable, and additional reduction in GHG emissions. If the BAAQMD or Sonoma County develops a GHG mitigation fund, the applicant may instead pay into this fund to offset GHG emissions in excess of the significance threshold.</li> <li>3. Purchase of carbon credits to offset emissions to below the significance threshold. Only carbon offset credits that are verified and registered with the Climate Action Reserve, or available through a County-approved local GHG mitigation bank or fund, may be used to offset Site 40 Alternative emissions.</li> </ol> </li> </ul>	S	LSM
<b>Impact 15.9:</b> Construction and operation of the Site 40 Alternative (ASP composting option) could result in a cumulatively considerable increase in greenhouse gas emissions.	<b>Mitigation Measure 15.9:</b> Implement Mitigation Measures 15.8a (Develop Annual GHG Inventory) and 15.8b (Greenhouse Gas Emissions Reduction Plan).	S	LSM

KEY: S - Significant      SU – Significant and Unavoidable      LS – Less than Significant      LSM – Less than Significant with Mitigation      NI – No Impact

**TABLE 2-2**  
**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 40 ALTERNATIVE)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
<b>Impact 15.10:</b> The Site 40 Alternative (windrow composting option), together with anticipated cumulative development in the Bay Area Air Basin, would contribute to regional criteria pollutants.	<b>Mitigation Measure 15.10:</b> Implement Mitigation Measures 15.1 (Construction Emission Controls), 15.2a (Composting VOC Reduction via Pseudo-Biofilters), and 15.2b (Fugitive Dust Control).	S	SU
<b>Cumulative Impact 15.11:</b> The Site 40 Alternative (ASP composting option), together with anticipated cumulative development in the Bay Area Air Basin, would contribute to regional criteria pollutants.	<b>Mitigation Measure 15.11:</b> Implement Mitigation Measures 15.1 (Construction Emission Controls) and 15.2b (Fugitive Dust Control).	S	SU
<b>Cumulative Impact 15.12:</b> Cumulative risk from all past, present and reasonably foreseeable sources within 1,000 feet of the Site 40 Alternative (associated with either windrow or ASP composting option) would expose sensitive receptors to PM <sub>2.5</sub> and TACs which may lead to adverse health effects.	None required.	LS	LS
<b>16. Biological Resources/Site 40</b>			
<b>Impact 16.1:</b> Implementation of the Site 40 Alternative has the potential to result in a loss of waters of the United States and/or waters of the state, including seasonal drainages and seasonal wetlands.	<b>Mitigation Measure 16.1</b> Implement Mitigation Measures 6.1 and 6.2. Although Mitigation Measure 6.1 refers to indirect impacts on water quality of marshlands, application of BMPs and standard procedures to reduce accumulation of water contaminants, erosion, and discharge of sediment and other hazardous materials are applicable to minimize indirect impacts on all wetlands, other waters of the U.S., and waters of the state.	S	LSM
<b>Impact 16.2:</b> Implementation of the Site 40 Alternative could result in direct and indirect impacts to the northwestern pond turtle, a special status species.	<b>Mitigation Measure 16.2:</b> To reduce potential impacts on northwestern pond turtles, SCWMA shall retain a biologist to conduct a survey for northwestern pond turtles within 24 hours prior to the start of construction activities in drainages, ponds, and other watercourses located in the work area. If a turtle is found in the work area, the biologist shall try to passively move the turtle out of the area. If a turtle becomes trapped during construction activities in the waterway, a biologist shall remove the turtle from the work area and place it downstream of construction activities or in a suitable habitat in the vicinity of the project.	S	LSM
<b>17. Cultural Resources/Site 40</b>			
<b>Impact 17.1:</b> The Site 40 Alternative would not affect significant architectural/structural resources.	None required.	LS	LS
<b>Impact 17.2:</b> The Site 40 Alternative could inadvertently discover cultural resources.	<b>Mitigation Measure 17.2:</b> Implement Mitigation Measure 7.2.	S	LSM
<b>Impact 17.3:</b> The Site 40 Alternative could inadvertently discover human remains.	<b>Mitigation Measure 17.3:</b> Halt work if human skeletal remains are identified during construction. Implement Mitigation Measure 7.3.	S	LSM
<b>Impact 17.4:</b> The Site 40 Alternative could inadvertently discover paleontological resources.	<b>Mitigation Measure 17.4a:</b> Prior to the start of any subsurface excavation, all construction forepersons and field supervisors shall receive training by a qualified professional paleontologist, as defined by the SVP (1995), who is experienced in teaching non-specialists. Topics to be covered will include the	S	LSM

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**TABLE 2-2**  
**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 40 ALTERNATIVE)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
	<p>scientific importance of fossil remains; the potential for fossil remains being uncovered and/or disturbed by project-related earth moving; where such remains are most likely to be encountered during earth moving; and procedures to be employed if fossil remains are discovered during excavations. Procedures to be employed if fossil remains are discovered include halting construction within 50 feet of any potential fossil find and notifying a qualified paleontologist, who shall evaluate its significance. Training on paleontological resources shall also be provided to all other construction workers, but may involve using a videotape of the initial training and/or written materials rather than in-person training by a paleontologist. If a fossil is determined to be significant and avoidance is not feasible, the paleontologist shall develop and implement an excavation and salvage plan as described in Mitigation Measure 17.4b.</p> <p><b>Mitigation Measure 17.4b:</b> A qualified professional paleontologist, as defined by the SVP (1995), shall monitor and inspect excavated faces for paleontological resources during initial ground disturbance for each construction phase of the project. After initial ground disturbance, onsite monitoring may cease if the paleontologist determines that the potential to uncover fossils at the project site is low. This determination can be made based upon his or her professional judgment and the specific stratigraphic facies<sup>3</sup> within the Petaluma Formation where excavation is occurring. However, the paleontologist shall remain on-call throughout the project duration in the event of an unanticipated find during subsequent construction activities (as described in Mitigation Measure 17.4a).</p> <p>The paleontologist shall assess the nature and importance of all potential fossil discoveries. If a fossil is determined to be significant and avoidance is not feasible, the paleontologist, in consultation with SCWMA, shall develop and implement an excavation and salvage plan in accordance with SVP standards (SVP, 1995; SVP, 1996). Measures would focus on identifying an institution willing and able to accept the specimen, plaster jacketing the specimen, and promptly removing the specimen from the construction site for study in a paleontology lab.</p>		
<b>18. Hydrology and Water Quality/Site 40</b>			
<b>Impact 18.1:</b> The Site 40 Alternative could violate a water quality standard or waste discharge requirement, or otherwise substantially degrade water quality.	<b>Mitigation Measure 18.1:</b> Implement Mitigation Measure 8.1	S	LSM
<b>Impact 18.2:</b> The Site 40 Alternative could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table or conflict with Sonoma County General Plan policies regarding groundwater.	<b>Mitigation Measure 18.2:</b> Implement Mitigation Measure 8.2a and 8.2b	S	LSM

<sup>3</sup> A mappable, areally-restricted part of a rock formation, differing in lithology or fossil content from other beds deposited at the same time and in lithologic continuity.

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**TABLE 2-2**  
**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 40 ALTERNATIVE)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
<b>Impact 18.3:</b> The Site 40 Alternative could substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site, or result in flooding on- or off-site.	<b>Mitigation Measure 18.3:</b> Implement Mitigation Measure 8.3b.	S	LSM
<b>Impact 18.4:</b> The Site 40 Alternative could create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	<b>Mitigation Measure 18.4:</b> Implement Mitigation Measure 8.3b.	S	LSM
<b>19. Land Use and Agriculture/Site 40</b>			
<b>Impact 19.1:</b> The Site 40 Alternative has the potential to physically divide an established community.	None required.	LS	LS
<b>Impact 19.2:</b> The Site 40 Alternative has the potential to conflict with the Sonoma County General Plan and Zoning Ordinance, resulting in adverse physical effects.	<b>Mitigation Measure 19.2:</b> Implement ASP composting at Site 40.	S	LSM
<b>Impact 19.3:</b> The Site 40 Alternative would result in the conversion of agricultural land, specifically Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance and Grazing Land.	<b>Mitigation Measure 19.3:</b> Implement Mitigation Measure 9.4.	S	SU
<b>Impact 19.4:</b> The Site 40 Alternative would conflict with an existing Williamson Act Contract.	<b>Mitigation Measure 19.4:</b> Implement Mitigation Measure 9.4.	S	LSM
<b>Impact 19.5:</b> The Site 40 Alternative has the potential to conflict with airport operations.	<b>Mitigation Measure 19.5:</b> Implement Mitigation Measure 9.5 to reduce risks associated with wildlife hazards near Petaluma Municipal Airport.	S	LSM
<b>20. Noise/Site 40</b>			
<b>Impact 20.1:</b> Construction at Site 40 could expose persons to or generate excessive noise levels.	<b>Mitigation Measure 20.1:</b> Implement Mitigation Measure 10.1.	S	LSM
<b>Impact 20.2:</b> Operation of the Site 40 composting facility could expose persons to or generate noise levels in excess of standards established in the local general plans or noise ordinances, or applicable standards of other agencies.	<b>Mitigation Measure 20.2:</b> Implement Mitigation Measure 10.2 (ASP equipment control).	S	LSM
<b>Impact 20.3:</b> Traffic associated with operation of the project could result in an increase in ambient noise levels on nearby roadways used to access the project site.	None required.	LS	LS

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**TABLE 2-2**  
**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 40 ALTERNATIVE)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
<b>Impact 20.4:</b> Increases in traffic from the Site 40 Alternative in combination with other development would result in cumulative noise increases.	None required.	LS	LS
<b>21. Public Services and Utilities/Site 40</b>			
<b>Impact 21.1:</b> The Site 40 Alternative would generate solid waste which would require disposal at a landfill.	None required.	LS	LS
<b>Impact 21.2:</b> The Site 40 Alternative and implementation of certain mitigations, would increase energy demands.	None required.	LS	LS
<b>Impact 21.3:</b> The Site 40 Alternative would require law enforcement services from the Sonoma County Sheriff's Office.	None required.	LS	LS
<b>Impact 21.4:</b> The Site 40 Alternative would increase demand for fire protection and emergency medical services including response to wildland fires.	None required.	LS	LS
<b>Impact 21.5:</b> The Site 40 Alternative would include new stormwater drainage facilities, the construction of which could create impacts.	None required.	LS	LS
<b>22. Traffic and Transportation/Site 40</b>			
<b>Impact 22.1:</b> The Site 40 Alternative would contribute to Near-Term Cumulative traffic volumes at the study intersection during the weekday a.m. and weekend peak hour.	None required.	LS	LS
<b>Impact 22.2:</b> The Site 40 Alternative could worsen traffic safety due to design features or incompatible uses.	<b>Mitigation Measure 22.2:</b> Prior to the start of project operations, SCWMA shall widen (to County standards) the Site 40 Access Road cross-section between Stage Gulch Road and the project site to provide two 12-foot-wide lanes, a dedicated left-turn lane on the access road intersection approach to Stage Gulch Road, and sufficient inbound lane width (westbound traffic) to fully accommodate southbound right-turning trucks from Stage Gulch Road.	S	LSM
<b>Impact 22.3:</b> The Site 40 Alternative would create potential conflicts with adopted policies, plans, or programs supporting alternative transportation.	<b>Mitigation Measure 22.3a:</b> Implement Mitigation Measure 12.3a (ensure that all contract haul trucks are covered to prevent spillage of materials onto haul routes). <b>Mitigation Measure 22.3b:</b> The operator shall conduct regular sweeping of the intersection of Stage Gulch Road at the Site 40 access road so that the intersection remains free of debris and dirt that may accumulate from exiting trucks.	S	LSM

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**TABLE 2-2**  
**ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES (SITE 40 ALTERNATIVE)**

Impact	Mitigation Measure	Impact Significance	
		Before Mitigation	After Mitigation
<b>Impact 22.4:</b> The Site 40 Alternative would generate turning movements by heavy vehicles to and from Stage Gulch Road at the Site 40 access road, increasing the potential for road hazard conflicts between Site 40 Alternative traffic and through traffic.	<b>Mitigation Measure 22.4:</b> Prior to the start of Site 40 Alternative operations the SCWMA shall post warning signs on Stage Gulch Road 250 feet in advance of the access driveway (Site 40) that cautions drivers about truck traffic entering and exiting the roadway.  The warning signs shall follow guidelines set forth in the <i>California Manual on Uniform Traffic Control Devices</i> (Caltrans, 2010).	S	LSM
<b>Impact 22.5:</b> The Site 40 Alternative would contribute to Long-Term Cumulative traffic volumes at the study intersection during the weekday a.m. and weekend peak hour.	None required.	LS	LS
<b>Impact 22.6:</b> The project would generate turning movements by heavy vehicles to and from Stage Gulch Road at the Site 40 Alternative access road, increasing the potential for road hazard conflicts between project traffic and through traffic.	<b>Mitigation Measure 22.6a:</b> Implement Mitigation Measure 22.4 (posting of warning signs on Stage Gulch Road in advance of the access road (Site 40) that cautions drivers about truck traffic entering and exiting the roadway). <b>Mitigation Measure 22.6b:</b> Implement Mitigation Measure 22.2 (intersection improvements).	S	LSM
<b>Impact 22.7:</b> The Site 40 Alternative would contribute to the degradation of pavement on public roads.	None required.	LS	LS
<b>Impact 22.8:</b> Project construction would result in temporary increases in truck traffic and construction worker traffic.	<b>Mitigation Measure 22.8:</b> Implement Mitigation Measure 12.8	S	LSM
<b>23. Aesthetics/Site 40</b>			
<b>Impact 23.1:</b> The Site 40 Alternative would alter the visual character of Site 40.	<b>Mitigation Measure 23.1:</b> The alternative shall incorporate landscaping or other screening measures, such as the use of native trees and/or a vegetated berm, along the northeastern and southeastern boundaries of the Site 40 composting area.	S	LSM
<b>Impact 23.2:</b> This alternative could result in the production of new sources of light and/or glare.	<b>Mitigation Measure 23.2:</b> Implement Mitigation Measure 13.2.	S	LSM

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# Appendix AIR-5

(Revised)





## **APPENDIX AIR-5**

# **Central Site Alternative Criteria Pollutant and GHG Emissions**

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### **Introduction to the Air Quality Models and Results**

The majority of the models, emission factors, and general methodology are the same for the Central Site Alternative as for the project (see Appendix AIR-1 for this information). However, the Central Site Alternative incorporates differing construction and operational assumptions, such as disturbed areas, traffic, and only ASP for composting operations. These assumptions and results are included below.

This Appendix is separated into the following sub-sections:

- URBEMIS2007 MODEL SUMMER AND ANNUAL RESULTS FOR CENTRAL SITE ALTERNATIVE YEAR 2010 (CONSTRUCTION) AND 2011 (OPERATIONS) – ASP COMPOSTING
- URBEMIS2007 MODEL SUMMER AND ANNUAL RESULTS FOR CENTRAL SITE ALTERNATIVE YEAR 2030 (OPERATIONS) – ASP COMPOSTING
- EMFAC2007 MODEL RESULTS FOR EXISTING OPERATIONS (YEAR 2011 WEEKDAY AND SATURDAY)
- EMFAC2007 MODEL RESULTS FOR CENTRAL SITE ALTERNATIVE OPERATIONS (YEAR 2011 WEEKDAY AND SATURDAY)
- EMFAC2007 MODEL RESULTS FOR CENTRAL SITE ALTERNATIVE OPERATIONS (YEAR 2030 WEEKDAY AND SATURDAY)
- CENTRAL SITE ALTERNATIVE ASP COMPOSTING EMISSIONS
- CENTRAL SITE ALTERNATIVE GHG ANALYSIS (YEAR 2011) ASP COMPOSTING
- CENTRAL SITE ALTERNATIVE GHG ANALYSIS (YEAR 2030) ASP COMPOSTING

***URBEMIS2007 MODEL RESULTS FOR CENTRAL SITE ALTERNATIVE -- YEAR 2010  
(CONSTRUCTION) AND 2011 (OPERATIONS) – ASP COMPOSTING***

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Urbemis 2007 Version 9.2.4

## Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Users\Inxm\AppData\Roaming\Urbemis\Version9a\Projects\Sonoma Compost Central Site Const-2010 Ops-2011 .urb924

Project Name: Sonoma Compost Const-2010 Ops-2011 Central Site

Project Location: Sonoma County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

## Summary Report:

## CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2010 TOTALS (lbs/day unmitigated)	6.47	58.42	31.78	0.02	110.10	2.94	113.03	23.00	2.70	25.70	6,472.82
2010 TOTALS (lbs/day mitigated)	6.47	49.85	31.78	0.02	52.14	1.87	54.01	10.90	1.72	12.62	6,472.82
2011 TOTALS (lbs/day unmitigated)	3.79	35.75	14.96	0.00	40.01	1.36	41.37	8.36	1.29	9.64	5,024.70
2011 TOTALS (lbs/day mitigated)	3.79	35.75	14.96	0.00	18.94	1.36	20.29	3.96	1.29	5.24	5,024.70

## AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.34	0.25	1.74	0.00	0.01	0.01	279.29

## SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.34	0.25	1.74	0.00	0.01	0.01	279.29

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Construction Unmitigated Detail Report:

## CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
Time Slice 1/1/2010-2/2/2010 Active Days: 23	2.93	16.66	11.92	0.00	0.01	1.41	1.42	0.00	1.30	1.30	1,553.63
Asphalt 01/01/2010-02/02/2010	2.93	16.66	11.92	0.00	0.01	1.41	1.42	0.00	1.30	1.30	1,553.63
Paving Off-Gas	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.64	15.97	9.18	0.00	0.00	1.39	1.39	0.00	1.27	1.27	1,272.04
Paving On Road Diesel	0.03	0.54	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	77.84
Paving Worker Trips	0.09	0.15	2.57	0.00	0.01	0.01	0.02	0.00	0.00	0.01	203.75
Time Slice 2/4/2010-8/12/2010 Active Days: 136	5.15	48.81	23.88	0.02	110.08	2.34	112.43	23.00	2.16	25.16	5,298.33
Mass Grading 02/04/2010-11/30/2010	5.15	48.81	23.88	0.02	110.08	2.34	112.43	23.00	2.16	25.16	5,298.33
Mass Grading Dust	0.00	0.00	0.00	0.00	110.00	0.00	110.00	22.97	0.00	22.97	0.00
Mass Grading Off Road Diesel	4.16	33.67	17.48	0.00	0.00	1.79	1.79	0.00	1.65	1.65	3,007.48
Mass Grading On Road Diesel	0.93	15.05	4.79	0.02	0.08	0.55	0.62	0.02	0.50	0.53	2,163.51
Mass Grading Worker Trips	0.05	0.09	1.61	0.00	0.01	0.00	0.01	0.00	0.00	0.01	127.35



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Time Slice 8/13/2010-11/30/2010										
Active Days: 78										
Building 08/13/2010-12/31/2010										
Building Off Road Diesel										
Building Vendor Trips										
Building Worker Trips										
Mass Grading 02/04/2010-11/30/2010										
Mass Grading Dust										
Mass Grading Off Road Diesel										
Mass Grading On Road Diesel										
Mass Grading Worker Trips										
Time Slice 12/1/2010-12/31/2010										
Active Days: 23										
Building 08/13/2010-12/31/2010										
Building Off Road Diesel										
Building Vendor Trips										
Building Worker Trips										
Time Slice 1/1/2011-12/31/2011										
Active Days: 313										
Fine Grading 01/01/2011-12/31/2011										
Fine Grading Dust										
Fine Grading Off Road Diesel										
Fine Grading On Road Diesel										
Fine Grading Worker Trips										

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Phase Assumptions

Phase: Fine Grading 1/1/2011 - 12/31/2011 - Facility Off-road Equipment Operations

Total Acres Disturbed: 2

Maximum Daily Acreage Disturbed: 2

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Data\Sonoma Compost v2.equip;Sonoma Compost

Off-Road Equipment:

- 7 Rubber Tired Loaders (235 hp) operating at a 0.54 load factor for 2.6 hours per day; Engine Built/Rebuilt in 2006 with average useage of 2704 hrs/year
- 1 Water Trucks (275 hp) operating at a 0.5 load factor for 2.5 hours per day; Engine Built/Rebuilt in 2006 with average useage of 2496 hrs/year
- 1 Forklifts (93 hp) operating at a 0.3 load factor for 2.4 hours per day; Engine Built/Rebuilt in 2006 with average useage of 2496 hrs/year
- 1 Other Equipment (580 hp) operating at a 0.62 load factor for 2.4 hours per day; Engine Built/Rebuilt in 2006 with average useage of 2496 hrs/year
- 1 Other Equipment (139 hp) operating at a 0.62 load factor for 2.4 hours per day; Engine Built/Rebuilt in 2006 with average useage of 2912 hrs/year

Phase: Mass Grading 2/4/2010 - 11/30/2010 - Site Grading

Total Acres Disturbed: 22

Maximum Daily Acreage Disturbed: 5.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 537.38

Off-Road Equipment:

- 1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
- 2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/1/2010 - 2/2/2010 - Roadway Paving/ Expansion

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Acres to be Paved: 1.5

Off-Road Equipment:

- 4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
- 1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 8/13/2010 - 12/31/2010 - Building Construction

Off-Road Equipment:

- 1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day
- 2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/1/2010-2/2/2010 Active Days: 23	2.93	13.46	11.92	0.00	0.01	0.79	0.80	0.00	0.72	0.73	1,553.63
Asphalt 01/01/2010-02/02/2010	2.93	13.46	11.92	0.00	0.01	0.79	0.80	0.00	0.72	0.73	1,553.63
Paving Off-Gas	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.64	12.78	9.18	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,272.04
Paving On Road Diesel	0.03	0.54	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	77.84
Paving Worker Trips	0.09	0.15	2.57	0.00	0.01	0.01	0.02	0.00	0.00	0.01	203.75

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Time Slice 2/4/2010-8/12/2010 Active Days: 136	5.15	42.08	23.88	0.02	52.12	1.54	53.66	10.90	1.41	12.31	5,298.33
Mass Grading 02/04/2010- 11/30/2010	5.15	42.08	23.88	0.02	52.12	1.54	53.66	10.90	1.41	12.31	5,298.33
Mass Grading Dust	0.00	0.00	0.00	0.00	52.04	0.00	52.04	10.87	0.00	10.87	0.00
Mass Grading Off Road Diesel	4.16	26.94	17.48	0.00	0.00	0.99	0.99	0.00	0.91	0.91	3,007.48
Mass Grading On Road Diesel	0.93	15.05	4.79	0.02	0.08	0.55	0.62	0.02	0.50	0.53	2,163.51
Mass Grading Worker Trips	0.05	0.09	1.61	0.00	0.01	0.00	0.01	0.00	0.00	0.01	127.35
Time Slice 8/13/2010-11/30/2010 Active Days: 78	<b><u>6.47</u></b>	<b><u>49.85</u></b>	<b><u>31.78</u></b>	<b><u>0.02</u></b>	<b><u>52.14</u></b>	<b><u>1.87</u></b>	<b><u>54.01</u></b>	<b><u>10.90</u></b>	<b><u>1.72</u></b>	<b><u>12.62</u></b>	<b><u>6,472.82</u></b>
Building 08/13/2010-12/31/2010	1.32	7.77	7.90	0.00	0.01	0.33	0.35	0.00	0.31	0.31	1,174.49
Building Off Road Diesel	1.21	7.33	4.81	0.00	0.00	0.32	0.32	0.00	0.29	0.29	893.39
Building Vendor Trips	0.02	0.28	0.24	0.00	0.00	0.01	0.01	0.00	0.01	0.01	55.77
Building Worker Trips	0.10	0.16	2.85	0.00	0.01	0.01	0.02	0.00	0.01	0.01	225.34
Mass Grading 02/04/2010- 11/30/2010	5.15	42.08	23.88	0.02	52.12	1.54	53.66	10.90	1.41	12.31	5,298.33
Mass Grading Dust	0.00	0.00	0.00	0.00	52.04	0.00	52.04	10.87	0.00	10.87	0.00
Mass Grading Off Road Diesel	4.16	26.94	17.48	0.00	0.00	0.99	0.99	0.00	0.91	0.91	3,007.48
Mass Grading On Road Diesel	0.93	15.05	4.79	0.02	0.08	0.55	0.62	0.02	0.50	0.53	2,163.51
Mass Grading Worker Trips	0.05	0.09	1.61	0.00	0.01	0.00	0.01	0.00	0.00	0.01	127.35
Time Slice 12/1/2010-12/31/2010 Active Days: 23	1.32	7.77	7.90	0.00	0.01	0.33	0.35	0.00	0.31	0.31	1,174.49
Building 08/13/2010-12/31/2010	1.32	7.77	7.90	0.00	0.01	0.33	0.35	0.00	0.31	0.31	1,174.49
Building Off Road Diesel	1.21	7.33	4.81	0.00	0.00	0.32	0.32	0.00	0.29	0.29	893.39
Building Vendor Trips	0.02	0.28	0.24	0.00	0.00	0.01	0.01	0.00	0.01	0.01	55.77
Building Worker Trips	0.10	0.16	2.85	0.00	0.01	0.01	0.02	0.00	0.01	0.01	225.34

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Time Slice 1/1/2011-12/31/2011	3.79	35.75	14.96	0.00	18.94	1.36	20.29	3.96	1.29	5.24	5,024.70
Active Days: 313											
Fine Grading 01/01/2011 - 12/31/2011	3.79	35.75	14.96	0.00	18.94	1.36	20.29	3.96	1.29	5.24	5,024.70
Fine Grading Dust	0.00	0.00	0.00	0.00	18.92	0.00	18.92	3.95	0.00	3.95	0.00
Fine Grading Off Road Diesel	3.68	35.57	11.68	0.00	0.00	1.35	1.35	0.00	1.28	1.28	4,744.38
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.11	0.18	3.28	0.00	0.01	0.01	0.02	0.00	0.01	0.01	280.32

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 1/1/2011 - 12/31/2011 - Facility Off-road Equipment Operations

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

The following mitigation measures apply to Phase: Mass Grading 2/4/2010 - 11/30/2010 - Site Grading

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Rubber Tired Dozers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Water Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

The following mitigation measures apply to Phase: Paving 1/1/2010 - 2/2/2010 - Roadway Paving/ Expansion

For Cement and Mortar Mixers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

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NOX: 20% PM10: 45% PM25: 45%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Paving Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

The following mitigation measures apply to Phase: Building Construction 8/13/2010 - 12/31/2010 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.02	0.23	0.19	0.00	0.00	0.00	276.48
Hearth - No Summer Emissions							
Landscape	0.12	0.02	1.55	0.00	0.01	0.01	2.81
Consumer Products	0.00						
Architectural Coatings	0.20						
TOTALS (lbs/day, unmitigated)	0.34	0.25	1.74	0.00	0.01	0.01	279.29



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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Users\Inxrm\AppData\Roaming\Urbemis\Version9a\Projects\Sonoma Compost Central Site Const-2010 Ops-2011 .urb924

Project Name: Sonoma Compost Const-2010 Ops-2011 Central Site

Project Location: Sonoma County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007



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Summary Report:

## CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2010 TOTALS (tons/year unmitigated)	0.65	5.90	3.09	0.00	11.78	0.30	12.08	2.46	0.27	2.73	644.10
2010 TOTALS (tons/year mitigated)	0.65	5.05	3.09	0.00	5.58	0.19	5.77	1.17	0.18	1.34	644.10
Percent Reduction	0.00	14.41	0.00	0.00	52.65	35.90	52.24	52.62	35.91	50.95	0.00
2011 TOTALS (tons/year unmitigated)	0.59	5.59	2.34	0.00	6.26	0.21	6.47	1.31	0.20	1.51	786.37
2011 TOTALS (tons/year mitigated)	0.59	5.59	2.34	0.00	2.96	0.21	3.18	0.62	0.20	0.82	786.37
Percent Reduction	0.00	0.00	0.00	0.00	52.67	0.00	50.95	52.66	0.00	45.64	0.00

## AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.05	0.04	0.18	0.00	0.00	0.00	50.71

## SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (tons/year, unmitigated)	0.05	0.04	0.18	0.00	0.00	0.00	50.71

## Construction Unmitigated Detail Report:

## CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
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### Phase Assumptions

Phase: Fine Grading 1/1/2011 - 12/31/2011 - Facility Off-road Equipment Operations

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Total Acres Disturbed: 2  
Maximum Daily Acreage Disturbed: 2  
Fugitive Dust Level of Detail: Default  
20 lbs per acre-day  
On Road Truck Travel (VMT): 0  
Off Road Diesel calculated using the Named Equipment EMS functions.  
The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\mxm\Application Data\Urbemis\Version9a\Data\Sonoma Compost v2.equip\Sonoma Compost

Off-Road Equipment:  
7 Rubber Tired Loaders (235 hp) operating at a 0.54 load factor for 2.6 hours per day; Engine Built/Rebuilt in 2006 with average useage of 2704 hrs/year  
1 Water Trucks (275 hp) operating at a 0.5 load factor for 2.5 hours per day; Engine Built/Rebuilt in 2006 with average useage of 2496 hrs/year  
1 Forklifts (93 hp) operating at a 0.3 load factor for 2.4 hours per day; Engine Built/Rebuilt in 2006 with average useage of 2496 hrs/year  
1 Other Equipment (580 hp) operating at a 0.62 load factor for 2.4 hours per day; Engine Built/Rebuilt in 2006 with average useage of 2496 hrs/year  
1 Other Equipment (139 hp) operating at a 0.62 load factor for 2.4 hours per day; Engine Built/Rebuilt in 2006 with average useage of 2912 hrs/year

Phase: Mass Grading 2/4/2010 - 11/30/2010 - Site Grading

Total Acres Disturbed: 22  
Maximum Daily Acreage Disturbed: 5.5  
Fugitive Dust Level of Detail: Default  
20 lbs per acre-day  
On Road Truck Travel (VMT): 537.38  
Off-Road Equipment:  
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day  
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day  
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day  
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 1/1/2010 - 2/2/2010 - Roadway Paving/ Expansion

Acres to be Paved: 1.5  
Off-Road Equipment:

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4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day  
1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day  
1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day  
1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day  
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 8/13/2010 - 12/31/2010 - Building Construction  
Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day  
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day  
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	CO <sub>2</sub>	PM <sub>10</sub> Exhaust	PM <sub>10</sub> Dust	PM <sub>2.5</sub> Exhaust	PM <sub>2.5</sub> Dust	CO <sub>2</sub>
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## Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 1/1/2011 - 12/31/2011 - Facility Off-road Equipment Operations

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For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

The following mitigation measures apply to Phase: Mass Grading 2/4/2010 - 11/30/2010 - Site Grading

For Soil Stabilizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Rubber Tired Dozers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Water Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

The following mitigation measures apply to Phase: Paving 1/1/2010 - 2/2/2010 - Roadway Paving/ Expansion

For Cement and Mortar Mixers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Paving Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

The following mitigation measures apply to Phase: Building Construction 8/13/2010 - 12/31/2010 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

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NOX: 20% PM10: 45% PM25: 45%

For Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 20% PM10: 45% PM25: 45%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO <sub>2</sub>	PM10	PM2.5	CO <sub>2</sub>
Natural Gas	0.00	0.04	0.04	0.00	0.00	0.00	50.46
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.01	0.00	0.14	0.00	0.00	0.00	0.25
Consumer Products	0.00						
Architectural Coatings	0.04						
TOTALS (tons/year, unmitigated)	0.05	0.04	0.18	0.00	0.00	0.00	50.71

Area Source Changes to Defaults

***EMFAC2007 MODEL RESULTS FOR EXISTING OPERATIONS (YEAR 2011 WEEKDAY  
AND SATURDAY)***



**Existing Weekday -- Air Quality Analysis for Mobile Emissions Year 2011**  
**Sonoma Compost**  
grams/mile

Paved Road	Paved Road
lbs/VT	lbs/VT
Entrained	Entrained
PM10	PM2.5
0.0007	0.000173

<b>LDA</b> 2011	<b>ROG</b> 0.082	<b>CO</b> 2.463	<b>NOx</b> 0.167	<b>CO2</b> 348.857	<b>PM10</b> 0.029
<b>LDT</b> 2011	<b>ROG</b> 0.11	<b>CO</b> 3.463	<b>NOx</b> 0.29	<b>CO2</b> 424.88	<b>PM10</b> 0.035
<b>MDT</b> 2011	<b>ROG</b> 0.085	<b>CO</b> 2.269	<b>NOx</b> 0.607	<b>CO2</b> 552.89	<b>PM10</b> 0.038
<b>HDT</b> 2011	<b>ROG</b> 0.345	<b>CO</b> 4.366	<b>NOx</b> 6.114	<b>CO2</b> 1334.979	<b>PM10</b> 0.239

Assumed average speed of vehicles type to be 45 mph to and from the project site.  
Assumed average distance for MOM trucks to and from the project site to be 49 miles (roundtrip).  
Assumed average distance for other vehicles to and from the project site to be 16 miles (roundtrip).

**EMISSIONS CALCULATION FOR ON-ROAD VEHICLES DURING EXCAVATION ACTIVITIES**

Emissions = Vehicle Type x Emission Factor x Miles/Trip x Trips/Day

Note: Trip length takes into account round trips

Mobile Emissions Associated with Worker and Haul Truck trips in 2011

		Emission Factors							
		ROG	CO	Nox	CO2	PM10		lbs/mile	lbs/mile
LDV	2011 emissions (grams/mile)	0.096	2.963	0.2285	386.8685	0.032		dust	dust
	2011 emissions (pounds/mile)	2.12E-04	6.53E-03	5.04E-04	8.53E-01	7.05E-05		7.00E-04	1.73E-04
	Miles/Trip	Trips/day	Miles/day	Mobile Source Emissions (lbs/day)				lbs/day	lbs/day
	16	139	2224	0.47	14.53	1.12	1896.83	0.16	1.56
									0.38
MDT	2011 emissions (grams/mile)	0.085	2.269	0.607	552.89	0.038		lbs/mile	lbs/mile
	2011 emissions (pounds/mile)	1.87E-04	5.00E-03	1.34E-03	1.22E+00	8.38E-05		dust	dust
	Miles/Trip	Trips/day	Miles/day	Mobile Source Emissions (lbs/day)				7.00E-04	1.73E-04
	16	40	640	0.12	3.20	0.86	780.10	0.05	0.45
									0.11
HDT	2011 emissions (grams/mile)	0.345	4.366	6.114	1334.979	0.239		lbs/mile	lbs/mile
	2011 emissions (pounds/mile)	7.61E-04	9.63E-03	1.35E-02	2.94E+00	5.27E-04		dust	dust
	Miles/Trip	Trips/day	Miles/day	Mobile Source Emissions (lbs/day)				7.00E-04	1.73E-04
	49	7	343	0.26	3.30	4.62	1009.48	0.18	0.24
									0.06

Total Trips 186

		On-road Vehicle Exhaust per day						Fugitive	
		2011 - ROG	CO	Nox	CO2	PM10	PM2.5	PM10	Dust PM2.5
lbs/day		1	18	6	2906	0	0	2.24	0.55 lbs/day
tons/year		0	2	1	343	0	0	0	0 tons/year
		metric tons							

**Existing Saturday -- Air Quality Analysis for Mobile Emissions Year 2011**  
**Sonoma Compost**  
grams/mile

Paved Road	Paved Road
lbs/VT	lbs/VT
Entrained	Entrained
PM10	PM2.5
0.0007	0.000173

<b>LDA</b> 2011	<b>ROG</b> 0.082	<b>CO</b> 2.463	<b>NOx</b> 0.167	<b>CO2</b> 348.857	<b>PM10</b> 0.029
<b>LDT</b> 2011	<b>ROG</b> 0.11	<b>CO</b> 3.463	<b>NOx</b> 0.29	<b>CO2</b> 424.88	<b>PM10</b> 0.035
<b>MDT</b> 2011	<b>ROG</b> 0.085	<b>CO</b> 2.269	<b>NOx</b> 0.607	<b>CO2</b> 552.89	<b>PM10</b> 0.038
<b>HDT</b> 2011	<b>ROG</b> 0.345	<b>CO</b> 4.366	<b>NOx</b> 6.114	<b>CO2</b> 1334.979	<b>PM10</b> 0.239

Assumed average speed of vehicles type to be 45 mph to and from the project site.  
Assumed average distance for MOM trucks to and from the project site to be 49 miles (roundtrip).  
Assumed average distance for other vehicles to and from the project site to be 16 miles (roundtrip).

**EMISSIONS CALCULATION FOR ON-ROAD VEHICLES DURING EXCAVATION ACTIVITIES**

Emissions = Vehicle Type x Emission Factor x Miles/Trip x Trips/Day

Note: Trip length takes into account round trips

Mobile Emissions Associated with Worker and Haul Truck trips in 2011

		Emission Factors							
		ROG	CO	Nox	CO2	PM10		lbs/mile	lbs/mile
LDV	2011 emissions (grams/mile)	0.096	2.963	0.2285	386.8685	0.032		dust	dust
	2011 emissions (pounds/mile)	2.12E-04	6.53E-03	5.04E-04	8.53E-01	7.05E-05		7.00E-04	1.73E-04
	Miles/Trip							lbs/day	lbs/day
	Trips/day								
	Miles/day								
MDT	2011 emissions (grams/mile)	0.085	2.269	0.607	552.89	0.038		lbs/mile	lbs/mile
	2011 emissions (pounds/mile)	1.87E-04	5.00E-03	1.34E-03	1.22E+00	8.38E-05		dust	dust
	Miles/Trip							7.00E-04	1.73E-04
	Trips/day							lbs/day	lbs/day
	Miles/day								
HDT	2011 emissions (grams/mile)	0.345	4.366	6.114	1334.979	0.239		lbs/mile	lbs/mile
	2011 emissions (pounds/mile)	7.61E-04	9.63E-03	1.35E-02	2.94E+00	5.27E-04		dust	dust
	Miles/Trip							7.00E-04	1.73E-04
	Trips/day							lbs/day	lbs/day
	Miles/day								

Total Trips 194

		On-road Vehicle Exhaust per day						Fugitive	
		2011 - ROG	CO	Nox	CO2	PM10	PM2.5	PM10	Dust PM2.5
lbs/day		1	21	5	3191	0	0	2.29	0.57
tons/year		0	1	0	75	0	0	0	0
		metric tons						lbs/day	
								0 tons/year	

***EMFAC2007 MODEL RESULTS FOR CENTRAL SITE ALTERNATIVE OPERATIONS  
(YEAR 2011 WEEKDAY AND SATURDAY)***

**Central Site Alternative Weekday: Air Quality Analysis for Mobile Emissions Year 2011**

**Sonoma Compost -- Central Site**

grams/mile

<b>LDA</b> 2011	<b>ROG</b> 0.082	<b>CO</b> 2.463	<b>NOx</b> 0.167	<b>CO2</b> 348.857	<b>PM10</b> 0.029
<b>LDT</b> 2011	<b>ROG</b> 0.11	<b>CO</b> 3.463	<b>NOx</b> 0.29	<b>CO2</b> 424.88	<b>PM10</b> 0.035
<b>MDT</b> 2011	<b>ROG</b> 0.085	<b>CO</b> 2.269	<b>NOx</b> 0.607	<b>CO2</b> 552.89	<b>PM10</b> 0.038
<b>HDT</b> 2011	<b>ROG</b> 0.345	<b>CO</b> 4.366	<b>NOx</b> 6.114	<b>CO2</b> 1334.979	<b>PM10</b> 0.239

Paved Road lbs/VT Entrained PM10 0.0007	Paved Road lbs/VT Entrained PM2.5 0.000173
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Assumed average speed of vehicles to be 45 mph to and from the project site.  
 Assumed average distance for MOM trucks to and from the project site to be 49 miles (roundtrip).  
 Assumed average distance for other vehicles to and from the project site to be 16 miles (roundtrip).

**EMISSIONS CALCULATION FOR ON-ROAD VEHICLES DURING EXCAVATION ACTIVITIES**

Emissions = Vehicle Type x Emission Factor x Miles/Trip x Trips/Day

Note: Trip length takes into account round trips

Mobile Emissions Associated with Worker and Haul Truck trips in 2011

		Emission Factors								
		ROG	CO	Nox	CO2	PM10		lbs/mile	lbs/mile	
LDV	2011 emissions (grams/mile)	0.096	2.963	0.2285	386.8685	0.032		dust	dust	
	2011 emissions (pounds/mile)	2.12E-04	6.53E-03	5.04E-04	8.53E-01	7.05E-05		7.00E-04	1.73E-04	
	Miles/Trip	Trips/day	Miles/day	Mobile Source Emissions (lbs/day)				lbs/day	lbs/day	
	16	131	2096	0.44	13.69	1.06	1787.66	0.15	1.47	0.36
	74.67%									
		ROG	CO	Nox	CO2	PM10		lbs/mile	lbs/mile	
MDT	2011 emissions (grams/mile)	0.085	2.269	0.607	552.89	0.038		dust	dust	
	2011 emissions (pounds/mile)	1.87E-04	5.00E-03	1.34E-03	1.22E+00	8.38E-05		7.00E-04	1.73E-04	
	Miles/Trip	Trips/day	Miles/day	Mobile Source Emissions (lbs/day)				lbs/day	lbs/day	
	16	38	608	0.11	3.04	0.81	741.09	0.05	0.43	0.11
	21.33%									
		ROG	CO	Nox	CO2	PM10		lbs/mile	lbs/mile	
HDT	2011 emissions (grams/mile)	0.345	4.366	6.114	1334.979	0.239		dust	dust	
	2011 emissions (pounds/mile)	7.61E-04	9.63E-03	1.35E-02	2.94E+00	5.27E-04		7.00E-04	1.73E-04	
	Miles/Trip	Trips/day	Miles/day	Mobile Source Emissions (lbs/day)				lbs/day	lbs/day	
	49	7	343	0.26	3.30	4.62	1009.48	0.18	0.24	0.06
	4.00%									

Total Trips 176

		2011 - On-road Vehicle Exhaust per day					
		ROG	CO	Nox	CO2	PM10	PM2.5
lbs/day		1	17	6	2797	0	0
tons/year		0	2	1	330	0	0
		metric tons					

Fugitive PM10	Dust PM2.5
2.13	0.53
0	0
lbs/day	
0 tons/year	

# Central Site Alternative Saturday: Air Quality Analysis for Mobile Emissions Year 2011

## Sonoma Compost -- Central Site

grams/mile

Paved Road

lbs/VMT

Entrained

PM10

0.0007

Paved Road

lbs/VMT

Entrained

PM2.5

0.000173

LDA 2011	ROG	CO	NOx	CO2	PM10
	0.082	2.463	0.167	348.857	0.029
LDT 2011	ROG	CO	NOx	CO2	PM10
	0.11	3.463	0.29	424.88	0.035
MDT 2011	ROG	CO	NOx	CO2	PM10
	0.085	2.269	0.607	552.89	0.038
HDT 2011	ROG	CO	NOx	CO2	PM10
	0.345	4.366	6.114	1334.979	0.239

Assumed average speed of vehicles to be 45 mph to and from the project site.

Assumed average distance for MOM trucks to and from the project site to be 49 miles (roundtrip).

Assumed average distance for other vehicles to and from the project site to be 16 miles (roundtrip).

## EMISSIONS CALCULATION FOR ON-ROAD VEHICLES DURING EXCAVATION ACTIVITIES

Emissions = Vehicle Type x Emission Factor x Miles/Trip x Trips/Day

Note: Trip length takes into account round trips

Mobile Emissions Associated with Worker and Haul Truck trips in 2011

		Emission Factors							
		ROG	CO	Nox	CO2	PM10		lbs/mile	lbs/mile
LDV	2011 emissions (grams/mile)	0.096	2.963	0.2285	386.8685	0.032		dust	dust
	2011 emissions (pounds/mile)	2.12E-04	6.53E-03	5.04E-04	8.53E-01	7.05E-05		7.00E-04	1.73E-04
	Miles/Trip							lbs/day	lbs/day
	16							2.53	0.63
	93.51%								
MDT	2011 emissions (grams/mile)	0.085	2.269	0.607	552.89	0.038		lbs/mile	lbs/mile
	2011 emissions (pounds/mile)	1.87E-04	5.00E-03	1.34E-03	1.22E+00	8.38E-05		dust	dust
	Miles/Trip							7.00E-04	1.73E-04
	9							lbs/day	lbs/day
	3.90%							0.10	0.02
HDT	2011 emissions (grams/mile)	0.345	4.366	6.114	1334.979	0.239		lbs/mile	lbs/mile
	2011 emissions (pounds/mile)	7.61E-04	9.63E-03	1.35E-02	2.94E+00	5.27E-04		dust	dust
	Miles/Trip							7.00E-04	1.73E-04
	49							lbs/day	lbs/day
	2.60%							0.21	0.05

Total Trips 242

		On-road Vehicle Exhaust per day					
		2011 - ROG	CO	Nox	CO2	PM10	PM2.5
lbs/day		1	26	6	3949	0	0
tons/year		0	1	0	93	0	0
		metric tons					

		Fugitive	
		PM10	Dust PM2.5
		2.84	0.70 lbs/day
		0	0 tons/year

***EMFAC2007 MODEL RESULTS FOR CENTRAL SITE ALTERNATIVE OPERATIONS  
(YEAR 2030 WEEKDAY AND SATURDAY)***

# Central Site Alternative Weekday: Air Quality Analysis for Mobile Emissions Year 2030

## Sonoma Compost -- Central Site

grams/mile

Paved Road

lbs/VT

Entrained

PM10

0.0007

Paved Road

lbs/VT

Entrained

PM2.5

0.000173

LDA	ROG	CO	NOx	CO2	PM10
2030	0.008	0.512	0.029	345.618	0.028
LDT	ROG	CO	NOx	CO2	PM10
2030	0.014	0.817	0.055	432.488	0.035
MDT	ROG	CO	NOx	CO2	PM10
2030	0.02	0.886	0.152	553.908	0.039
HDT	ROG	CO	NOx	CO2	PM10
2030	0.097	0.871	1.124	1332.589	0.108

Assumed average speed of vehicles to be 45 mph to and from the project site.

Assumed average distance for MOM trucks to and from the project site to be 49 miles (roundtrip).

Assumed average distance for other vehicles to and from the project site to be 16 miles (roundtrip).

## EMISSIONS CALCULATION FOR ON-ROAD VEHICLES DURING EXCAVATION ACTIVITIES

Emissions = Vehicle Type x Emission Factor x Miles/Trip x Trips/Day

Note: Trip length takes into account round trips

Mobile Emissions Associated with Worker and Haul Truck trips in 2030

		Emission Factors							
		ROG	CO	Nox	CO2	PM10		lbs/mile	lbs/mile
LDV	2030 emissions (grams/mile)	0.011	0.6645	0.042	389.053	0.0315		dust	dust
	2030 emissions (pounds/mile)	2.43E-05	1.46E-03	9.26E-05	8.58E-01	6.94E-05		7.00E-04	1.73E-04
	Miles/Trip Trips/day Miles/day							lbs/day	lbs/day
	16 301 4816	0.12	7.06	0.45	4130.71	0.33		3.37	0.83
74.75%									
MDT	2011 emissions (grams/mile)	0.02	0.886	0.152	553.908	0.039		lbs/mile	lbs/mile
	2011 emissions (pounds/mile)	4.41E-05	1.95E-03	3.35E-04	1.22E+00	8.60E-05		dust	dust
	Miles/Trip Trips/day Miles/day							7.00E-04	1.73E-04
	16 86 1376	0.06	2.69	0.46	1680.30	0.12		lbs/day	lbs/day
21.29%									
HDT	2011 emissions (grams/mile)	0.097	0.871	1.124	1332.589	0.108		lbs/mile	lbs/mile
	2011 emissions (pounds/mile)	2.14E-04	1.92E-03	2.48E-03	2.94E+00	2.38E-04		dust	dust
	Miles/Trip Trips/day Miles/day							7.00E-04	1.73E-04
	49 16 784	0.17	1.51	1.94	2303.26	0.19		lbs/day	lbs/day
3.96%									

Total Trips 402

		On-road Vehicle Exhaust per day						Fugitive	
		2030 - ROG	CO	Nox	CO2	PM10	PM2.5	PM10	Dust PM2.5
lbs/day		0	9	2	6434	1	1	4.88	1.21 lbs/day
tons/year		0	1	0	759	0	0	1	0 tons/year
		metric tons							

# Central Site Alternative Saturday: Air Quality Analysis for Mobile Emissions Year 2030

## Sonoma Compost -- Central Site

grams/mile

Paved Road

lbs/VT

Entrained

PM10

0.0007

Paved Road

lbs/VT

Entrained

PM2.5

0.000173

LDA	ROG	CO	NOx	CO2	PM10
2030	0.008	0.512	0.029	345.618	0.028
LDT	ROG	CO	NOx	CO2	PM10
2030	0.014	0.817	0.055	432.488	0.035
MDT	ROG	CO	NOx	CO2	PM10
2030	0.02	0.886	0.152	553.908	0.039
HDT	ROG	CO	NOx	CO2	PM10
2030	0.097	0.871	1.124	1332.589	0.108

Assumed average speed of vehicles to be 45 mph to and from the project site.

Assumed average distance for MOM trucks to and from the project site to be 49 miles (roundtrip).

Assumed average distance for other vehicles to and from the project site to be 16 miles (roundtrip).

## EMISSIONS CALCULATION FOR ON-ROAD VEHICLES DURING EXCAVATION ACTIVITIES

Emissions = Vehicle Type x Emission Factor x Miles/Trip x Trips/Day

Note: Trip length takes into account round trips

Mobile Emissions Associated with Worker and Haul Truck trips in 2030

		Emission Factors							
		ROG	CO	Nox	CO2	PM10		lbs/mile	lbs/mile
LDV	2030 emissions (grams/mile)	0.011	0.6645	0.042	389.053	0.0315		dust	dust
	2030 emissions (pounds/mile)	2.43E-05	1.46E-03	9.26E-05	8.58E-01	6.94E-05		7.00E-04	1.73E-04
	Miles/Trip							lbs/day	lbs/day
	16							5.80	1.43
	92.82%								
MDT	2011 emissions (grams/mile)	0.02	0.886	0.152	553.908	0.039		lbs/mile	lbs/mile
	2011 emissions (pounds/mile)	4.41E-05	1.95E-03	3.35E-04	1.22E+00	8.60E-05		dust	dust
	Miles/Trip							7.00E-04	1.73E-04
	24							lbs/day	lbs/day
	4.31%							0.27	0.07
HDT	2011 emissions (grams/mile)	0.097	0.871	1.124	1332.589	0.108		lbs/mile	lbs/mile
	2011 emissions (pounds/mile)	2.14E-04	1.92E-03	2.48E-03	2.94E+00	2.38E-04		dust	dust
	Miles/Trip							7.00E-04	1.73E-04
	16							lbs/day	lbs/day
	2.87%							0.55	0.14

Total Trips 558

		On-road Vehicle Exhaust per day						Fugitive	
		ROG	CO	Nox	CO2	PM10	PM2.5	PM10	Dust
lbs/day		0	14	3	9412	1	1	6.62	1.64
tons/year		0	0	0	222	0	0	1	0
		metric tons						lbs/day	
								0 tons/year	



***CENTRAL SITE ALTERNATIVE ASP COMPOSTING EMISSIONS***

## Central Site ASP Composting Emissions

### **Emissions from Composting Year 2014**

		<u>Emission Factors (lbs/ton of material)</u>	
		<u>VOC</u>	<u>Ammonia</u>
Composting		2.6	0.83
		<u>Annual Throughput (tons)</u>	
		<u>Proposed Project</u>	<u>Emissions (lbs/day)</u> <u>Proposed Project</u>
			<u>VOC</u> <u>Ammonia</u>
Composting	100,000	712	227

a) Daily emissions calculated from annual emissions divided by 365 days.

### **ROG Emissions from Composting**

		<u>VOC Emissions (lbs/day)</u>
		<u>Proposed Project</u>
Composting		36

### **Emissions from Composting Year 2030**

		<u>Emission Factors (lbs/ton of material)</u>	
		<u>VOC</u>	<u>Ammonia</u>
Composting		2.6	0.83
		<u>Annual Throughput (tons)</u>	
		<u>Proposed Project</u>	<u>Emissions (lbs/day)</u> <u>Proposed Project</u>
			<u>VOC</u> <u>Ammonia</u>
Composting	200,000	1,425	455

a) Daily emissions calculated from annual emissions divided by 365 days.

### **ROG Emissions from Composting**

		<u>VOC Emissions (lbs/day)</u>
		<u>Proposed Project</u>
Composting		71

***CENTRAL SITE ALTERNATIVE GHG ANALYSIS (YEAR 2011) ASP COMPOSTING***

## Year 2011 - Greenhouse Gas (GHG) Emissions from Area Sources and Vehicles

	Annual Emissions		
	pounds (lbs.)	Tons	Metric Tons
URBEMIS2007 Area Emissions	101,420	51	46
URBEMIS2007 Off-road Emissions	1,572,740	786	713
<b>Total Emissions (area sources + vehicles)</b>	<b>1,674,160</b>	<b>837</b>	<b>759</b>

## Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (Power Plant Emissions)

Fans for ASP system

1 hp motor running for an hour = .745 kwh

2x50 hp motors, 50%load 24-7

326310 kwh/year

Estimated Project Annual Electrical Use:

689,190 kWh (kilowatt hours)/year

annual average

689 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual		CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
		Project Electricity mWh	GHGs metric tons		
Carbon Dioxide (CO2)	878.71	689	275	1	275
Nitrous Oxide (N2O)	0.0037	689	0.0	296	0
Methane (CH4)	0.0067	689	0.0	23	0
<b>Total Indirect GHG Emissions from Project Electricity Use=</b>					<b>275</b>

## ASP Emissions of Methane

Estimated Project Annual Compost:

100,000 tons per year

	Emission Factor lb/ton	Annual		CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
		Project tonnage	GHGs metric tons		
Methane (CH4)	0.83	100,000	37.6	23	866
<b>Total GHG Emissions from ASP Composting=</b>					<b>43</b>

## Total Annual Greenhouse Gas (GHG) Emission from Project Operations -- All Non-Road Sources (CO2 equivalent Metric Tons)

Area Sources	46	4.3%
Off-road Equip	713	66.2%
ASP	43	4.0%
Electrical Use	275	25.5%
<b>Total=</b>	<b>1,078</b>	<b>100.0%</b>

Annual kWh Calculations for Project Emissions  
of Electricity Used by the project

Total GHG Emissions From Industrial Electricity Use

Miscellaneous* (kWh/sq ft/Year)	square footage	kWhours per year
10.5	34,560	362,880
Admin/Maintenance and Food Processing Buildings		

\*Electricity Usage Rates from Table A9-11-A South Coast AQMD CEQA Air Quality Handbook  
1993 - Usage Rate is Average for SCE and LADWP

***CENTRAL SITE ALTERNATIVE GHG ANALYSIS (YEAR 2030) ASP COMPOSTING***

## Year 2030 - Greenhouse Gas (GHG) Emissions from Area Sources and Vehicles

	Annual Emissions		
	pounds (lbs.)	Tons	Metric Tons
URBEMIS2007 Area Emissions	101,420	51	46
URBEMIS2007 Off-road Emissions	3,146,320	1,573	1,427
<b>Total Emissions (area sources + vehicles)</b>	<b>3,247,740</b>	<b>1,624</b>	<b>1,473</b>

## Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (Power Plant Emissions)

Fans for ASP system

1 hp motor running for an hour = .745 kwh

4x50 hp motors, 50%load 24-7

652620 kwh/year

Estimated Project Annual Electrical Use:

1,015,500 kWh (kilowatt hours)/year

annual average

1,016 MWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual		CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
		Project Electricity mWh	GHGs metric tons		
Carbon Dioxide (CO2)	878.71	1,016	405	1	405
Nitrous Oxide (N2O)	0.0037	1,016	0.0	296	1
Methane (CH4)	0.0067	1,016	0.0	23	0
<b>Total Indirect GHG Emissions from Project Electricity Use=</b>					<b>405</b>

## ASP Emissions of Methane

Estimated Project Annual Compost:

200,000 tons per year

	Emission Factor lb/ton	Annual		CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
		Project tonnage	GHGs metric tons		
Methane (CH4)	0.83	200,000	75.3	23	1732
<b>Total GHG Emissions from ASP Composting=</b>					<b>87</b>

## Total Annual Greenhouse Gas (GHG) Emission from Project Operations -- All Non-Road Sources (CO2 equivalent Metric Tons)

Area Sources	46	2.3%
Off-road Equip	1,427	72.6%
ASP	87	4.4%
Electrical Use	405	20.6%
<b>Total=</b>	<b>1,965</b>	<b>100.0%</b>

Annual kWh Calculations for Project Emissions  
of Electricity Used by the project

Total GHG Emissions From Industrial Electricity Use

Miscellaneous* (kWh/sq ft/Year)	square footage	kWhours per year
10.5	34,560	362,880
Admin/Maintenance and Food Processing Buildings		

\*Electricity Usage Rates from Table A9-11-A South Coast AQMD CEQA Air Quality Handbook  
1993 - Usage Rate is Average for SCE and LADWP



# Appendix AIR-6

(Revised)





## APPENDIX AIR-6

# Central Site Alternative Health Risk Assessment

Exposure levels of toxic air contaminants (TACs) generated by operation of the Central Site Alternative were estimated by conducting dispersion modeling of potential TAC sources at the project site. TAC emission sources evaluated in this health risk assessment were based on information contained in the air quality section, and they include: diesel exhaust from heavy duty equipment used onsite; diesel exhaust from on-road haul trucks; and fugitive TAC emissions from composting activities. The emissions from these sources were input to the USEPA approved dispersion model AERMOD (Version 09292) to calculate ambient air concentrations in the area surrounding the project site.

## TAC Emissions

Emission rates for TACs were determined for each potential source at the Central Site. **Table 1** lists the TACs of concern and their associated sources.

**TABLE 1**  
**SOURCES OF TACS AT THE SONOMA COMPOST SITE**

TAC	Source	Acute	Chronic	Carcinogen
Diesel Particulate Matter (DPM)	Heavy duty equipment; haul trucks	No	Yes	Yes
Ammonia	Composting piles	Yes	Yes	No
Methylene Chloride	Composting piles	Yes	Yes	Yes
Methyl Ethyl Ketone (MEK)	Composting piles	Yes	No	No
Methyl Chloroform	Composting piles	Yes	Yes	No
Toluene	Composting piles	Yes	Yes	No
Xylene	Composting piles	Yes	Yes	No
Benzyl Chloride	Composting piles	Yes	No	Yes
Formaldehyde	Composting piles	Yes	Yes	Yes
Acetaldehyde	Composting piles	Yes	Yes	Yes

SOURCES: Environmental Science Associates, 2009; OEHHA, 2003; and OEHHA, 2008.

## Composting Emissions

Speciation profiles developed for the Andrade Road compost facility in Alameda County were utilized in this analysis (ACWMA, 2006). These profiles were developed based on source test data from the Inland Composting and Organics Recycling facility located in Colton, California.

Approximately 80 percent of material processed at the Inland Composting facility is curbside green waste with the remainder consisting primarily of wood waste. Since materials processed at the site are similar to those that would be handled at the Central Site site, it was assumed that speciation profiles would be representative. **Table 2** presents estimated daily emissions for the windrow option as well as emissions under the ASP option.

Ammonia is also a TAC of concern from composting activities, and it can form from the composting of nitrogen-containing green waste. Emissions of ammonia from the windrow option were estimated assuming an emission rate of 0.24 pounds per ton of material processed for open windrow composting (Norcal Waste Systems, 2006). **Table 2** presents estimated daily emissions assuming a maximum daily throughput of approximately 270 tons (100,000 tons per year / 365 days per year) for the existing condition (windrow) and of approximately 600 tons (200,000 tons per year / 365 days per year) for the proposed condition (ASP option).

**TABLE 2**  
**TAC EMISSIONS FROM COMPOSTING ACTIVITIES**

Pollutant	Daily Emissions (lb/day)	
	Windrow	ASP
Methylene Chloride	1.0	0.1
MEK	21.8	2.2
Methyl Chloroform	0.6	0.1
Toluene	1.1	0.1
Xylene	0.6	0.1
Benzyl Chloride	12.4	1.2
Formaldehyde	1.3	0.1
Acetaldehyde	104	10.4
Ammonia	65.8	6.6

SOURCE: Environmental Science Associates, 2012, based on speciation profiles in ACWMA report, 2006.

## DPM Emissions

DPM would be emitted from haul trucks traveling to and from the site as well as from equipment used onsite. PM<sub>2.5</sub> emission rates for on-road vehicle exhaust and off-road equipment exhaust presented in the air quality section were used to represent DPM emissions. On-road emissions were adjusted to represent emissions generated within one mile of the project site.

## PM<sub>2.5</sub> Emissions

PM<sub>2.5</sub> would be emitted from haul trucks traveling to and from the site as well as from equipment used onsite and fugitive emissions from surface disturbance and unpaved movement. PM<sub>2.5</sub> emission rates for on-road vehicle exhaust, off-road equipment exhaust, and fugitive dust presented in the air quality section were used to represent PM<sub>2.5</sub> emissions.

## Modeling Methodology

The majority of land uses surrounding the Central Site are agricultural in nature with areas of open space. Single-family rural residences are scattered in the surrounding area and often present on sites with agricultural operations, such as dairy farming and grazing. The closest residence to the Central Site composting area is approximately 500 feet northeast. Other residences are approximately 1,000 feet to the south, 4,500 feet to the east and 5,000 feet to the southeast. Dunham Charter School is located approximately 4,000 feet north of the Central Site. Urban development associated with the City of Cotati is located approximately 2.5 miles northeast of the Central Site. The Petaluma Municipal Airport is located approximately 8.5 miles southeast of the Central Site.

Meteorological data from the BAAQMD's meteorological station at the Petaluma Airport were used to prepare hourly surface files for use in AERMOD.

Source and receptor elevations were derived from the Santa Rosa-West and Santa Rosa-East 1 degree digital elevation models. These elevations were processed and imported using AERMAP, an accessory program to AERMOD.

## Composting Emissions

As with the proposed project, emissions from composting activities were modeled as series of volume sources. It was assumed that emissions from composting activities would be released 24 hours a day, even when other activities are not taking place.

## DPM Emissions

Emissions from haul trucks were modeled as a line source extending from Central Site eastward to Route 116. It was assumed that emissions would be released from a height of 3 meters and that the roadway width would be approximately 10 meters.

Emissions from heavy duty diesel equipment operating onsite were modeled as two groups of volume sources, one representing emissions from equipment used during initial processing and one representing emissions from the windrow turner. The ASP composting option assumed that no emissions would occur from the windrow turner source as this piece of equipment would not be required under the ASP option. A release height of 5 meters was assumed for all off-road equipment.

## PM2.5 Emissions

PM2.5 emissions from haul trucks were modeled as a line source as was DPM. It was assumed that emissions would be released from a height of 3 meters and that the roadway width would be approximately 10 meters.

PM2.5 emissions from heavy duty diesel equipment operating onsite were modeled as volume sources as was DPM. A release height of 5 meters was assumed for all off-road equipment.

Emissions from fugitive sources were modeled as series of volume sources. It was assumed that emissions would be released 12 hours a day for 5 days per week. Annualized surface disturbance is 5 acres.

Emissions from fugitive sources were modeled as series of volume sources. It was assumed that construction emissions would be released 12 hours a day for 5 days per week. Average annualized surface disturbance is 5 acres.

Emissions from fugitive sources were modeled as series of volume sources. It was assumed that operational emissions would be released 12 hours a day for 7 days per week at the peak surface disturbance.

## Health Risk Exposure

Health risks were evaluated based on methodologies recommended by OEHHA as well as the BAAQMD.

### Non-Cancer Risk

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

**Table 3** presents acute and chronic RELs and target organs for each of the TACs that would be emitted under implementation of the Central Site Alternative.

**TABLE 3**  
**ACUTE AND CHRONIC REFERENCE EXPOSURE LEVELS**

Compound	Acute REL ( $\mu\text{g}/\text{m}^3$ )	Acute Target Organs	Chronic REL ( $\mu\text{g}/\text{m}^3$ )	Chronic Target Organs
Ammonia	3,200	Eyes; Respiratory	200	Respiratory
Methylene Chloride	14,000	Cardiovascular; Nervous	400	Cardiovascular; Nervous
MEK	13,000	Eyes; Respiratory	--	--
Methyl Chloroform	68,000	Nervous	1,000	Nervous
Toluene	37,000	Nervous; Eyes; Respiratory; Reproductive	300	Developmental; Nervous; Respiratory
Xylene	22,000	Nervous; Respiratory; Eyes	700	Nervous; Respiratory; Eyes
Benzyl Chloride	240	Respiratory; Eyes	--	--
Formaldehyde	55	Sensory; Eyes	9	Respiratory
Acetaldehyde	470	Sensory; Bronchi; Eyes; Nose; Throat	140	Respiratory
DPM	--	--	5	Respiratory

-- No REL.

### Acute Risk

**Table 4** presents one-hour average TAC concentrations estimated at the maximum exposed worker under the Central Site alternative as well as the associated HQ for each TAC. The maximum exposed worker receptors for acute exposure were modeled at a dairy farm. The maximum HI would target the eyes. As shown, the maximum acute HI under the existing condition (windrow option) would be 1.34, which exceeds the BAAQMD threshold of 1. However, the acute HI for the ASP option would be 0.119, which is well below the BAAQMD threshold. Therefore, acute impacts to worker receptors from the proposed Central Site (ASP option) would be less than significant.

**TABLE 4**  
**CENTRAL SITE - NON-CANCER ACUTE RISK (WORKER)**

Compound	Windrow		ASP	
	C <sub>air</sub> <sup>a</sup>	HQ <sup>b</sup>	C <sub>air</sub> <sup>a</sup>	HQ <sup>b</sup>
Ammonia	294.76	9.21E-02	24.57	7.68E-03
Methylene Chloride	4.61	3.29E-04	0.38	2.75E-05
MEK	97.51	7.50E-03	8.13	6.25E-04
Methyl Chloroform	2.48	3.64E-05	0.21	3.04E-06
Toluene	4.95	1.34E-04	0.41	1.12E-05
Xylene	2.48	1.13E-04	0.21	9.38E-06
Benzyl Chloride	55.50	2.31E-01	4.63	1.93E-02
Formaldehyde	5.81	1.06E-01	0.48	8.80E-03
Acetaldehyde	466.30	9.92E-01	38.87	8.27E-02
<b>Maximum HI (Eyes)</b>		<b>1.34</b>		<b>0.119</b>

<sup>a</sup> C<sub>air</sub> = concentration in air. Concentrations represent one-hour peak concentrations expressed in micrograms per cubic meter (µg/m<sup>3</sup>)

<sup>b</sup> HQ determined by dividing estimated concentration by the applicable REL (see **Table 3**).

SOURCE: Environmental Science Associates, 2012.

**Table 5** presents one-hour average TAC concentrations estimated at the maximum exposed resident under the Central Site alternative as well as the associated HQ for each TAC. As with worker exposure, the maximum HI for residents would target the eyes. As shown, the maximum acute HI under the existing condition (windrow option) would be 1.34, which exceeds the BAAQMD threshold of 1. However, the acute HI for the ASP option would be 0.119, which is well below the BAAQMD threshold. Therefore, acute impacts to residence receptors from the proposed Central Site (ASP option) would be less than significant.

**TABLE 5**  
**CENTRAL SITE - NON-CANCER ACUTE RISK (RESIDENT)**

Compound	Windrow		ASP	
	C <sub>air</sub> <sup>a</sup>	HQ <sup>b</sup>	C <sub>air</sub> <sup>a</sup>	HQ <sup>b</sup>
Ammonia	294.76	9.21E-02	24.57	7.68E-03
Methylene Chloride	4.61	3.29E-04	0.38	2.75E-05
MEK	97.51	7.50E-03	8.13	6.25E-04
Methyl Chloroform	2.48	3.64E-05	0.21	3.04E-06
Toluene	4.95	1.34E-04	0.41	1.12E-05
Xylene	2.48	1.13E-04	0.21	9.38E-06
Benzyl Chloride	55.50	2.31E-01	4.63	1.93E-02
Formaldehyde	5.81	1.06E-01	0.48	8.80E-03
Acetaldehyde	466.30	9.92E-01	38.87	8.27E-02
<b>Maximum HI</b> <b>(Respiratory and Eyes)</b>		<b>1.34</b>		<b>0.119</b>

<sup>a</sup> Concentrations represent one-hour peak concentrations expressed in micrograms per cubic meter (µg/m<sup>3</sup>)

<sup>b</sup> HQ determined by dividing estimated concentration by the applicable REL (see **Table 3**).

SOURCE: Environmental Science Associates, 2012.

**Table 6** presents one-hour average TAC concentrations estimated at the Dunham Charter School under the Central Site alternative as well as the associated HQ for each TAC. The maximum HI would target the eyes. As shown, the maximum acute HI under the existing condition (windrow option) would be 0.23, which does not exceed the BAAQMD threshold of 1. Furthermore, the acute HI for the ASP option would be 0.068, which is also well below the BAAQMD threshold. Therefore, acute impacts to Dunham Charter School from the proposed Central Site (ASP option) would be less than significant.

**TABLE 6**  
**CENTRAL SITE - NON-CANCER ACUTE RISK (SCHOOL)**

Compound	Windrow		ASP	
	C <sub>air</sub> <sup>a</sup>	HQ <sup>b</sup>	C <sub>air</sub> <sup>a</sup>	HQ <sup>b</sup>
Ammonia	50.37	1.57E-02	13.94	4.36E-03
Methylene Chloride	0.79	5.63E-05	0.22	1.56E-05
MEK	16.66	1.28E-03	4.61	3.55E-04
Methyl Chloroform	0.42	6.22E-06	0.12	1.72E-06
Toluene	0.85	2.29E-05	0.23	6.33E-06
Xylene	0.42	1.92E-05	0.12	5.32E-06
Benzyl Chloride	9.48	3.95E-02	2.62	1.09E-02
Formaldehyde	0.99	1.80E-02	0.27	4.99E-03
Acetaldehyde	79.68	1.70E-01	22.05	4.69E-02
<b>Maximum HI</b> <b>(Respiratory and Eyes)</b>		<b>0.23</b>		<b>0.068</b>

<sup>a</sup> Concentrations represent one-hour peak concentrations expressed in micrograms per cubic meter (µg/m<sup>3</sup>)

<sup>b</sup> HQ determined by dividing estimated concentration by the applicable REL (see **Table 3**).

SOURCE: Environmental Science Associates, 2012.



## Chronic Risk

**Table 7** presents annual average TAC concentrations estimated at the maximum exposed worker receptor under the Central Site alternative as well as the associated HQ for each TAC. The maximum exposed receptor with regard to chronic exposure would be located at a dairy farm. As shown, the maximum chronic HI under the existing condition (windrow option) would be 0.044, which is below the BAAQMD threshold of 1. The chronic HI for the ASP option would be 0.0146, which is also well below the BAAQMD threshold. Therefore, chronic impacts to worker receptors from the proposed Central Site (ASP option) would be less than significant.

**TABLE 7**  
**CENTRAL SITE - NON-CANCER CHRONIC RISK (WORKER)**

Compound	Windrow		ASP	
	C <sub>air</sub> <sup>a</sup>	HQ <sup>b</sup>	C <sub>air</sub> <sup>a</sup>	HQ <sup>b</sup>
DPM	0.0239	4.78E-03	0.0506	1.01E-02
Ammonia	2.1325	1.07E-02	0.2418	1.21E-03
Methylene Chloride	0.0334	8.34E-05	0.0038	9.46E-06
Methyl Chloroform	0.0179	1.79E-05	0.0020	2.03E-06
Toluene	0.0358	1.19E-04	0.0041	1.35E-05
Xylene	0.0179	2.56E-05	0.0020	2.90E-06
Formaldehyde	0.0420	4.67E-03	0.0048	5.29E-04
Acetaldehyde	3.3736	2.41E-02	0.3825	2.73E-03
<b>Maximum HI (Respiratory)</b>		<b>0.044</b>		<b>0.0146</b>

<sup>a</sup> Concentrations represent annual average concentrations expressed in micrograms per cubic meter (µg/m<sup>3</sup>)

<sup>b</sup> HQ determined by dividing estimated concentration by the applicable REL (see **Table 3**).

SOURCE: Environmental Science Associates, 2012.

**Table 8** presents annual average TAC concentrations estimated at the maximum exposed residence receptor under the Central Site alternative as well as the associated HQ for each TAC. As shown, the maximum chronic HI under the existing condition (windrow option) would be 0.044, which is below the BAAQMD threshold of 1. The chronic HI for the ASP option would be 0.0146, which is also well below the BAAQMD threshold. Therefore, chronic impacts to residence receptors from the proposed Central Site (ASP option) would be less than significant.

**TABLE 8**  
**CENTRAL SITE - NON-CANCER CHRONIC RISK (RESIDENT)**

Compound	Windrow		ASP	
	C <sub>air</sub> <sup>a</sup>	HQ <sup>b</sup>	C <sub>air</sub> <sup>a</sup>	HQ <sup>b</sup>
DPM	0.0239	4.78E-03	0.0506	1.01E-02
Ammonia	2.1325	1.07E-02	0.2418	1.21E-03
Methylene Chloride	0.0334	8.34E-05	0.0038	9.46E-06
Methyl Chloroform	0.0179	1.79E-05	0.0020	2.03E-06
Toluene	0.0358	1.19E-04	0.0041	1.35E-05
Xylene	0.0179	2.56E-05	0.0020	2.90E-06
Formaldehyde	0.0420	4.67E-03	0.0048	5.29E-04
Acetaldehyde	3.3736	2.41E-02	0.3825	2.73E-03
<b>Maximum HI (Respiratory)</b>		<b>0.044</b>		<b>0.0146</b>

<sup>a</sup> Concentrations represent annual average concentrations expressed in micrograms per cubic meter (µg/m<sup>3</sup>)

<sup>b</sup> HQ determined by dividing estimated concentration by the applicable REL (see **Table 3**).

SOURCE: Environmental Science Associates, 2012.

**Table 9** presents annual average TAC concentrations estimated at Dunham Charter School under the Central Site alternative as well as the associated HQ for each TAC. As shown, the maximum chronic HI under the existing condition (windrow option) would be 0.0027, which is below the BAAQMD threshold of 1. The chronic HI for the ASP option would be 0.00085, which is also well below the BAAQMD threshold. Therefore, chronic impacts to Dunham Charter School from the proposed Central Site (ASP option) would be less than significant.

**TABLE 9**  
**CENTRAL SITE - NON-CANCER CHRONIC RISK (SCHOOL)**

Compound	Windrow		ASP	
	C <sub>air</sub> <sup>a</sup>	HQ <sup>b</sup>	C <sub>air</sub> <sup>a</sup>	HQ <sup>b</sup>
DPM	0.0011	2.22E-04	0.0027	5.49E-04
Ammonia	0.1307	6.54E-04	0.0164	8.20E-05
Methylene Chloride	0.0020	5.10E-06	0.0003	6.43E-07
Methyl Chloroform	0.0011	1.10E-06	0.0001	1.38E-07
Toluene	0.0022	7.33E-06	0.0003	9.20E-07
Xylene	0.0011	1.57E-06	0.0001	1.97E-07
Formaldehyde	0.0026	2.86E-04	0.0003	3.59E-05
Acetaldehyde	0.2068	1.48E-03	0.0259	1.85E-04
<b>Maximum HI (Respiratory)</b>		<b>0.0027</b>		<b>0.00085</b>

<sup>a</sup> Concentrations represent annual average concentrations expressed in micrograms per cubic meter (µg/m<sup>3</sup>)

<sup>b</sup> HQ determined by dividing estimated concentration by the applicable REL (see **Table 3**).

SOURCE: Environmental Science Associates, 2012.

## Cancer Risk

Cancer risk associated with the Central Site alternative was analyzed using the same methodology as described above for the proposed project. The maximum incremental cancer risk from

exposure to TACs was calculated following the guidelines established by California Office of Environmental Health Hazard Assessment (OEHHA, 2003). The equation used to determine exposure to TACs through inhalation is demonstrated below:

$$\text{Dose-inhalation} = \frac{C_{\text{air}} * \{DBR\} * A * EF * ED * 10^{-6}}{AT}$$

Where:

Dose-inh	= Dose of the toxic substance through inhalation in milligrams per kilogram of body weight per day (mg/kg-day)
$10^{-6}$	= Micrograms to milligrams conversion, Liters to cubic meters conversion
$C_{\text{air}}$	= Concentration in air ( $\mu\text{g}/\text{m}^3$ )
{DBR}	= Daily breathing rate (L/kg body weight – day)
A	= Inhalation absorption factor
EF	= Exposure frequency (days/year)
ED	= Exposure duration (years)
AT	= Averaging time period over which exposure is averaged in days (25,550 days for a 70 year cancer risk)

The dose through inhalation calculation shown above yields a value that represents the quantity of a substance inhaled by an individual expressed in milligrams per kilogram of body weight per day (mg/kg-day). To determine cancer risk, the dose through inhalation is multiplied by a cancer potency slope factor of the particular TAC which has the unit  $(\text{mg}/\text{kg}\cdot\text{day})^{-1}$ . Therefore, multiplying the estimated dose by the cancer potency slope factor yields a unitless value that represents chances per million of an individual developing cancer from exposure to a given TAC.

As with the proposed project, the following five carcinogens would be associated with the Central Site alternative: (1) DPM; (2) Methylene Chloride; (3) Benzyl Chloride; (4) Formaldehyde; and (5) Acetaldehyde. Annual average concentrations for all chemicals except benzyl chloride at the maximum exposed worker and residential receptors shown in **Tables 7 through 9** for estimating non-carcinogenic impacts were used to determine incremental cancer risk from the Central Site alternative.

The maximum annual average concentration of benzyl chloride at the maximum exposed worker/residential and Dunham Charter School receptor were estimated to be  $0.4016 \mu\text{g}/\text{m}^3$  and  $0.0246 \mu\text{g}/\text{m}^3$  respectively for the existing condition (windrow option) and  $0.0455 \mu\text{g}/\text{m}^3$  and  $0.0031 \mu\text{g}/\text{m}^3$  respectively for the ASP option.

As with the proposed project, cancer risks at worker receptors were analyzed assuming an exposure frequency of 245 days per year (5 days per week/49 weeks per year) for 40 years with a worker breathing rate of 149 L/kg bodyweight – day. Cancer risks at residential receptors were analyzed based on the 80<sup>th</sup> percentile adult breathing rate of 302 L/kg-day. Exposure frequency for residents was assumed to be 350 days per year and exposure duration was assumed to be 70

years. Cancer risks for school children were analyzed assuming an exposure frequency of 180 days per year for 9 years with a breathing rate of 591 L/kg bodyweight – day.

**Table 10** shows the OEHHA established cancer potency slopes associated with each carcinogenic compound associated with the Central Site alternative and the associated dose through inhalation for both workers and residents. Cancer risk for each individual TAC was then determined by multiplying the cancer potency slope by the dose through inhalation factor. As shown, the maximum cancer risk associated with the proposed Central Site (ASP option) are less than the existing conditions (windrow) for worker, residence, and the Dunham Charter School. Thus, the incremental cancer risk (proposed project minus existing or ASP minus windrow) would not exceed the BAAQMD threshold of 10 in one million.

**TABLE 10**  
**CENTRAL SITE - CANCER RISK AT WORKER AND RESIDENTIAL RECEPTORS**

Compound	Cancer Potency Slope (mg/kg-day) <sup>-1</sup>	Worker		Resident		School	
		Dose-inh (mg/kg-day)	Cancer Risk (per million)	Dose-inh (mg/kg-day)	Cancer Risk (per million)	Dose-inh (mg/kg-day)	Cancer Risk (per million)
Windrow							
DPM	1.1	1.37	1.50	6.92	7.613	0.04	0.045
Methylene Chloride	3.5E-03	1.91	0.007	9.66	0.034	0.08	0.0003
3Benzyl Chloride	1.7E-01	23.0	3.90	116	19.8	0.91	0.154
Formaldehyde	2.1E-02	2.40	0.050	12.2	0.255	0.09	0.002
Acetaldehyde	1.0E-02	193	1.93	977	9.77	7.62	0.076
<b>Total Cancer Risk from Windrow</b>			<b>7.39</b>		<b>37.4</b>		<b>0.28</b>
ASP							
DPM	1.1	2.89	3.18	14.7	16.1	0.10	0.111
Methylene Chloride	3.5E-03	0.22	0.001	1.10	0.0038	0.01	0.00003
Benzyl Chloride	1.7E-01	2.60	0.442	13.2	2.24	0.11	0.019
Formaldehyde	2.1E-02	0.27	0.006	1.38	0.029	0.01	0.0002
Acetaldehyde	1.0E-02	21.9	0.219	111	1.11	0.96	0.010
<b>Total Cancer Risk from ASP</b>			<b>3.85</b>		<b>19.5</b>		<b>0.140</b>
<b>Incremental Risk (ASP – Windrow)</b>			<b>-3.54</b>		<b>-17.9</b>		<b>-0.137</b>

SOURCE: Environmental Science Associates, 2012.

## PM2.5 Concentration

The maximum annual PM2.5 concentration as a result of the project construction would be 0.01 µg/m<sup>3</sup>, which would not exceed the BAAQMD threshold of 0.3 µg/m<sup>3</sup> and would therefore constitute a **less than significant** impact. The maximum annual PM2.5 concentration as a result of the project operations would be 0.05 µg/m<sup>3</sup>, which would not exceed the BAAQMD threshold of 0.3 µg/m<sup>3</sup> and would therefore constitute a **less than significant** impact.

## Cumulative

The BAAQMD's BAAQMD CEQA Air Quality Guidelines (dated May, 2010) provides estimate impacts from significant roadway within Sonoma County such as Routes 1, 12, 37, 101, 116, 121, and 128. Estimated impacts within a distance of 1,000 feet were developed for each of these roadways. The Central Site is not located within 1,000 feet of any of these roadways. Thus, the impact from these roadways is not expected to significantly contribute to the overall impact at the receptors of interest.

## References – Health Risk Assessment

- Alameda County Waste Management Authority (ACWMA), 2006. *Organics Processing Development Program and Project, Final Environmental Impact Report, Appendix 1 – Emissions from Compost Piles*, accessed online at: <http://recycle.stopwaste.org/organics/feir-pdf/feir-appendix1.pdf>, published February 2006.
- Norcal Waste Systems, 2006. *Jepson Prairie Organics Compost Facility, Air Emissions Source Test*, prepared by Thomas E. Card and Charles E. Schmidt, May 2006.
- Office of Environmental Health Hazards Assessment (OEHHA), 2003. *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, available online at: [http://www.oehha.org/air/hot\\_spots/pdf/HRAguidefinal.pdf](http://www.oehha.org/air/hot_spots/pdf/HRAguidefinal.pdf), accessed April 29, 2008.
- OEHHA, 2008. *Acute, 8-hour and Chronic Reference Exposure Levels as on December 18, 2008*, available online at: <http://www.oehha.ca.gov/air/allrels.html>, accessed August 24, 2009.
- USEPA, 2004. *Users Guide for the AMS/EPA Regulatory Model – AERMOD*, EPA-454/B-003-01, September 2004.



# Appendix NOISE

(Revised)





## Central Site Alternative Traffic Noise Level Estimates

ROAD SEGMENT #1: Stoney Point N of 116		TOTAL # VEHICLES	VEHICLE TYPE %					VEHICLE SPEED					Distance (meters)	Attenuation 3.0 or 4.5	Barrier height	TNM Lookup Result (dBA)		
			Auto %	Auto	Medium Truck %	MT	Heavy Truck %	HT	Auto k/h	MT k/h	HT k/h	k/h						
Existing		816	85	694	10	82	5	41	55	88	55	88	55	88	15.0	4.5	0.0	70.4
Existing + Project		816	85	694	10	82	5	41	55	88	55	88	55	88	15.0	4.5	0.0	70.4
AM Cum		2,091	85	1,777	10	209	5	105	55	88	55	88	55	88	15.0	4.5	0.0	74.5
AM Cum + P		2,091	85	1,777	10	209	5	105	55	88	55	88	55	88	15.0	4.5	0.0	74.5
ROAD SEGMENT #2: Stony Point S of 116		TOTAL # VEHICLES	VEHICLE TYPE %					VEHICLE SPEED					Distance (meters)	attenuation 3.0 or 4.5	Barrier height	TNM Lookup Result (dBA)		
			Auto %	Auto	Medium Truck %	MT	Heavy Truck %	HT	Auto k/h	MT k/h	HT k/h	k/h						
Existing		1,198	85	1,018	10	120	5	60	55	88	55	88	55	88	15.0	4.5	0.0	72.0
Existing + Project		1,198	85	1,018	10	120	5	60	55	88	55	88	55	88	15.0	4.5	0.0	72.0
AM Cum		2,520	85	2,142	10	252	5	126	55	88	55	88	55	88	15.0	4.5	0.0	75.3
AM Cum + P		2,581	85	2,194	10	258	5	129	55	88	55	88	55	88	15.0	4.5	0.0	75.4
ROAD SEGMENT #3: SR 116 E of Stoney Point		TOTAL # VEHICLES	VEHICLE TYPE %					VEHICLE SPEED					Distance (meters)	attenuation 3.0 or 4.5	Barrier height	TNM Lookup Result (dBA)		
			Auto %	Auto	Medium Truck %	MT	Heavy Truck %	HT	Auto k/h	MT k/h	HT k/h	k/h						
Existing		1,211	85	1,029	10	121	5	61	55	88	55	88	55	88	15.0	4.5	0.0	72.1
Existing + Project		1,211	85	1,029	10	121	5	61	55	88	55	88	55	88	15.0	4.5	0.0	72.1
AM Cum		2,224	85	1,890	10	222	5	111	55	88	55	88	55	88	15.0	4.5	0.0	74.7
AM Cum + P		2,285	85	1,942	10	229	5	114	55	88	55	88	55	88	15.0	4.5	0.0	74.8
ROAD SEGMENT #4: SR 116 W of Stoney Point		TOTAL # VEHICLES	VEHICLE TYPE %					VEHICLE SPEED					Distance (meters)	attenuation 3.0 or 4.5	Barrier height	TNM Lookup Result (dBA)		
			Auto %	Auto	Medium Truck %	MT	Heavy Truck %	HT	Auto k/h	MT k/h	HT k/h	k/h						
Existing		1,485	85	1,262	10	149	5	74	55	88	55	88	55	88	15.0	4.5	0.0	73.0
Existing + Project		1,485	85	1,262	10	149	5	74	55	88	55	88	55	88	15.0	4.5	0.0	73.0
AM Cum		2,639	85	2,243	10	264	5	132	55	88	55	88	55	88	15.0	4.5	0.0	75.5
AM Cum + P		2,639	85	2,243	10	264	5	132	55	88	55	88	55	88	15.0	4.5	0.0	75.5
ROAD SEGMENT #5: Stoney Point N of 116		TOTAL # VEHICLES	VEHICLE TYPE %					VEHICLE SPEED					Distance (meters)	attenuation 3.0 or 4.5	Barrier height	TNM Lookup Result (dBA)		
			Auto %	Auto	Medium Truck %	MT	Heavy Truck %	HT	Auto k/h	MT k/h	HT k/h	k/h						
Sat Existing		1,138	85	967	10	114	5	57	55	88	55	88	55	88	15.0	4.5	0.0	71.8
Sat + Project		1,138	85	967	10	114	5	57	55	88	55	88	55	88	15.0	4.5	0.0	71.8
Sat Cum		1,593	85	1,354	10	159	5	80	55	88	55	88	55	88	15.0	4.5	0.0	73.3
Sat Cum + Project		1,593	85	1,354	10	159	5	80	55	88	55	88	55	88	15.0	4.5	0.0	73.3
ROAD SEGMENT #9: Stoney Point N of Mecham		TOTAL # VEHICLES	VEHICLE TYPE %					VEHICLE SPEED					Distance (meters)	attenuation 3.0 or 4.5	Barrier height	TNM Lookup Result (dBA)		
			Auto %	Auto	Medium Truck %	MT	Heavy Truck %	HT	Auto k/h	MT k/h	HT k/h	k/h						
Existing		1,107	85	941	10	111	5	55	55	88	55	88	55	88	15.0	4.5	0.0	71.7
Existing + Project		1,107	85	941	10	111	5	55	55	88	55	88	55	88	15.0	4.5	0.0	71.7
AM Cum		2,184	85	1,856	10	218	5	109	55	88	55	88	55	88	15.0	4.5	0.0	74.6
AM Cum + P		2,245	85	1,908	10	225	5	112	55	88	55	88	55	88	15.0	4.5	0.0	74.8
ROAD SEGMENT #10: Stoney Point S of Mecham		TOTAL # VEHICLES	VEHICLE TYPE %					VEHICLE SPEED					Distance (meters)	attenuation 3.0 or 4.5	Barrier height	TNM Lookup Result (dBA)		
			Auto %	Auto	Medium Truck %	MT	Heavy Truck %	HT	Auto k/h	MT k/h	HT k/h	k/h						
Existing		847	85	720	10	85	5	42	55	88	55	88	55	88	15.0	4.5	0.0	70.5
Existing + Project		847	85	720	10	85	5	42	55	88	55	88	55	88	15.0	4.5	0.0	70.5
AM Cum		1,708	85	1,452	10	171	5	85	55	88	55	88	55	88	15.0	4.5	0.0	73.6
AM Cum + P		1,737	85	1,476	10	174	5	87	55	88	55	88	55	88	15.0	4.5	0.0	73.7
ROAD SEGMENT #12: Mecham W of Stoney Point		TOTAL # VEHICLES	VEHICLE TYPE %					VEHICLE SPEED					Distance (meters)	attenuation 3.0 or 4.5	Barrier height	TNM Lookup Result (dBA)		
			Auto %	Auto	Medium Truck %	MT	Heavy Truck %	HT	Auto k/h	MT k/h	HT k/h	k/h						
Existing		356	85	303	10	36	5	18	45	72	45	72	45	72	15.0	4.5	0.0	64.6
Existing + Project		356	85	303	10	36	5	18	45	72	45	72	45	72	15.0	4.5	0.0	64.6
AM Cum		644	85	547	10	64	5	32	45	72	45	72	45	72	15.0	4.5	0.0	67.1
AM Cum + P		734	85	624	10	73	5	37	45	72	45	72	45	72	15.0	4.5	0.0	67.7

ROAD SEGMENT #19: Mecham Rd E of Site Access

TOTAL		VEHICLE TYPE %					
# VEHICLES	Auto		Medium Truck		Heavy Truck		HT
	%		%	MT	%		
315	85	268	10	32	5	16	
315	85	268	10	32	5	16	
555	85	472	10	56	5	28	
645	85	548	10	65	5	32	

VEHICLE SPEED						Distance (meters)	attenuation 3.0 or 4.5	Barrier height	TNM Lookup Result (dBA)
Auto	k/h	MT	k/h	HT	k/h				
45	72	45	72	45	72	15.0	4.5	0.0	64.0
45	72	45	72	45	72	15.0	4.5	0.0	64.0
45	72	45	72	45	72	15.0	4.5	0.0	66.5
45	72	45	72	45	72	15.0	4.5	0.0	67.1

ROAD SEGMENT #20: Mecham Rd W of Site Access

TOTAL		VEHICLE TYPE %					
# VEHICLES	Auto		Medium Truck		Heavy Truck		
	%	Auto	%	MT	%	HT	
	258	85	219	10	26	5	13
	258	85	219	10	26	5	13
	498	85	423	10	50	5	25
	498	85	423	10	50	5	25

VEHICLE SPEED						Distance (meters)	attenuation 3.0 or 4.5	Barrier height	TNM Lookup Result (dBA)
Auto	k/h	MT	k/h	HT	k/h				
45	72	45	72	45	72	15.0	4.5	0.0	63.1
45	72	45	72	45	72	15.0	4.5	0.0	63.1
45	72	45	72	45	72	15.0	4.5	0.0	66.0
45	72	45	72	45	72	15.0	4.5	0.0	66.0

ROAD SEGMENT #23: Mecham Rd E of Site Access

# VEHICLES	VEHICLE TYPE %					
	Auto		Medium Truck		Heavy Truck	
	%	Auto	%	MT	%	HT
463	85	394	10	46	5	23
463	85	394	10	46	5	23
538	85	457	10	54	5	27
683	85	581	10	68	5	34

VEHICLE SPEED						Distance (meters)	attenuation 3.0 or 4.5	Barrier height	TNM Lookup Result (dBA)
Auto	k/h	MT	k/h	HT	k/h				
45	72	45	72	45	72	15.0	4.5	0.0	65.7
45	72	45	72	45	72	15.0	4.5	0.0	65.7
45	72	45	72	45	72	15.0	4.5	0.0	66.3
45	72	45	72	45	72	15.0	4.5	0.0	67.3

# Appendix TRAFFIC-3 (Revised)





## **Appendix TRAFFIC-3**

Central Site Turning Movement  
Counts

Central Site 24-hour Classification  
and Speed Counts

Central Site LOS Calculations





# MARKS TRAFFIC DATA

CITY OF PETALUMA

esa  
Mietek 916-806-0250

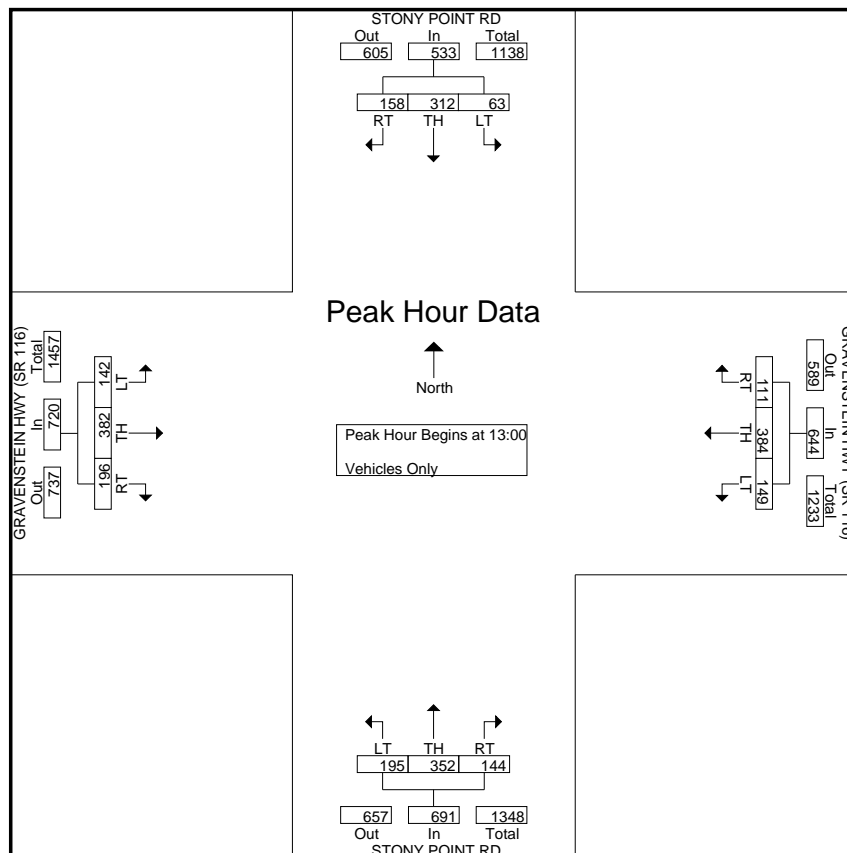
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## Groups Printed- Vehicles Only

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	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
12:00	28	56	19	103	14	95	30	139	44	102	38	184	48	90	32	170	596
12:15	42	73	7	122	14	99	34	147	25	104	45	174	49	102	36	187	630
12:30	34	65	16	115	20	111	26	157	26	90	43	159	45	86	39	170	601
12:45	35	84	22	141	11	101	31	143	28	109	39	176	48	72	39	159	619
Total	139	278	64	481	59	406	121	586	123	405	165	693	190	350	146	686	2446
13:00	33	84	15	132	25	99	41	165	47	105	47	199	52	95	32	179	675
13:15	45	77	21	143	26	101	33	160	30	73	53	156	49	90	41	180	639
13:30	44	84	17	145	30	84	29	143	32	91	50	173	48	88	35	171	632
13:45	36	67	10	113	30	100	46	176	35	83	45	163	47	109	34	190	642
Total	158	312	63	533	111	384	149	644	144	352	195	691	196	382	142	720	2588
Grand Total	297	590	127	1014	170	790	270	1230	267	757	360	1384	386	732	288	1406	5034
Apprch %	29.3	58.2	12.5		13.8	64.2	22		19.3	54.7	26		27.5	52.1	20.5		
Total %	5.9	11.7	2.5	20.1	3.4	15.7	5.4	24.4	5.3	15	7.2	27.5	7.7	14.5	5.7	27.9	

Start Time	STONY POINT RD Southbound				GRAVENSTEIN HWY (SR 116) Westbound				STONY POINT RD Northbound				GRAVENSTEIN HWY (SR 116) Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
13:00	33	84	15	132	25	99	41	165	47	105	47	199	52	95	32	179	675
13:15	45	77	21	143	26	101	33	160	30	73	53	156	49	90	41	180	639
13:30	44	84	17	145	30	84	29	143	32	91	50	173	48	88	35	171	632
13:45	36	67	10	113	30	100	46	176	35	83	45	163	47	109	34	190	642
Total Volume	158	312	63	533	111	384	149	644	144	352	195	691	196	382	142	720	2588
% App. Total	29.6	58.5	11.8		17.2	59.6	23.1		20.8	50.9	28.2		27.2	53.1	19.7		
PHF	.878	.929	.750	.919	.925	.950	.810	.915	.766	.838	.920	.868	.942	.876	.866	.947	.959

Peak Hour Analysis From 12:00 to 13:45 - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 13:00



# MARKS TRAFFIC DATA

CITY OF PETALUMA

esa  
Mietek 916-806-0250

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Start Date : 5/8/2010  
Page No : 1

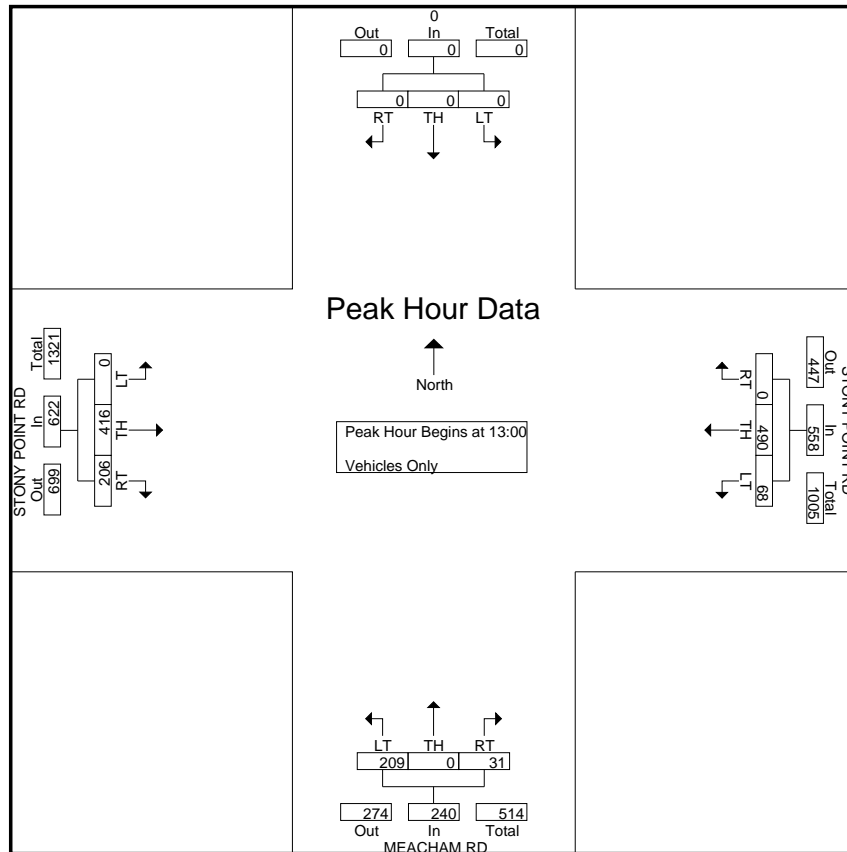
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12:00	0	0	0	0	0	110	14	124	6	0	49	55	62	100	0	162	341
12:15	0	0	0	0	0	117	17	134	10	0	57	67	47	97	0	144	345
12:30	0	0	0	0	0	123	9	132	9	0	49	58	45	81	0	126	316
12:45	0	0	0	0	0	95	7	102	4	0	64	68	44	108	0	152	322
Total	0	0	0	0	0	445	47	492	29	0	219	248	198	386	0	584	1324
13:00	0	0	0	0	0	132	17	149	2	0	56	58	61	93	0	154	361
13:15	0	0	0	0	0	114	15	129	5	0	43	48	41	104	0	145	322
13:30	0	0	0	0	0	131	14	145	9	0	54	63	49	103	0	152	360
13:45	0	0	0	0	0	113	22	135	15	0	56	71	55	116	0	171	377
Total	0	0	0	0	0	490	68	558	31	0	209	240	206	416	0	622	1420
Grand Total	0	0	0	0	0	935	115	1050	60	0	428	488	404	802	0	1206	2744
Apprch %	0	0	0	0	0	89	11	100	12.3	0	87.7	100	33.5	66.5	0	100	100
Total %	0	0	0	0	0	34.1	4.2	38.3	2.2	0	15.6	17.8	14.7	29.2	0	44	44

	0 Southbound				STONY POINT RD Westbound				MEACHAM RD Northbound				STONY POINT RD Eastbound				
Start Time	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	Int. Total
13:00	0	0	0	0	0	132	17	149	2	0	56	58	61	93	0	154	361
13:15	0	0	0	0	0	114	15	129	5	0	43	48	41	104	0	145	322
13:30	0	0	0	0	0	131	14	145	9	0	54	63	49	103	0	152	360
13:45	0	0	0	0	0	113	22	135	15	0	56	71	55	116	0	171	377
Total	0	0	0	0	0	490	68	558	31	0	209	240	206	416	0	622	1420
% App. Total	0	0	0	0	0	87.8	12.2	100	12.9	0	87.1	100	33.1	66.9	0	100	100
PHF	.000	.000	.000	.000	.000	.928	.773	.936	.517	.000	.933	.845	.844	.897	.000	.909	.942

Peak Hour Analysis From 12:00 to 13:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 13:00





# MARKS TRAFFIC DATA

CITY OF PETALUMA

esa  
Mietek 916-806-0250

File Name : meacham-landfill-s  
Site Code : 3  
Start Date : 5/8/2010  
Page No : 1

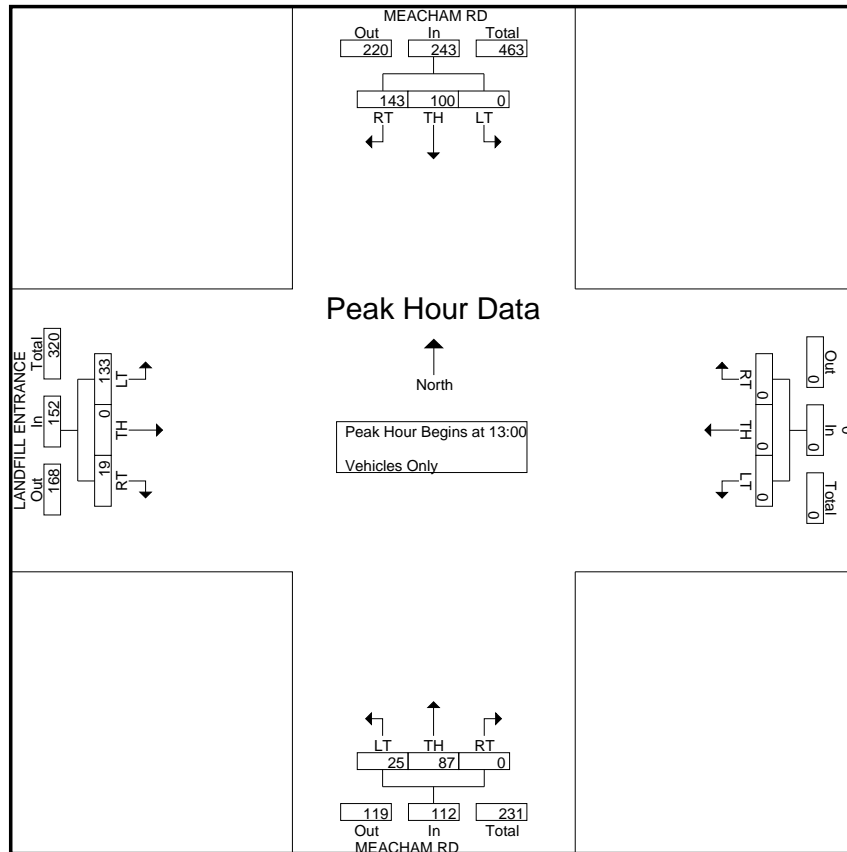
## Groups Printed- Vehicles Only

Start Time	MEACHAM RD Southbound				0 Westbound				MEACHAM RD Northbound				LANDFILL ENTRANCE Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
12:00	42	24	0	66	0	0	0	0	0	17	3	20	5	0	34	39	125
12:15	31	22	0	53	0	0	0	0	0	27	3	30	7	0	28	35	118
12:30	33	18	0	51	0	0	0	0	0	20	4	24	3	0	37	40	115
12:45	29	15	0	44	0	0	0	0	0	24	6	30	6	0	33	39	113
Total	135	79	0	214	0	0	0	0	0	88	16	104	21	0	132	153	471
13:00	39	25	0	64	0	0	0	0	0	20	3	23	4	0	30	34	121
13:15	34	23	0	57	0	0	0	0	0	24	9	33	4	0	29	33	123
13:30	34	26	0	60	0	0	0	0	0	25	4	29	3	0	32	35	124
13:45	36	26	0	62	0	0	0	0	0	18	9	27	8	0	42	50	139
Total	143	100	0	243	0	0	0	0	0	87	25	112	19	0	133	152	507
Grand Total	278	179	0	457	0	0	0	0	0	175	41	216	40	0	265	305	978
Apprch %	60.8	39.2	0		0	0	0		0	81	19		13.1	0	86.9		
Total %	28.4	18.3	0	46.7	0	0	0	0	0	17.9	4.2	22.1	4.1	0	27.1	31.2	

Start Time	MEACHAM RD Southbound				0 Westbound				MEACHAM RD Northbound				LANDFILL ENTRANCE Eastbound				Int. Total
	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	RT	TH	LT	App. Total	
13:00	39	25	0	64	0	0	0	0	0	20	3	23	4	0	30	34	121
13:15	34	23	0	57	0	0	0	0	0	24	9	33	4	0	29	33	123
13:30	34	26	0	60	0	0	0	0	0	25	4	29	3	0	32	35	124
13:45	36	26	0	62	0	0	0	0	0	18	9	27	8	0	42	50	139
Total	143	100	0	243	0	0	0	0	0	87	25	112	19	0	133	152	507
Total Volume	143	100	0	243	0	0	0	0	0	87	25	112	19	0	133	152	507
% App. Total	58.8	41.2	0		0	0	0		0	77.7	22.3		12.5	0	87.5		
PHF	.917	.962	.000	.949	.000	.000	.000	.000	.000	.870	.694	.848	.594	.000	.792	.760	.912

Peak Hour Analysis From 12:00 to 13:45 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 13:00



MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
meacham-s

SOUTHBOUND															meacham-
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
5/4/10	0	7	2	0	0	0	0	0	0	0	0	0	0	0	9
01:00	0	1	1	0	1	0	0	0	0	0	0	0	0	0	3
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	5	0	0	1	0	0	0	0	0	0	0	0	0	6
04:00	0	3	2	0	1	2	0	0	0	0	0	0	0	0	8
05:00	0	23	6	0	3	0	0	1	0	0	0	0	0	0	33
06:00	5	112	37	0	18	6	0	0	7	0	1	0	0	0	186
07:00	2	142	51	0	17	1	0	4	4	0	0	0	0	0	221
08:00	0	65	54	0	12	22	2	4	8	0	0	0	0	1	168
09:00	0	73	56	0	18	23	0	3	12	0	0	0	0	0	185
10:00	1	69	57	2	15	18	0	2	5	0	0	0	0	0	169
11:00	1	68	57	0	27	14	0	4	6	0	0	0	0	0	177
12 PM	1	70	56	2	18	8	0	7	11	0	0	0	0	2	175
13:00	0	63	59	2	25	20	1	5	8	0	0	0	0	2	185
14:00	0	68	63	0	22	8	0	4	4	0	0	0	0	1	170
15:00	1	81	31	0	15	0	0	1	0	0	0	0	0	0	129
16:00	0	69	32	0	8	0	0	0	2	0	0	0	0	0	111
17:00	0	71	21	0	10	0	0	2	0	0	0	0	0	0	104
18:00	0	62	27	0	6	0	0	3	1	0	0	0	0	0	99
19:00	0	51	23	0	8	0	0	0	0	0	0	0	0	0	82
20:00	1	44	16	0	3	0	0	0	0	0	0	0	0	0	64
21:00	0	35	9	0	3	0	0	0	0	0	0	0	0	0	47
22:00	0	18	5	0	0	1	0	0	0	0	0	0	0	0	24
23:00	0	12	1	0	0	0	0	0	0	0	0	0	0	0	13
Total	12	1214	666	6	231	123	3	40	68	0	1	0	0	6	2370
Percent	0.5%	51.2%	28.1%	0.3%	9.7%	5.2%	0.1%	1.7%	2.9%	0.0%	0.0%	0.0%	0.0%	0.3%	
AM Peak	06:00	07:00	10:00	10:00	11:00	09:00	08:00	07:00	09:00	06:00	06:00			08:00	
Vol.	5	142	57	2	27	23	2	4	12	1				1	
PM Peak	12:00	15:00	14:00	12:00	13:00	13:00	13:00	12:00	12:00					12:00	
Vol.	1	81	63	2	25	20	1	7	11					2	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
meacham-s

SOUTHBOUND															meacham-
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
5/5/10	0	1	2	0	1	0	0	0	1	0	0	0	0	0	5
01:00	0	2	0	0	2	0	0	0	0	0	0	0	0	0	4
02:00	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4
03:00	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
04:00	0	7	2	0	0	0	0	0	0	0	0	0	0	0	9
05:00	0	21	4	0	2	0	0	0	0	0	0	0	0	0	27
06:00	5	109	38	0	11	4	0	0	8	0	0	0	0	0	175
07:00	1	133	61	0	19	8	1	4	12	0	0	0	0	2	241
08:00	1	69	48	0	17	13	1	4	13	0	0	0	0	1	167
09:00	0	80	51	0	15	22	0	3	7	0	1	0	0	1	180
10:00	0	76	53	0	19	15	0	5	12	0	0	0	0	2	182
11:00	1	82	62	0	38	8	0	3	7	0	0	0	0	0	201
12 PM	0	83	54	0	17	13	1	5	8	0	0	0	0	0	181
13:00	1	79	69	1	20	14	0	3	9	0	0	0	0	2	198
14:00	3	90	70	0	15	19	0	6	4	0	0	0	0	2	209
15:00	3	87	33	0	5	0	0	1	1	0	0	0	0	0	130
16:00	0	51	21	0	6	0	0	1	0	0	0	0	0	0	79
17:00	2	73	21	0	11	0	0	4	0	0	0	0	0	0	111
18:00	0	63	19	0	1	0	0	0	0	0	0	0	0	0	83
19:00	0	61	24	0	3	0	0	1	1	0	0	0	0	0	90
20:00	1	46	12	0	3	1	0	0	0	0	0	0	0	0	63
21:00	0	35	3	0	1	0	0	0	0	0	0	0	0	0	39
22:00	0	28	2	0	2	0	0	0	0	0	0	0	0	0	32
23:00	0	11	4	0	0	0	0	0	0	0	0	0	0	0	15
Total	18	1295	654	1	208	117	3	40	83	0	1	0	0	10	2430
Percent	0.7%	53.3%	26.9%	0.0%	8.6%	4.8%	0.1%	1.6%	3.4%	0.0%	0.0%	0.0%	0.0%	0.4%	
AM Peak	06:00	07:00	11:00		11:00	09:00	07:00	10:00	08:00		09:00			07:00	
Vol.	5	133	62		38	22	1	5	13		1			2	
PM Peak	14:00	14:00	14:00	13:00	13:00	14:00	12:00	14:00	13:00					13:00	
Vol.	3	90	70	1	20	19	1	6	9					2	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
meacham-s

SOUTHBOUND															
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classified	Total
5/6/10	0	2	0	0	1	0	0	0	0	0	0	0	0	0	3
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
03:00	0	4	1	0	1	1	0	0	0	0	0	0	0	0	7
04:00	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3
05:00	0	28	9	1	2	0	0	2	1	0	0	0	0	0	43
06:00	1	113	34	0	11	2	0	3	7	0	0	0	0	0	171
07:00	4	147	54	0	12	5	4	4	7	0	0	0	0	0	233
08:00	1	72	67	0	18	22	2	6	8	0	0	0	0	2	198
09:00	0	81	64	0	24	19	1	6	13	0	0	0	0	1	209
10:00	0	66	64	3	14	7	0	6	9	0	0	0	0	0	169
11:00	0	90	56	2	18	10	1	6	11	0	0	0	0	1	195
12 PM	0	105	64	2	17	9	0	7	12	0	0	0	0	0	216
13:00	2	71	57	1	23	10	0	5	9	0	0	0	0	2	180
14:00	1	101	64	0	17	17	1	5	7	0	0	0	0	1	214
15:00	0	72	36	0	16	0	0	1	1	0	0	0	0	0	126
16:00	0	62	23	0	9	0	0	0	0	0	0	0	0	0	94
17:00	0	69	28	0	8	1	0	1	1	0	0	0	0	0	107
18:00	2	71	23	0	7	0	0	1	0	0	0	0	0	0	104
19:00	1	55	14	0	4	0	0	1	1	0	0	0	0	0	76
20:00	1	45	17	0	3	0	0	0	0	0	0	0	0	0	66
21:00	0	30	8	0	4	0	0	0	0	0	0	0	0	0	42
22:00	0	22	1	0	3	1	0	0	0	0	0	0	0	0	27
23:00	0	6	2	0	0	0	0	0	0	0	0	0	0	0	8
Total	13	1315	688	9	213	104	5	54	86	0	0	0	0	7	2494
Percent	0.5%	52.7%	27.6%	0.4%	8.5%	4.2%	0.2%	2.2%	3.4%	0.0%	0.0%	0.0%	0.0%	0.3%	
AM Peak	07:00		08:00	10:00	09:00	08:00	08:00	08:00	09:00					08:00	
Vol.	4	147	67	3	24	22	2	6	13					2	
PM Peak	13:00	12:00	12:00	12:00	13:00	14:00	14:00	12:00	12:00					13:00	
Vol.	2	105	64	2	23	17	1	7	12					2	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
meacham-s

SOUTHBOUND															Total
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	
5/7/10	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
01:00	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
02:00	0	3	0	0	2	0	0	0	0	0	0	0	0	0	5
03:00	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
04:00	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
05:00	0	21	8	0	3	0	1	1	0	0	0	0	0	0	34
06:00	3	111	38	0	11	4	0	2	8	0	0	0	0	0	177
07:00	2	140	48	0	19	6	1	1	10	0	0	0	0	2	229
08:00	0	74	68	0	22	14	1	7	9	0	0	0	0	1	196
09:00	1	91	59	0	19	16	0	5	7	0	0	0	0	0	198
10:00	2	79	62	0	17	19	0	6	8	0	0	0	0	0	193
11:00	1	92	76	0	18	11	0	6	5	0	0	0	0	0	209
12 PM	0	87	61	1	13	7	1	4	10	0	0	0	0	0	184
13:00	0	85	81	0	23	23	3	4	9	0	0	0	0	1	229
14:00	1	107	57	1	18	12	0	6	3	0	0	0	0	0	205
15:00	2	75	34	0	10	1	0	1	1	0	0	0	0	0	124
16:00	2	74	31	0	8	0	0	5	0	0	0	0	0	0	120
17:00	1	79	22	1	10	0	0	3	0	0	0	0	0	0	116
18:00	1	51	28	0	7	0	0	0	1	0	1	0	0	0	89
19:00	2	54	17	0	2	0	0	1	2	0	0	0	0	0	78
20:00	2	48	22	0	4	0	0	0	0	0	0	0	0	0	76
21:00	0	44	10	0	4	0	0	0	0	0	0	0	0	0	58
22:00	0	31	4	0	3	0	0	0	0	0	0	0	0	0	38
23:00	0	16	3	0	1	0	0	0	0	0	0	0	0	0	20
Total	20	1382	729	3	214	113	7	52	73	0	1	0	0	4	2598
Percent	0.8%	53.2%	28.1%	0.1%	8.2%	4.3%	0.3%	2.0%	2.8%	0.0%	0.0%	0.0%	0.0%	0.2%	
AM Peak	06:00	07:00	11:00		08:00	10:00	05:00	08:00	07:00					07:00	
Vol.	3	140	76		22	19	1	7	10					2	
PM Peak	15:00	14:00	13:00	12:00	13:00	13:00	13:00	14:00	12:00	18:00				13:00	
Vol.	2	107	81	1	23	23	3	6	10	1				1	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

SOUTHBOUND																Site Code: 2 meacham-s	
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total		
5/8/10	0	12	3	0	0	0	0	0	0	0	0	0	0	0	15		
01:00	0	7	2	0	0	0	0	0	0	0	0	0	0	0	9		
02:00	0	5	1	0	1	0	0	0	0	0	0	0	0	0	7		
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1		
04:00	0	4	2	0	0	0	0	0	0	0	0	0	0	0	6		
05:00	0	8	0	0	3	0	0	0	0	0	0	0	0	0	11		
06:00	0	42	8	0	2	1	0	1	3	0	0	0	0	0	57		
07:00	1	47	44	1	10	2	1	5	6	0	0	0	0	0	117		
08:00	0	64	55	0	14	4	0	7	13	0	0	0	0	0	157		
09:00	0	85	71	0	20	2	0	2	6	0	0	0	0	0	186		
10:00	2	106	85	0	24	2	0	3	7	0	0	0	0	0	229		
11:00	7	115	89	0	27	1	1	2	5	0	0	0	0	0	254		
12 PM	0	106	92	0	24	4	0	2	6	0	0	0	0	0	234		
13:00	3	132	98	0	27	4	0	1	5	0	0	0	0	0	270		
14:00	6	135	95	0	16	2	0	4	3	0	0	0	0	0	263		
15:00	2	78	32	0	10	0	0	1	1	0	0	0	0	0	124		
16:00	0	65	22	0	2	0	0	0	0	0	0	0	0	0	89		
17:00	1	68	28	0	5	0	0	1	0	0	1	0	0	0	104		
18:00	0	40	21	0	9	0	0	0	1	0	0	0	0	0	71		
19:00	1	36	15	0	2	0	0	0	0	0	0	0	0	0	54		
20:00	0	29	12	0	6	0	0	0	0	0	0	0	0	0	47		
21:00	0	48	16	0	5	0	0	0	0	0	0	0	0	0	69		
22:00	0	39	13	0	1	0	0	0	0	0	0	0	0	0	53		
23:00	0	21	13	0	2	0	0	0	1	0	0	0	0	0	37		
Total	23	1293	817	1	210	22	2	29	57	0	1	0	0	0	2464		
Percent	0.9%	52.5%	33.2%	0.0%	8.5%	0.9%	0.1%	1.2%	2.3%	0.0%	0.0%	0.0%	0.0%	0	9		
AM Peak	11:00	11:00	11:00	07:00	11:00	08:00	07:00	08:00	08:00						11:00		
Vol.	7	115	89	1	27	4	1	7	13						7		
PM Peak	14:00	14:00	13:00	13:00	13:00	12:00		14:00	12:00		17:00				14:00		
Vol.	6	135	98	27	27	4		4	6		1				2		

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
meacham-s

SOUTHBOUND															meacham-
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	
5/9/10	0	8	5	0	1	0	0	0	0	0	0	0	0	0	14
01:00	0	4	2	0	0	0	0	0	0	0	0	0	0	0	6
02:00	0	8	1	0	1	0	0	0	0	0	0	0	0	0	10
03:00	0	3	2	0	1	0	0	0	0	0	0	0	0	0	6
04:00	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
05:00	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
06:00	0	11	7	0	0	0	0	0	0	0	0	0	0	0	18
07:00	0	34	10	0	1	0	0	0	0	0	0	0	0	1	46
08:00	0	37	19	0	4	0	0	0	1	0	0	0	0	0	61
09:00	0	45	19	0	3	0	0	0	0	0	0	0	0	0	67
10:00	1	55	20	0	4	0	0	2	1	0	0	0	0	0	83
11:00	0	60	20	0	8	0	0	0	1	0	0	0	0	0	89
12 PM	1	76	28	0	1	0	0	2	0	0	0	0	0	0	108
13:00	0	77	26	0	7	0	0	0	0	0	0	0	0	0	110
14:00	0	77	16	0	9	0	0	1	0	0	0	0	0	0	103
15:00	2	68	24	0	7	0	0	1	0	0	0	0	0	0	102
16:00	0	62	31	0	3	0	0	1	0	0	0	0	0	0	97
17:00	1	66	14	0	3	0	0	0	0	0	0	0	0	0	84
18:00	0	47	15	1	7	0	0	0	0	0	1	0	0	0	71
19:00	0	55	13	0	4	0	0	1	1	0	0	0	0	0	74
20:00	0	38	7	0	2	0	0	0	0	0	0	0	0	0	47
21:00	0	25	6	0	4	0	0	0	0	0	0	0	0	0	35
22:00	0	9	11	0	0	1	0	0	0	0	0	0	0	0	21
23:00	0	5	3	0	0	0	0	0	0	0	0	0	0	0	8
Total	5	879	301	1	70	1	0	8	4	0	1	0	0	1	1271
Percent	0.4%	69.2%	23.7%	0.1%	5.5%	0.1%	0.0%	0.6%	0.3%	0.0%	0.1%	0.0%	0.0%	0.1%	
AM Peak	10:00	11:00	10:00		11:00			10:00	08:00					07:00	
Vol.	1	60	20		8			2	1					1	
PM Peak	15:00	13:00	16:00	18:00	14:00	22:00		12:00	19:00		18:00				
Vol.	2	77	31	1	9	1		2	1		1			1	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

SOUTHBOUND															Site Code: 2 meacham-s
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/10/10	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	2	0	0	1	0	0	0	0	0	0	0	0	0	3
03:00	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
04:00	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
05:00	0	22	14	1	0	3	0	1	0	0	0	0	0	0	41
06:00	1	105	32	0	13	6	0	4	2	0	0	0	0	0	163
07:00	0	132	70	0	15	8	1	20	3	0	0	0	0	0	249
08:00	1	71	48	0	15	19	1	20	3	0	0	0	0	0	178
09:00	0	60	47	2	14	17	0	19	11	0	0	0	0	0	170
10:00	0	58	53	4	10	13	1	18	6	0	0	0	0	1	164
11:00	0	68	42	3	17	10	0	16	2	0	0	0	0	0	158
12 PM	0	60	56	6	16	9	1	12	4	0	0	0	0	0	164
13:00	0	59	44	3	17	21	0	14	6	0	0	0	0	0	164
14:00	0	76	54	1	18	13	0	24	2	0	0	0	0	1	189
15:00	0	78	33	0	9	0	0	6	1	0	0	0	0	0	127
16:00	0	72	27	0	5	0	0	0	0	0	0	0	0	0	104
17:00	0	64	30	0	11	0	0	0	0	0	0	0	0	0	105
18:00	0	49	28	0	5	0	0	0	0	0	0	0	0	0	82
19:00	0	50	12	0	2	0	0	0	1	0	0	0	0	0	65
20:00	0	28	9	0	1	0	0	0	0	0	0	0	0	0	38
21:00	0	35	6	0	1	0	0	0	0	0	0	0	0	0	42
22:00	0	22	2	0	2	0	0	0	0	0	0	0	0	0	26
23:00	0	10	3	0	0	0	0	0	0	0	0	0	0	0	13
Total	2	1133	611	20	172	119	4	154	41	0	0	0	0	2	2258
Percent	0.1%	50.2%	27.1%	0.9%	7.6%	5.3%	0.2%	6.8%	1.8%	0.0%	0.0%	0.0%	0.0%	0.1%	
AM Peak	06:00	07:00	07:00	10:00	11:00	08:00	07:00	07:00	09:00					10:00	
Vol.	1	132	70	4	17	19	1	20	11					1	
PM Peak		15:00	12:00	12:00	14:00	13:00	12:00	14:00	13:00					14:00	
Vol.		78	56	6	18	21	1	24	6					1	



MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

SOUTHBOUND															Site Code: 2 meacham-s
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/11/10	0	1	1	0	1	0	0	0	0	0	0	0	0	0	3
01:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
03:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
04:00	0	2	1	0	1	1	0	0	0	0	0	0	0	0	5
05:00	0	25	17	0	3	1	0	1	0	0	0	0	0	0	47
06:00	0	114	44	0	14	4	0	1	2	0	0	0	0	0	179
07:00	1	139	69	8	25	4	0	10	5	0	0	0	0	0	261
08:00	0	55	54	10	20	19	2	8	5	0	0	0	0	0	173
09:00	1	74	51	16	17	27	1	5	11	0	0	0	0	0	203
10:00	0	58	52	9	17	15	0	10	10	0	0	0	0	0	171
11:00	6	59	49	4	23	12	0	13	4	0	0	0	0	0	170
12 PM	1	89	69	3	20	12	0	21	9	0	0	0	0	0	224
13:00	2	76	75	3	14	18	0	21	6	0	0	0	0	1	216
14:00	0	79	59	2	17	6	1	19	3	0	0	0	0	1	187
15:00	0	67	43	1	14	0	0	1	0	0	0	0	0	1	127
16:00	3	60	23	1	7	1	0	4	0	0	0	0	0	0	99
17:00	1	64	31	0	15	0	0	2	0	0	0	0	0	0	113
18:00	0	71	18	0	6	0	0	0	0	0	0	0	0	0	95
19:00	1	54	19	1	4	0	0	1	1	0	0	0	0	0	81
20:00	0	26	18	0	3	4	0	0	0	0	0	0	0	0	51
21:00	0	40	14	0	3	0	0	0	0	0	0	0	0	0	57
22:00	0	15	7	0	1	1	0	1	0	0	0	0	0	0	25
23:00	0	11	3	0	0	0	0	0	0	0	0	0	0	0	14
Total	16	1187	718	58	225	125	4	118	56	0	0	0	0	3	2510
Percent	0.6%	47.3%	28.6%	2.3%	9.0%	5.0%	0.2%	4.7%	2.2%	0.0%	0.0%	0.0%	0.0%	0.1%	
AM Peak	11:00	07:00	07:00	09:00	07:00	09:00	08:00	11:00	09:00						
Vol.	6	139	69	16	25	27	2	13	11						
PM Peak	16:00	12:00	13:00	12:00	12:00	13:00	14:00	12:00	12:00						
Vol.	3	89	75	3	20	18	1	21	9						

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
meacham-s

SOUTHBOUND															meacham-
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	
5/12/10	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	4	1	0	1	0	0	0	0	0	0	0	0	0	6
03:00	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
04:00	0	3	0	0	0	0	0	0	1	0	0	0	0	0	4
05:00	0	15	7	0	2	0	0	1	0	0	0	0	0	0	25
06:00	1	125	42	0	13	3	0	2	4	0	0	0	0	0	190
07:00	3	126	61	3	30	10	1	4	8	0	0	0	0	0	246
08:00	0	57	59	3	15	11	1	6	8	0	0	0	0	2	162
09:00	0	58	34	1	17	24	0	4	12	0	0	0	0	0	150
10:00	0	53	57	2	19	18	0	6	12	0	0	0	0	1	168
11:00	0	76	64	2	21	6	0	8	9	0	0	0	0	0	186
12 PM	1	79	72	1	13	13	1	6	8	0	0	0	0	1	195
13:00	1	69	52	0	30	17	0	4	5	0	0	0	0	2	180
14:00	3	78	71	1	19	12	1	3	4	0	0	0	0	2	194
15:00	2	70	30	0	8	0	0	4	0	0	0	0	0	1	115
16:00	1	72	23	0	12	0	0	1	0	0	0	0	0	0	109
17:00	1	67	31	0	13	1	0	0	0	0	0	0	0	1	114
18:00	0	61	25	0	2	0	0	1	0	0	0	0	0	1	90
19:00	1	55	17	0	3	0	0	0	0	0	0	0	0	0	76
20:00	0	51	11	0	2	0	0	0	0	0	0	0	0	0	64
21:00	0	38	12	0	2	0	0	0	0	0	0	0	0	0	52
22:00	0	20	6	0	3	0	0	0	0	0	0	0	0	0	29
23:00	0	7	2	0	2	0	0	0	0	0	0	0	0	0	11
Total	14	1193	678	13	227	115	4	50	71	0	0	0	0	0	2376
Percent	0.6%	50.2%	28.5%	0.5%	9.6%	4.8%	0.2%	2.1%	3.0%	0.0%	0.0%	0.0%	0.0%	0.5%	
AM Peak	07:00	126	11:00	07:00	09:00	09:00	07:00	11:00	09:00					08:00	
Vol.	3	126	64	3	30	24	1	8	12					2	
PM Peak	14:00	12:00	12:00	12:00	13:00	13:00	12:00	12:00	12:00					13:00	
Vol.	3	79	72	1	30	17	1	6	8					2	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
meacham-s

SOUTHBOUND															meacham-
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	
5/13/10	0	4	0	0	1	0	0	0	0	0	0	0	0	0	5
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	6	0	0	1	0	0	0	0	0	0	0	0	0	7
04:00	0	0	3	0	0	1	0	0	0	0	0	0	0	0	4
05:00	0	25	9	1	2	0	1	0	0	0	0	0	0	0	38
06:00	3	110	46	1	14	4	0	2	6	0	0	0	0	0	186
07:00	3	129	61	1	20	10	0	3	8	0	0	0	0	1	236
08:00	0	64	54	0	17	12	2	5	7	0	0	0	0	0	161
09:00	1	80	51	1	18	23	0	3	16	0	0	0	0	0	193
10:00	0	56	47	1	14	14	2	3	11	0	0	0	0	0	148
11:00	0	84	69	1	25	9	1	4	11	0	0	0	0	0	204
12 PM	0	103	50	1	9	6	0	8	14	0	0	0	0	0	191
13:00	1	85	54	0	23	13	0	5	10	0	0	0	0	0	191
14:00	0	73	70	0	19	16	2	2	5	0	0	0	0	1	188
15:00	2	78	38	0	10	2	0	0	1	0	0	0	0	0	131
16:00	2	75	17	0	4	1	0	1	0	0	0	0	0	0	100
17:00	1	70	25	0	13	0	0	0	1	0	0	0	0	0	110
18:00	0	64	35	0	9	0	0	0	1	0	0	0	0	0	109
19:00	0	49	15	0	3	0	0	0	0	0	0	0	0	0	67
20:00	1	48	15	0	6	0	0	1	0	0	0	0	0	0	71
21:00	1	42	9	0	1	0	0	0	0	0	0	0	0	0	53
22:00	0	25	7	0	1	1	0	0	0	0	0	0	0	0	34
23:00	0	11	3	0	0	0	0	0	0	0	0	0	0	0	14
Total	15	1282	678	7	210	112	8	37	91	0	0	0	0	2	2442
Percent	0.6%	52.5%	27.8%	0.3%	8.6%	4.6%	0.3%	1.5%	3.7%	0.0%	0.0%	0.0%	0.0%	0.1%	
AM Peak	06:00	07:00	11:00	05:00	11:00	09:00	08:00	08:00	09:00					07:00	
Vol.	3	129	69	1	25	23	2	5	16					1	
PM Peak	15:00	12:00	14:00	12:00	13:00	14:00	14:00	12:00	12:00					14:00	
Vol.	2	103	70	1	23	16	2	8	14					1	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
meacham-s

SOUTHBOUND															
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
5/14/10	0	0	2	0	1	0	0	0	0	0	0	0	0	0	3
01:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
04:00	0	3	2	0	0	1	0	1	0	0	0	0	0	0	7
05:00	0	29	8	0	6	0	0	1	0	0	0	0	0	0	44
06:00	1	108	33	0	10	4	0	2	7	0	0	0	0	1	166
07:00	1	113	65	1	16	6	0	3	7	0	0	0	0	0	212
08:00	0	83	52	0	18	17	1	8	5	0	0	0	0	0	184
09:00	0	64	64	0	23	20	1	4	10	0	0	0	0	0	186
10:00	0	69	52	1	16	15	0	6	13	0	0	0	0	0	172
11:00	0	101	67	1	18	9	1	4	7	0	0	0	0	1	209
12 PM	0	100	67	0	16	8	0	1	14	0	0	0	0	0	206
13:00	5	83	74	0	27	21	2	2	7	0	0	0	0	1	222
14:00	2	108	76	0	19	15	1	2	6	0	0	0	0	4	233
15:00	3	80	34	0	9	0	0	3	1	0	0	0	0	0	130
16:00	2	64	23	0	3	0	0	0	0	0	0	0	0	0	92
17:00	1	82	24	0	12	0	0	1	0	0	0	0	0	0	120
18:00	0	72	22	0	2	0	0	2	0	0	0	0	0	0	98
19:00	0	52	19	0	8	0	0	0	1	0	0	0	0	0	80
20:00	0	61	17	0	2	0	0	0	0	0	0	0	0	0	80
21:00	0	45	10	0	4	0	0	0	0	0	0	0	0	0	59
22:00	0	36	10	0	1	0	0	0	0	0	0	0	0	0	47
23:00	0	12	7	0	2	0	0	0	0	0	0	0	0	0	21
Total	15	1372	730	3	213	116	6	40	78	0	0	0	0	7	2580
Percent	0.6%	53.2%	28.3%	0.1%	8.3%	4.5%	0.2%	1.6%	3.0%	0.0%	0.0%	0.0%	0.0%	0.3%	
AM Peak	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	
Vol.	1	113	67	1	23	20	1	8	13					1	
PM Peak	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00			14:00	
Vol.	5	108	76		27	21	2	3	14					4	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
meacham-s

SOUTHBOUND

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/15/10	0	11	4	0	0	1	0	0	0	0	0	0	0	0	16
01:00	0	9	1	0	2	0	0	0	0	0	0	0	0	0	12
02:00	0	6	0	0	0	0	0	0	0	0	0	0	0	0	6
03:00	0	2	0	0	1	0	0	0	0	0	0	0	0	0	3
04:00	0	3	1	0	2	0	0	0	0	0	0	0	0	0	6
05:00	0	9	1	0	2	0	0	0	0	0	0	0	0	0	12
06:00	0	28	14	0	7	2	0	1	4	0	0	0	0	0	56
07:00	0	60	34	1	10	4	1	1	9	0	0	0	0	0	120
08:00	1	67	56	0	14	2	0	2	9	0	0	0	0	0	151
09:00	0	83	61	0	19	2	0	7	7	0	0	0	0	0	179
10:00	1	101	73	0	17	3	0	6	10	0	0	0	0	0	211
11:00	1	116	86	0	22	3	1	4	6	0	0	0	0	0	239
12 PM	2	144	84	0	25	1	0	5	7	0	0	0	0	0	268
13:00	2	137	88	0	20	2	0	3	6	0	0	0	0	0	258
14:00	5	132	74	0	19	4	0	1	3	0	0	0	0	2	240
15:00	2	93	35	0	11	0	0	1	0	0	0	0	0	1	143
16:00	3	77	24	0	7	0	0	0	0	0	0	0	0	0	111
17:00	0	60	19	0	6	0	0	0	1	0	0	0	0	0	86
18:00	1	46	7	0	5	1	0	0	1	0	0	0	0	0	62
19:00	1	30	11	0	2	0	0	0	0	0	0	0	0	0	44
20:00	1	36	12	0	5	0	0	0	0	0	0	0	0	0	54
21:00	0	36	7	0	4	0	0	0	0	0	0	0	0	1	48
22:00	0	33	10	0	2	0	0	0	0	0	0	0	0	0	45
23:00	0	18	4	0	1	0	0	0	0	0	0	0	0	0	23
Total	20	1337	706	1	203	25	2	31	63	0	1	0	0	4	2393
Percent	0.8%	55.9%	29.5%	0.0%	8.5%	1.0%	0.1%	1.3%	2.6%	0.0%	0.0%	0.0%	0.0%	0.2%	
AM Peak	08:00	11:00	11:00	07:00	11:00	07:00	07:00	09:00	10:00						
Vol.	1	116	86	1	22	4	1	7	10						
PM Peak	14:00	12:00	13:00		12:00	14:00		12:00	12:00	18:00				14:00	
Vol.	5	144	88		25	4		5	7	1				2	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

SOUTHBOUND															Total
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	
5/16/10	0	12	5	0	0	0	0	0	0	0	0	0	0	0	17
01:00	0	5	4	0	1	0	0	0	0	0	0	0	0	0	10
02:00	0	7	0	0	1	0	0	0	0	0	0	0	0	0	8
03:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
04:00	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
05:00	0	6	4	0	2	0	0	0	0	0	0	0	0	0	12
06:00	0	15	8	0	0	0	0	0	1	0	0	0	0	0	24
07:00	0	30	15	0	3	0	0	0	1	0	0	0	0	0	49
08:00	2	25	18	0	6	0	0	2	0	0	0	0	0	0	53
09:00	0	31	22	0	5	0	0	0	1	0	0	0	0	0	59
10:00	1	51	30	0	6	0	0	3	1	0	0	0	0	1	93
11:00	0	54	20	0	9	0	0	1	0	0	0	0	0	0	84
12 PM	1	56	27	0	5	0	0	1	0	0	0	0	0	0	90
13:00	0	77	28	0	7	0	0	0	0	0	0	0	0	0	112
14:00	3	72	29	0	8	0	0	3	0	0	0	0	0	0	115
15:00	3	74	30	0	11	0	0	0	0	0	0	0	0	1	119
16:00	0	57	20	0	6	0	0	2	0	0	0	0	0	0	85
17:00	0	52	21	0	7	0	0	1	0	0	1	0	0	0	82
18:00	0	46	20	0	4	0	0	1	0	0	0	0	0	0	71
19:00	1	38	15	0	6	0	0	0	1	0	0	0	0	0	61
20:00	0	27	7	0	4	0	0	0	0	0	0	0	0	0	38
21:00	0	34	14	0	1	0	0	0	0	0	0	0	0	0	49
22:00	0	23	8	0	0	1	0	1	0	0	0	0	0	0	33
23:00	0	6	4	0	0	0	0	0	0	0	0	0	0	0	10
Total	11	804	349	0	92	1	0	15	5	0	1	0	0	2	1280
Percent	0.9%	62.8%	27.3%	0.0%	7.2%	0.1%	0.0%	1.2%	0.4%	0.0%	0.1%	0.0%	0.0%	0.2%	
AM Peak	08:00	11:00	10:00		11:00			10:00	06:00					10:00	
Vol.	2	54	30		9			3	1					1	
PM Peak	14:00	13:00	15:00		15:00	22:00		14:00	19:00		17:00			15:00	
Vol.	3	77	30		11	1		3	1		1			1	

Site Code: 2  
meacham-s

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
meacham-s

SOUTHBOUND															meacham-
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	
5/17/10	0	3	1	0	1	0	0	0	0	0	0	0	0	0	5
01:00	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
02:00	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4
03:00	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
04:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
05:00	0	20	5	1	2	3	0	1	0	0	0	0	0	0	32
06:00	0	108	36	0	10	5	0	3	3	0	0	0	0	2	167
07:00	0	131	57	0	18	5	0	0	5	0	0	0	0	0	216
08:00	0	63	55	0	14	11	2	6	10	0	0	0	0	1	162
09:00	0	71	51	0	13	24	0	5	9	0	0	0	0	0	173
10:00	0	60	64	0	22	13	0	2	9	0	0	0	0	0	170
11:00	0	62	60	3	22	8	1	2	7	0	1	0	0	0	166
12 PM	0	61	57	1	17	6	0	5	9	0	0	0	0	0	156
13:00	0	52	52	0	15	18	0	11	5	0	0	0	0	0	153
14:00	0	68	44	0	11	15	0	22	1	0	0	0	0	0	161
15:00	0	66	26	1	8	0	0	9	0	0	0	0	0	1	111
16:00	0	58	19	1	6	0	0	0	1	0	0	0	0	0	85
17:00	2	65	17	0	12	0	0	1	1	0	0	0	0	0	98
18:00	0	65	35	1	8	0	0	0	0	0	0	0	0	0	109
19:00	0	49	20	0	4	0	0	0	1	0	0	0	0	0	74
20:00	2	44	14	0	2	0	0	1	0	0	0	0	0	0	63
21:00	0	30	6	0	4	0	0	0	0	0	0	0	0	0	40
22:00	0	15	10	0	0	0	0	0	0	0	0	0	0	0	25
23:00	1	7	5	0	3	0	0	0	0	0	0	0	0	0	16
Total	6	1108	636	8	192	108	3	68	61	0	1	0	0	4	2195
Percent	0.3%	50.5%	29.0%	0.4%	8.7%	4.9%	0.1%	3.1%	2.8%	0.0%	0.0%	0.0%	0.0%	0.2%	
AM Peak	03:00	07:00	10:00	11:00	10:00	09:00	08:00	08:00	08:00	11:00				06:00	
Vol.	1	131	64	3	22	24	2	6	10	1				2	
PM Peak	17:00	14:00	12:00	12:00	12:00	13:00		14:00	12:00					15:00	
Vol.	2	68	57	1	17	18		22	9					1	
Grand Total	190	16794	8961	131	2680	1201	51	736	837	0	8	0	0	72	31661
Percent	0.6%	53.0%	28.3%	0.4%	8.5%	3.8%	0.2%	2.3%	2.6%	0.0%	0.0%	0.0%	0.0%	0.2%	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
MEACHAM-N

NORTHBOUND															
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/4/10	0	2	1	0	1	0	0	0	0	0	0	0	0	0	4
01:00	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
02:00	0	2	0	0	1	0	0	0	0	0	0	0	0	0	3
03:00	0	3	1	0	1	0	0	0	0	0	0	0	0	0	5
04:00	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
05:00	0	9	3	0	2	0	0	0	0	0	0	0	0	0	14
06:00	1	27	19	1	2	0	0	0	4	0	0	0	0	0	54
07:00	0	64	31	0	16	6	0	0	7	0	0	0	0	0	124
08:00	1	78	46	0	16	18	0	4	5	0	0	0	0	0	168
09:00	0	52	45	0	20	29	0	3	12	1	0	0	0	0	162
10:00	2	76	55	1	17	16	0	3	6	0	0	0	0	0	176
11:00	4	77	59	2	28	16	0	6	8	0	0	0	0	0	200
12 PM	3	94	55	1	18	6	0	3	7	0	0	0	0	1	188
13:00	0	52	38	3	20	19	0	3	6	0	0	0	0	0	141
14:00	0	76	75	2	32	17	0	4	9	0	1	0	0	0	216
15:00	3	159	73	0	28	3	0	1	4	0	0	0	0	0	271
16:00	4	156	62	2	9	0	0	3	0	0	0	0	0	0	236
17:00	5	91	30	0	6	0	0	1	0	0	0	0	0	0	133
18:00	1	54	25	0	8	0	0	1	0	0	0	0	0	0	89
19:00	0	30	17	0	3	0	0	1	0	0	0	0	0	0	51
20:00	0	23	9	0	2	0	0	3	0	0	0	0	0	0	37
21:00	0	26	5	0	3	0	0	0	0	0	0	0	0	0	34
22:00	0	11	1	0	0	0	0	0	0	0	0	0	0	0	12
23:00	0	6	3	0	0	0	0	0	0	0	0	0	0	0	9
Total	24	1177	654	12	233	130	0	36	68	1	1	0	0	1	2337
Percent	1.0%	50.4%	28.0%	0.5%	10.0%	5.6%	0.0%	1.5%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	08:00	11:00	11:00	11:00	09:00		11:00	09:00	09:00					
Vol.	4	78	59	2	28	29		6	12	1					
PM Peak	17:00	15:00	14:00	13:00	14:00	13:00		14:00	14:00		14:00			12:00	
Vol.	5	159	75	3	32	19		4	9		1			1	



MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
MEACHAM-N

NORTHBOUND														
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified
5/5/10	0	6	0	0	1	0	0	0	0	0	0	0	0	0
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
03:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1
04:00	0	5	4	0	0	0	0	0	0	0	0	0	0	9
05:00	0	8	4	0	1	0	0	0	0	0	0	0	0	13
06:00	1	29	20	1	5	1	0	0	2	0	0	0	0	59
07:00	0	73	33	0	11	6	0	1	8	0	0	0	0	132
08:00	0	88	38	0	18	14	0	3	15	0	0	0	0	176
09:00	2	66	56	0	20	23	0	3	9	0	0	0	0	179
10:00	2	79	60	0	14	16	0	7	9	0	0	0	0	188
11:00	2	85	67	0	24	11	0	6	15	0	0	0	0	210
12 PM	4	75	61	0	28	10	0	3	4	0	0	0	0	186
13:00	2	67	63	2	19	13	0	4	8	1	0	0	0	179
14:00	1	106	64	1	20	25	0	5	8	0	0	0	0	230
15:00	2	138	81	0	19	7	0	5	4	0	0	0	0	256
16:00	3	148	56	0	7	1	0	0	1	0	0	0	0	217
17:00	2	92	33	0	4	0	0	0	0	0	0	0	0	131
18:00	9	68	21	0	5	0	0	1	0	0	0	0	0	104
19:00	1	33	21	0	3	0	0	1	0	0	0	0	0	59
20:00	0	21	11	0	5	0	0	0	0	0	1	0	0	38
21:00	0	21	10	0	3	0	0	0	0	0	0	0	0	34
22:00	0	19	3	0	0	0	0	0	0	0	0	0	0	22
23:00	0	4	2	0	0	0	0	0	0	0	0	0	0	6
Total	31	1235	708	4	208	127	0	39	83	1	1	0	0	2440
Percent	1.3%	50.6%	29.0%	0.2%	8.5%	5.2%	0.0%	1.6%	3.4%	0.0%	0.0%	0.0%	0.0%	0.1%
AM Peak	09:00	08:00	11:00	06:00	11:00	09:00		10:00	08:00					10:00
Vol.	2	88	67	1	24	23		7	15					1
PM Peak	18:00	16:00	15:00	13:00	12:00	14:00		14:00	13:00	13:00	20:00			12:00
Vol.	9	148	81	2	28	25		5	8	1	1			1

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
MEACHAM-N

NORTHBOUND															
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classified	Total
5/6/10	0	7	0	0	0	0	0	0	0	0	0	0	0	0	7
01:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	5	3	0	1	0	0	0	0	0	0	0	0	0	9
05:00	0	13	4	0	2	0	0	0	0	0	0	0	0	0	19
06:00	0	21	24	1	1	0	0	0	0	0	0	0	0	0	48
07:00	0	73	34	0	18	7	0	2	7	0	0	0	0	0	141
08:00	0	87	52	0	16	13	0	6	8	0	0	0	0	0	182
09:00	1	65	58	0	21	25	0	6	9	0	0	0	0	0	185
10:00	1	66	63	2	16	7	0	5	7	0	0	0	0	0	167
11:00	1	103	67	1	20	14	0	1	11	0	0	0	0	0	218
12 PM	3	99	62	3	24	10	0	7	11	0	0	0	0	1	220
13:00	2	68	57	2	18	6	0	5	13	0	2	0	0	0	173
14:00	0	102	74	2	20	23	0	8	8	0	0	0	0	0	237
15:00	3	130	73	0	20	4	0	3	3	0	0	0	0	1	237
16:00	2	149	55	1	11	2	0	1	0	0	0	0	0	1	222
17:00	3	103	32	0	9	0	0	1	0	0	0	0	0	0	148
18:00	3	62	20	0	6	0	0	0	0	0	0	0	0	0	91
19:00	1	35	16	0	5	0	0	1	0	0	0	0	0	0	58
20:00	1	31	23	0	2	0	0	0	0	0	0	0	0	0	57
21:00	1	15	6	0	0	0	0	1	0	0	1	0	0	0	24
22:00	0	16	4	0	1	0	0	0	0	0	0	0	0	0	21
23:00	0	5	2	0	0	0	0	0	0	0	0	0	0	0	7
Total	22	1260	729	12	211	111	0	48	77	0	3	0	0	3	2476
Percent	0.9%	50.9%	29.4%	0.5%	8.5%	4.5%	0.0%	1.9%	3.1%	0.0%	0.1%	0.0%	0.0%	0.1%	
AM Peak	09:00	11:00	11:00	10:00	09:00	09:00		08:00	11:00						
Vol.	1	103	67	2	21	25		6	11						
PM Peak	12:00	16:00	14:00	12:00	12:00	14:00		14:00	13:00		13:00			12:00	
Vol.	3	149	74	3	24	23		8	13		2			1	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
MEACHAM-N

NORTHBOUND															
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classified	Total
5/7/10	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
01:00	0	4	0	0	1	0	0	0	0	0	0	0	0	0	5
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	2	0	0	2	0	0	0	0	0	0	0	0	0	4
04:00	0	3	2	0	0	0	0	0	0	0	0	0	0	0	5
05:00	0	6	7	0	2	0	0	0	0	0	0	0	0	0	15
06:00	0	27	23	1	5	1	0	1	3	0	0	0	0	0	61
07:00	2	55	34	0	17	7	0	2	9	0	0	0	0	0	126
08:00	0	96	32	1	19	13	0	6	8	0	0	0	0	0	175
09:00	0	70	64	0	19	19	0	4	6	0	0	0	0	0	182
10:00	3	78	68	0	21	20	0	4	4	0	0	0	0	1	199
11:00	3	84	69	0	29	13	0	5	8	0	0	0	0	0	211
12 PM	5	100	68	0	12	6	0	8	5	0	0	0	0	0	204
13:00	1	114	82	0	20	20	0	2	10	0	0	0	0	1	250
14:00	1	92	87	1	18	20	0	1	7	0	0	0	0	0	227
15:00	4	151	79	0	13	6	0	2	2	0	0	0	0	0	257
16:00	6	145	55	1	10	0	0	1	0	0	0	0	0	0	218
17:00	2	90	31	1	10	0	0	3	1	0	0	0	0	0	138
18:00	2	69	24	0	4	0	0	0	0	0	0	0	0	0	99
19:00	1	43	17	0	3	0	0	0	0	0	0	0	0	0	64
20:00	0	36	13	0	2	0	0	1	0	0	0	0	0	0	52
21:00	1	32	11	0	1	0	0	0	0	0	0	0	0	0	45
22:00	1	11	4	0	1	0	0	0	0	0	0	0	0	0	17
23:00	0	8	1	0	0	0	0	0	0	0	0	0	0	0	9
Total	32	1323	771	5	209	125	0	40	63	0	0	0	0	2	2570
Percent	1.2%	51.5%	30.0%	0.2%	8.1%	4.9%	0.0%	1.6%	2.5%	0.0%	0.0%	0.0%	0.0%	0.1%	
AM Peak	10:00	08:00	11:00	06:00	11:00	10:00		08:00	07:00					10:00	
Vol.	3	96	69	1	29	20		6	9					1	
PM Peak	16:00	15:00	14:00	14:00	13:00	13:00		12:00	13:00					13:00	
Vol.	6	151	87	1	20	20		8	10					1	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
MEACHAM-N

NORTHBOUND															MEACHAM
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
5/8/10	0	10	1	0	1	0	0	0	0	0	0	0	0	0	12
01:00	0	2	2	0	0	0	0	0	0	0	0	0	0	0	4
02:00	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:00	0	2	3	0	0	0	0	0	0	0	0	0	0	0	5
06:00	1	11	9	0	2	0	0	1	0	0	0	0	0	0	24
07:00	0	47	26	0	6	4	0	4	6	0	0	0	0	0	93
08:00	0	54	59	1	18	5	0	4	9	0	0	0	0	0	150
09:00	0	74	70	0	24	0	0	4	6	0	0	0	0	0	178
10:00	2	109	76	0	18	2	0	3	6	0	0	0	0	0	217
11:00	3	115	94	0	22	3	0	1	6	0	0	0	0	0	244
12 PM	2	111	86	0	28	3	0	6	6	0	0	0	0	0	242
13:00	4	112	84	0	26	4	0	3	5	0	0	0	0	2	240
14:00	1	107	106	1	16	3	0	1	4	0	0	0	0	1	240
15:00	3	130	64	0	17	3	0	2	3	0	0	0	0	3	225
16:00	4	78	33	0	5	0	0	0	1	0	0	0	0	1	122
17:00	0	71	33	0	10	0	0	0	0	0	0	0	0	0	114
18:00	1	48	18	0	5	0	0	0	0	0	0	0	0	0	72
19:00	1	45	19	0	5	0	0	0	0	0	0	0	0	0	70
20:00	1	37	12	0	0	0	0	1	0	0	0	0	0	0	51
21:00	0	31	10	0	3	0	0	0	0	0	0	0	0	0	44
22:00	0	24	6	0	0	0	0	1	0	0	0	0	0	0	31
23:00	0	14	3	0	0	0	0	0	0	0	0	0	0	0	17
Total	23	1238	816	2	206	27	0	31	52	0	0	0	0	8	2403
Percent	1.0%	51.5%	34.0%	0.1%	8.6%	1.1%	0.0%	1.3%	2.2%	0.0%	0.0%	0.0%	0.0%	0.3%	
AM Peak	11:00	11:00	11:00	08:00	09:00	08:00		07:00	08:00					10:00	
Vol.	3	115	94	1	24	5		4	9					1	
PM Peak	13:00	15:00	14:00	14:00	12:00	13:00		12:00	12:00					15:00	
Vol.	4	130	106	1	28	4		6	6					3	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

NORTHBOUND														Site Code: 2 MEACHAM-N	
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/9/10	0	7	4	0	0	0	0	0	0	0	0	0	0	0	11
01:00	0	6	0	0	2	0	0	0	0	0	0	0	0	0	8
02:00	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
03:00	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4
04:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
05:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
06:00	0	11	3	0	3	0	0	0	0	0	0	0	0	0	17
07:00	0	19	5	0	1	0	0	0	0	0	0	0	0	0	25
08:00	0	33	18	0	7	0	0	0	0	0	0	0	0	0	58
09:00	0	48	17	0	3	0	0	0	0	0	0	0	0	0	68
10:00	2	64	27	0	4	0	0	3	1	0	0	0	0	0	101
11:00	0	68	28	0	4	0	0	2	1	0	0	0	0	0	103
12 PM	1	87	28	1	2	0	0	0	0	0	0	0	0	0	119
13:00	2	63	24	0	9	0	0	0	0	0	0	0	0	0	98
14:00	0	53	25	0	4	0	0	1	0	0	0	0	0	0	83
15:00	2	62	26	0	5	0	0	2	1	0	0	0	0	0	98
16:00	1	68	17	0	2	0	0	2	0	0	0	0	0	0	90
17:00	0	47	19	0	6	0	0	0	0	0	0	0	0	0	72
18:00	0	45	13	0	4	0	0	0	1	0	0	0	0	0	63
19:00	0	39	14	0	5	0	0	1	0	0	0	0	0	0	59
20:00	0	35	10	0	4	0	0	0	0	0	0	0	0	0	49
21:00	0	27	9	0	1	0	0	0	0	0	0	0	0	0	37
22:00	0	22	4	0	0	0	0	0	0	0	0	0	0	0	26
23:00	0	7	2	0	0	0	0	0	0	1	0	0	0	0	10
Total	8	822	296	1	66	0	0	11	5	0	0	0	0	0	1209
Percent	0.7%	68.0%	24.5%	0.1%	5.5%	0.0%	0.0%	0.9%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	11:00	11:00		08:00			10:00	10:00						
Vol.	2	68	28		7			3	1						
PM Peak	13:00	12:00	12:00	12:00	13:00			15:00	15:00						
Vol.	2	87	28	1	9			2	1						

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
MEACHAM-N

NORTHBOUND														
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified
5/10/10	0	4	1	0	0	0	0	0	0	0	0	0	0	0
01:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	4	1	0	1	1	0	1	0	0	0	0	0	8
05:00	0	9	9	0	1	1	0	0	0	0	0	0	0	20
06:00	0	38	21	1	5	0	0	0	0	0	0	0	0	65
07:00	0	64	38	0	17	24	0	1	2	0	0	0	0	148
08:00	0	65	48	1	13	29	0	2	5	0	0	0	0	164
09:00	1	61	38	1	14	41	0	2	5	0	0	0	0	163
10:00	0	79	62	1	19	31	0	6	6	0	0	0	0	204
11:00	0	56	53	1	15	25	0	2	5	0	0	0	0	157
12 PM	0	56	48	6	15	16	0	11	3	0	0	0	0	155
13:00	0	58	51	4	18	29	1	2	6	0	0	0	0	170
14:00	0	72	44	3	18	33	0	2	6	0	0	0	0	178
15:00	0	140	77	1	18	6	0	5	2	0	0	0	0	249
16:00	0	158	54	1	13	0	0	2	0	0	0	0	0	229
17:00	0	80	33	0	4	1	0	0	0	0	0	0	0	118
18:00	0	48	17	0	5	0	0	0	0	0	0	0	0	70
19:00	0	30	9	0	1	0	0	0	0	0	0	0	0	40
20:00	0	30	9	0	3	0	0	0	0	0	0	0	0	42
21:00	0	19	7	0	0	0	0	0	0	0	0	0	0	26
22:00	0	7	3	0	0	0	0	0	0	0	0	0	0	10
23:00	0	7	2	0	1	0	0	0	0	0	0	0	0	10
Total	1	1090	625	20	181	237	1	36	40	0	0	0	0	2236
Percent	0.0%	48.7%	28.0%	0.9%	8.1%	10.6%	0.0%	1.6%	1.8%	0.0%	0.0%	0.0%	0.0%	0.2%
AM Peak	09:00	10:00	10:00	06:00	10:00	09:00		10:00	10:00					07:00
Vol.	1	79	62	1	19	41		6	6					2
PM Peak		16:00	15:00	12:00	13:00	14:00	13:00	12:00	13:00					13:00
Vol.		158	77	6	18	33	1	11	6					1

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
MEACHAM-N

NORTHBOUND														
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified
5/11/10	0	4	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	2	0	0	1	0	0	0	0	0	0	0	0	0
03:00	0	2	0	0	1	0	0	0	0	0	0	0	0	0
04:00	0	3	2	0	0	0	0	0	0	0	0	0	0	0
05:00	0	15	6	0	2	0	0	0	0	0	0	0	0	0
06:00	0	26	23	1	1	0	0	0	0	0	0	0	0	0
07:00	0	68	39	1	17	21	0	2	6	0	0	0	0	0
08:00	1	79	49	5	15	26	0	2	2	0	0	0	0	1
09:00	0	46	43	5	15	41	0	4	9	0	0	0	0	1
10:00	0	66	40	2	16	24	0	1	6	0	0	0	0	0
11:00	2	71	57	2	26	27	0	6	9	0	0	0	0	0
12 PM	3	79	54	1	19	20	0	4	6	0	0	0	0	4
13:00	3	89	74	4	13	32	1	7	7	1	0	0	0	1
14:00	1	91	88	4	19	32	0	5	3	0	0	0	0	1
15:00	4	143	81	4	25	4	0	1	1	0	0	0	0	1
16:00	3	162	58	0	19	0	0	1	0	0	0	0	0	0
17:00	5	100	34	0	9	1	0	2	0	0	0	0	0	0
18:00	2	49	28	0	8	2	0	0	0	0	0	0	0	0
19:00	1	32	18	0	0	0	0	1	0	0	0	0	0	0
20:00	2	40	6	0	3	0	0	0	0	0	0	0	0	0
21:00	0	20	7	0	5	0	0	0	0	0	1	0	0	0
22:00	1	9	3	0	0	0	0	0	0	0	0	0	0	0
23:00	0	4	2	0	0	0	0	0	0	0	0	0	0	0
Total	28	1203	712	29	214	230	1	36	50	1	1	0	0	9
Percent	1.1%	47.9%	28.3%	1.2%	8.5%	9.1%	0.0%	1.4%	2.0%	0.0%	0.0%	0.0%	0.0%	0.4%
AM Peak	11:00	08:00	11:00	08:00	11:00	09:00		11:00	09:00					08:00
Vol.	2	79	57	5	26	41		6	9					1
PM Peak	17:00	16:00	14:00	13:00	15:00	13:00	13:00	13:00	13:00	13:00	21:00			12:00
Vol.	5	162	88	4	25	32	1	7	7	1	1			4

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
MEACHAM-N

NORTHBOUND														MEACHAM	
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
5/12/10	0	4	1	0	0	0	0	0	0	0	0	0	0	0	5
01:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4
03:00	0	1	1	0	2	0	0	0	0	0	0	0	0	0	4
04:00	0	1	3	0	0	0	0	0	0	0	0	0	0	0	4
05:00	0	8	4	0	4	1	0	0	1	0	0	0	0	0	18
06:00	1	23	15	1	6	0	0	2	5	0	0	0	0	0	53
07:00	0	77	37	0	17	13	0	1	7	0	0	0	0	0	152
08:00	2	74	55	0	14	13	0	2	4	0	0	0	0	1	165
09:00	3	53	46	1	18	21	0	3	9	0	0	0	0	2	156
10:00	4	68	46	0	27	21	0	2	11	2	0	0	0	0	181
11:00	2	82	55	1	19	12	0	4	7	1	0	0	0	2	185
12 PM	4	90	59	2	20	14	0	3	3	2	0	0	0	1	198
13:00	4	109	56	1	16	9	0	5	2	2	1	0	0	3	208
14:00	2	107	67	1	28	16	0	4	3	0	0	0	0	2	230
15:00	1	156	77	0	17	2	0	3	3	1	0	0	0	0	260
16:00	3	139	61	0	10	0	0	1	0	0	0	0	0	1	215
17:00	3	78	30	0	8	0	0	0	0	0	0	0	0	0	119
18:00	3	74	25	0	7	0	0	1	0	0	0	0	0	2	112
19:00	3	38	17	0	3	0	0	0	0	0	0	0	0	0	61
20:00	0	31	17	0	1	0	0	0	0	0	0	0	0	0	49
21:00	0	12	8	0	4	0	0	0	0	0	1	0	0	0	25
22:00	0	6	1	0	0	0	0	0	0	0	0	0	0	0	7
23:00	0	3	2	0	0	0	0	0	0	0	0	0	0	0	5
Total	35	1239	684	7	221	122	0	31	55	8	2	0	0	14	2418
Percent	1.4%	51.2%	28.3%	0.3%	9.1%	5.0%	0.0%	1.3%	2.3%	0.3%	0.1%	0.0%	0.0%	0.6%	
AM Peak	10:00	11:00	08:00	06:00	10:00	09:00		11:00	10:00	10:00				09:00	
Vol.	4	82	55	1	27	21		4	11	2				2	
PM Peak	12:00	15:00	15:00	12:00	14:00	14:00		13:00	12:00	12:00	13:00			13:00	
Vol.	4	156	77	2	28	16		5	3	2	1			3	



MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
MEACHAM-N

NORTHBOUND														
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified
5/13/10	0	4	0	0	0	0	0	0	0	0	0	0	0	4
01:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	5	1	0	3	0	0	0	0	0	0	0	0	9
05:00	0	14	3	0	2	0	0	0	0	0	0	0	0	19
06:00	0	25	16	2	3	0	0	0	4	0	0	0	0	50
07:00	0	72	41	0	19	8	0	0	4	0	0	0	0	144
08:00	1	78	47	0	20	4	0	3	2	2	0	0	0	157
09:00	0	95	50	1	26	14	0	3	5	0	0	0	0	194
10:00	2	76	53	0	20	15	0	6	6	3	0	0	1	182
11:00	0	96	54	0	17	9	0	4	6	3	1	0	0	191
12 PM	1	103	63	4	23	4	1	6	6	1	0	0	0	212
13:00	3	93	64	3	17	5	0	6	4	2	0	0	0	198
14:00	1	100	69	1	33	10	0	0	2	0	0	0	0	218
15:00	2	162	79	0	30	3	0	2	1	0	0	0	0	279
16:00	1	146	49	0	10	0	0	1	0	0	0	0	0	207
17:00	0	92	33	0	8	1	0	1	0	0	0	0	0	136
18:00	2	78	24	0	11	1	0	0	1	0	0	0	0	117
19:00	2	45	20	0	4	1	0	0	0	0	0	0	0	72
20:00	0	38	12	0	1	0	0	0	0	0	0	1	0	53
21:00	0	20	12	0	1	0	0	0	0	0	0	0	0	33
22:00	0	12	3	0	0	0	0	0	0	0	0	0	0	15
23:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
Total	15	1366	694	11	248	75	1	32	41	11	1	1	1	2503
Percent	0.6%	54.6%	27.7%	0.4%	9.9%	3.0%	0.0%	1.3%	1.6%	0.4%	0.0%	0.0%	0.0%	0.2%
AM Peak	10:00	11:00	11:00	06:00	09:00	10:00		10:00	10:00	10:00	11:00		10:00	11:00
Vol.	2	96	54	2	26	15		6	6	3	1		1	1
PM Peak	13:00	15:00	15:00	12:00	14:00	14:00	12:00	12:00	12:00	13:00		20:00		14:00
Vol.	3	162	79	4	33	10	1	6	6	2		1		2

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
MEACHAM-N

NORTHBOUND														Total
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	
5/14/10	0	6	1	0	1	0	0	0	0	0	0	0	0	8
01:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
04:00	0	2	2	0	3	0	0	0	0	0	0	0	0	7
05:00	0	9	6	0	2	0	0	0	0	0	0	0	0	17
06:00	0	22	15	1	5	2	0	1	3	0	0	0	0	49
07:00	0	66	42	0	11	4	0	1	9	0	0	0	0	134
08:00	1	77	48	0	18	6	0	5	5	0	0	0	0	160
09:00	1	85	55	0	22	15	0	6	4	0	0	0	0	188
10:00	2	91	60	0	26	13	0	2	5	0	0	0	0	199
11:00	2	116	74	2	19	7	0	9	4	1	0	0	0	234
12 PM	3	114	52	0	24	3	0	2	2	2	0	0	0	203
13:00	0	108	76	1	18	13	0	2	4	2	1	0	0	225
14:00	0	120	82	0	29	14	0	4	5	0	1	0	0	256
15:00	2	154	82	0	24	2	0	3	1	0	0	0	0	288
16:00	4	163	57	0	11	0	0	0	0	0	0	0	0	236
17:00	4	78	38	0	8	0	0	1	0	0	0	0	0	129
18:00	0	57	27	0	8	0	0	0	0	0	0	0	0	92
19:00	0	54	17	0	5	0	0	0	0	0	0	0	0	76
20:00	1	44	14	0	2	0	0	0	0	0	0	0	0	61
21:00	0	27	8	0	1	0	0	0	0	0	1	0	0	37
22:00	0	20	3	0	0	0	0	1	0	0	0	0	0	24
23:00	1	11	2	0	2	0	0	0	0	0	0	0	0	16
Total	21	1434	762	4	239	79	0	37	42	5	3	0	0	2630
Percent	0.8%	54.5%	29.0%	0.2%	9.1%	3.0%	0.0%	1.4%	1.6%	0.2%	0.1%	0.0%	0.0%	
AM Peak	10:00	11:00	11:00	11:00	10:00	09:00		11:00	07:00	11:00				
Vol.	2	116	74	2	26	15		9	9	1				1
PM Peak	16:00	16:00	14:00	13:00	14:00	14:00		14:00	14:00	12:00	13:00			
Vol.	4	163	82	1	29	14		4	5	2	1			1

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
MEACHAM-N

NORTHBOUND															MEACHAM-
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
5/15/10	0	7	2	0	0	0	0	0	0	0	0	0	0	0	9
01:00	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3
04:00	0	2	0	0	1	0	0	0	0	0	0	0	0	0	3
05:00	0	5	0	0	2	0	0	0	0	0	0	0	0	0	7
06:00	0	17	11	0	1	1	0	0	1	1	0	0	0	0	32
07:00	1	38	22	1	11	3	0	1	2	1	0	0	0	0	80
08:00	0	72	47	2	14	2	0	1	6	0	0	0	0	1	145
09:00	0	84	60	1	21	2	0	1	3	1	0	0	0	0	173
10:00	1	116	64	1	13	3	0	11	3	1	0	0	0	0	213
11:00	2	192	84	0	26	5	0	5	0	3	0	0	0	1	318
12 PM	4	144	91	0	17	1	0	2	3	0	0	0	0	2	264
13:00	2	132	76	1	23	2	0	4	5	0	0	0	0	0	245
14:00	0	149	80	0	20	3	0	2	3	0	0	0	0	0	257
15:00	2	130	80	0	13	1	0	3	1	0	0	0	0	1	231
16:00	1	83	30	0	6	0	0	0	0	0	0	0	0	0	120
17:00	0	82	14	0	7	0	0	0	0	0	0	0	0	1	104
18:00	1	60	18	0	4	0	0	0	0	0	0	0	0	0	83
19:00	0	40	14	0	2	0	0	0	1	0	0	0	0	1	58
20:00	0	32	8	0	1	0	0	0	0	0	0	0	0	0	41
21:00	0	20	6	0	2	0	0	0	0	0	0	0	0	0	28
22:00	0	20	7	0	0	0	0	0	0	0	0	0	0	0	27
23:00	0	9	0	0	1	0	0	0	0	0	0	0	0	0	10
Total	14	1443	715	6	185	23	0	30	28	7	0	0	0	7	2458
Percent	0.6%	58.7%	29.1%	0.2%	7.5%	0.9%	0.0%	1.2%	1.1%	0.3%	0.0%	0.0%	0.0%	0.3%	
AM Peak	11:00	11:00	11:00	08:00	11:00	11:00		10:00	08:00	11:00				08:00	
Vol.	2	192	84	2	26	5		11	6	3				1	
PM Peak	12:00	14:00	12:00	13:00	13:00	14:00		13:00	13:00					12:00	
Vol.	4	149	91	1	23	3		4	5					2	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

Site Code: 2  
MEACHAM-N

NORTHBOUND															
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/16/10	0	6	3	0	0	0	0	0	0	0	0	0	0	0	9
01:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3
03:00	0	4	1	0	1	0	0	0	0	0	0	0	0	0	6
04:00	0	4	0	0	1	0	0	0	0	0	0	0	0	0	5
05:00	0	1	2	0	0	0	0	1	0	0	0	0	0	0	4
06:00	0	8	7	0	2	0	0	1	0	0	0	0	0	0	18
07:00	0	15	9	0	3	0	0	0	1	0	0	0	0	0	28
08:00	1	34	16	0	4	0	0	1	1	0	0	0	0	0	57
09:00	0	36	31	0	9	0	0	0	0	1	0	0	0	0	77
10:00	0	63	25	1	5	2	0	2	0	0	0	0	0	0	98
11:00	1	69	27	0	6	0	0	2	0	0	0	0	0	0	105
12 PM	2	67	28	1	7	1	0	0	0	0	0	0	0	0	106
13:00	3	47	26	0	8	0	0	3	0	0	0	0	0	0	87
14:00	2	64	29	0	8	0	0	2	0	0	0	0	0	0	105
15:00	0	66	21	0	12	0	0	1	1	0	0	0	0	0	101
16:00	0	58	10	0	3	0	0	2	0	0	0	0	0	0	73
17:00	1	48	22	0	6	0	0	0	0	0	0	0	0	0	77
18:00	1	43	18	0	5	1	0	1	0	0	0	0	0	0	69
19:00	0	39	14	0	1	0	0	0	0	0	0	0	0	0	54
20:00	0	20	7	0	3	0	0	0	0	0	0	0	0	0	30
21:00	0	22	11	0	6	0	0	0	0	0	0	0	0	0	39
22:00	0	8	3	0	0	0	0	0	0	0	0	0	0	0	11
23:00	0	7	3	0	0	0	0	0	0	1	0	0	0	0	11
Total	11	733	315	2	90	4	0	16	4	1	0	0	0	0	1176
Percent	0.9%	62.3%	26.8%	0.2%	7.7%	0.3%	0.0%	1.4%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	11:00	09:00	10:00	09:00	10:00		10:00	07:00	09:00					
Vol.	1	69	31	1	9	2		2	1	1					
PM Peak	13:00	12:00	14:00	12:00	15:00	12:00		13:00	15:00						
Vol.	3	67	29	1	12	1		3	1						

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL D/W to STONY PT. RD

NORTHBOUND  
Site Code: 2  
MEACHAM-N

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/17/10	0	6	1	0	0	0	0	0	0	0	0	0	0	0	7
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2
04:00	0	4	1	0	1	0	0	0	0	0	0	0	0	0	6
05:00	0	7	4	0	1	1	0	0	0	0	0	0	0	0	13
06:00	0	27	21	0	4	0	0	0	2	0	0	0	0	1	55
07:00	0	74	39	0	12	4	0	1	2	2	0	0	0	0	134
08:00	0	84	49	0	17	3	0	3	1	1	0	0	0	0	158
09:00	1	69	53	0	22	5	0	2	5	1	0	0	0	1	159
10:00	1	79	74	0	20	5	0	4	3	2	0	0	0	2	190
11:00	0	87	85	1	25	4	0	4	1	2	0	0	0	0	209
12 PM	1	102	74	1	25	1	0	6	3	0	1	0	0	1	215
13:00	0	85	55	0	14	2	0	5	3	1	0	0	0	0	165
14:00	1	87	69	0	17	12	0	5	1	1	0	0	0	0	193
15:00	0	122	65	0	18	2	0	3	2	0	0	0	0	1	213
16:00	0	157	55	0	6	0	0	3	0	0	0	0	0	0	221
17:00	0	63	27	0	3	1	0	2	0	0	0	0	0	0	96
18:00	0	50	19	0	3	0	0	1	0	0	0	0	0	0	73
19:00	0	37	8	0	4	0	0	0	0	0	0	0	0	0	49
20:00	0	27	11	0	2	0	0	0	0	0	0	0	0	0	40
21:00	0	16	9	0	3	0	0	0	0	0	0	0	0	0	28
22:00	0	13	2	0	0	0	0	0	0	0	0	0	0	0	15
23:00	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6
Total	4	1202	723	2	198	40	0	39	23	10	1	0	0	6	2248
Percent	0.2%	53.5%	32.2%	0.1%	8.8%	1.8%	0.0%	1.7%	1.0%	0.4%	0.0%	0.0%	0.0%	0.3%	
AM Peak	09:00	11:00	11:00	11:00	11:00	09:00		10:00	09:00	07:00				10:00	
Vol.	1	87	85	1	25	5		4	5	2				2	
PM Peak	12:00	16:00	12:00	12:00	12:00	14:00		12:00	12:00	13:00	12:00			12:00	
Vol.	1	157	74	1	25	12		6	3	1	1			1	
Grand Total	269	16765	9204	117	2709	1330	3	462	631	45	13	1	1	68	31618
Percent	0.9%	53.0%	29.1%	0.4%	8.6%	4.2%	0.0%	1.5%	2.0%	0.1%	0.0%	0.0%	0.0%	0.2%	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD.- ROBLAR RD. to SR 116

Site Code: 1  
STONY-S

SOUTHBOUND

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/4/10	0	13	8	0	1	0	0	0	0	0	0	0	0	0	22
01:00	0	7	3	0	1	0	0	0	0	0	2	0	0	0	13
02:00	1	9	0	0	0	0	0	1	0	0	0	0	0	0	11
03:00	0	14	3	0	2	1	0	0	0	0	0	0	0	0	20
04:00	0	27	13	0	5	2	0	2	1	0	0	0	0	0	50
05:00	1	104	48	1	21	3	0	1	0	0	0	0	0	0	179
06:00	9	299	102	0	32	9	0	4	4	0	0	1	0	0	460
07:00	5	544	170	1	41	5	0	14	13	0	0	0	0	1	794
08:00	4	487	131	1	46	20	2	7	13	1	0	0	0	4	716
09:00	3	301	105	1	39	17	0	6	20	0	0	0	0	1	493
10:00	2	218	106	3	40	18	0	7	8	0	1	0	0	1	404
11:00	3	241	111	0	32	17	0	7	7	0	1	0	0	2	421
12 PM	4	240	100	5	32	10	0	9	8	0	2	0	0	1	411
13:00	2	248	115	2	36	19	1	3	7	0	0	0	0	0	433
14:00	5	278	126	1	32	7	1	7	9	0	1	0	1	1	469
15:00	4	347	122	1	33	2	0	6	6	0	0	0	0	1	522
16:00	1	403	129	0	30	0	0	2	2	2	1	0	0	1	569
17:00	7	422	112	0	23	0	0	6	1	0	1	0	0	0	572
18:00	4	306	89	2	19	0	0	4	2	0	0	0	0	0	426
19:00	1	211	64	0	16	0	0	2	0	0	0	0	0	1	295
20:00	2	118	38	0	11	0	0	0	0	0	1	0	0	0	170
21:00	0	109	32	0	1	0	0	0	3	0	0	0	0	0	145
22:00	0	56	11	0	1	1	0	0	0	0	0	0	0	0	69
23:00	0	32	6	0	0	0	0	0	0	0	0	0	0	0	38
Total	58	5034	1744	18	494	131	4	88	104	1	10	1	1	14	7702
Percent	0.8%	65.4%	22.6%	0.2%	6.4%	1.7%	0.1%	1.1%	1.4%	0.0%	0.1%	0.0%	0.0%	0.2%	
AM Peak	06:00	07:00	07:00	10:00	08:00	08:00	08:00	07:00	09:00	08:00	01:00	06:00		08:00	
Vol.	9	544	170	3	46	20	2	14	20	1	2	1		4	
PM Peak	17:00	17:00	16:00	12:00	13:00	13:00	13:00	12:00	14:00		12:00		14:00	12:00	
Vol.	7	422	129	5	36	19	1	9	9		2		1	1	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD.- ROBLAR RD. to SR 116

Site Code: 1  
STONY-S

SOUTHBOUND															STONY-CRENSHAW														
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total														
5/5/10	0	9	6	0	1	0	0	0	1	0	0	0	0	0	17														
01:00	0	7	2	0	4	0	0	0	0	0	2	0	0	0	15														
02:00	0	6	3	0	0	0	0	0	0	0	2	0	0	0	11														
03:00	0	10	2	0	2	0	0	0	0	0	2	0	0	0	16														
04:00	1	33	11	0	3	0	0	0	1	0	0	0	0	0	49														
05:00	1	106	38	1	14	2	0	2	2	0	0	0	0	0	166														
06:00	12	284	111	1	40	4	0	2	8	0	0	0	0	1	463														
07:00	4	505	172	3	43	13	1	8	7	0	0	0	0	0	756														
08:00	2	429	172	4	42	13	1	8	10	1	0	0	0	1	683														
09:00	2	285	129	0	38	20	0	8	12	0	1	0	0	0	495														
10:00	1	240	110	1	38	13	0	9	11	0	0	0	0	2	425														
11:00	4	245	111	1	41	9	0	6	6	0	0	0	0	0	423														
12 PM	6	292	107	0	26	14	1	4	13	0	0	0	0	1	464														
13:00	7	260	120	1	38	10	0	5	7	0	1	0	0	2	451														
14:00	7	297	122	0	24	17	0	7	3	0	1	0	0	4	482														
15:00	8	357	118	2	24	1	0	4	8	0	0	0	0	0	522														
16:00	6	397	131	0	33	0	0	7	1	0	0	0	0	0	575														
17:00	6	443	127	1	31	0	0	3	2	0	1	0	0	0	614														
18:00	1	247	82	3	19	0	0	2	0	0	0	0	0	0	354														
19:00	2	217	57	1	10	0	0	1	1	0	0	0	0	0	289														
20:00	0	125	32	0	4	1	0	1	0	0	0	0	0	0	163														
21:00	0	136	23	0	2	0	0	0	1	0	0	0	0	0	162														
22:00	0	78	14	0	2	0	0	0	1	0	0	0	0	0	95														
23:00	0	35	7	0	0	0	0	0	0	0	0	0	0	0	42														
Total	70	5043	1807	19	479	117	3	77	95	1	10	0	0	11	7732														
Percent	0.9%	65.2%	23.4%	0.2%	6.2%	1.5%	0.0%	1.0%	1.2%	0.0%	0.1%	0.0%	0.0%	0.1%															
AM Peak	06:00	07:00	07:00	08:00	07:00	09:00	07:00	10:00	09:00	08:00	01:00			10:00															
Vol.	12	505	172	4	43	20	1	9	12	1	2			2															
PM Peak	15:00	17:00	16:00	18:00	13:00	14:00	12:00	14:00	12:00		13:00			14:00															
Vol.	8	443	131	3	38	17	1	7	13		1			4															

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD.- ROBLAR RD. to SR 116

Site Code: 1  
STONY-S

SOUTHBOUND

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classified	Total
5/6/10	0	15	5	0	1	0	0	1	0	0	3	0	0	0	25
01:00	0	7	4	0	2	0	0	0	1	0	4	0	0	0	18
02:00	0	6	2	0	1	0	0	0	1	0	2	0	0	0	12
03:00	0	12	5	0	2	1	0	0	0	0	3	0	0	0	23
04:00	1	22	13	0	3	0	0	0	1	0	2	0	0	0	42
05:00	0	112	48	2	18	0	0	5	2	0	0	0	0	0	187
06:00	7	302	107	0	32	4	0	7	7	0	0	0	0	2	468
07:00	3	495	194	4	36	9	0	7	8	0	0	0	1	0	757
08:00	2	458	177	3	56	21	2	6	8	0	0	0	0	0	733
09:00	0	280	142	2	48	21	0	8	12	0	0	0	0	3	516
10:00	1	231	125	7	23	8	0	7	9	0	1	0	0	1	413
11:00	1	262	119	2	32	13	0	10	15	0	1	0	0	0	455
12 PM	2	301	147	3	30	8	0	8	10	0	2	0	0	2	513
13:00	4	304	104	1	44	9	0	8	7	0	0	0	0	2	483
14:00	4	330	145	1	38	15	1	7	8	0	0	0	0	2	551
15:00	7	364	125	0	29	1	0	1	5	0	1	0	0	2	535
16:00	4	395	131	2	30	0	0	3	2	0	0	0	0	0	567
17:00	7	461	146	1	39	2	0	5	0	0	3	0	0	2	666
18:00	3	333	72	1	15	0	0	3	2	0	0	0	0	0	429
19:00	4	180	49	0	9	0	0	0	1	0	0	0	0	0	243
20:00	2	144	40	0	5	0	0	3	0	0	0	0	0	0	194
21:00	1	117	35	0	7	0	0	0	4	0	0	0	0	0	164
22:00	0	68	15	0	7	1	0	0	0	0	0	0	0	0	91
23:00	0	29	7	0	1	0	0	0	0	0	2	0	0	0	39
Total	53	5228	1957	29	508	113	3	89	103	0	24	0	1	16	8124
Percent	0.7%	64.4%	24.1%	0.4%	6.3%	1.4%	0.0%	1.1%	1.3%	0.0%	0.3%	0.0%	0.0%	0.2%	
AM Peak	06:00	07:00	07:00	10:00	08:00	08:00	08:00	11:00	11:00	01:00	01:00	07:00	07:00	09:00	
Vol.	7	495	194	7	56	21	2	10	15	4	4	1	1	3	
PM Peak	15:00	17:00	12:00	12:00	13:00	14:00	14:00	12:00	12:00	17:00	17:00			12:00	
Vol.	7	461	147	3	44	15	1	8	10	3				2	



MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD.- ROBLAR RD. to SR 116

Site Code: 1  
STONY-S

SOUTHBOUND

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classified	Total
5/7/10	0	18	3	0	0	0	0	0	0	0	1	0	0	0	22
01:00	0	13	1	0	1	0	0	0	0	0	1	0	0	0	16
02:00	1	8	2	1	1	0	0	0	0	0	1	0	0	0	14
03:00	0	19	3	0	1	0	0	0	1	0	0	0	0	0	24
04:00	0	26	12	0	4	0	0	0	0	0	2	0	0	0	44
05:00	0	90	43	1	14	1	1	3	3	0	0	0	0	0	156
06:00	9	268	110	3	27	3	0	9	8	0	0	0	0	0	437
07:00	3	499	172	1	44	6	1	4	11	0	1	0	0	2	744
08:00	0	434	155	2	45	13	1	7	9	0	0	0	0	0	666
09:00	6	309	147	0	38	10	0	8	9	0	0	0	0	1	528
10:00	7	257	125	3	33	18	0	6	9	0	0	0	0	3	461
11:00	3	265	142	1	39	13	0	8	7	0	0	0	0	2	480
12 PM	5	296	114	2	34	7	1	8	9	0	0	0	0	1	477
13:00	4	288	121	0	43	21	3	6	8	0	0	0	0	1	495
14:00	5	395	152	4	35	7	0	2	6	0	0	0	0	2	608
15:00	5	414	126	2	43	2	0	0	4	0	1	0	0	0	603
16:00	9	457	147	3	38	1	0	8	2	0	1	0	0	0	666
17:00	12	476	127	0	40	1	0	2	4	0	1	0	0	1	664
18:00	1	279	83	1	16	0	0	1	1	0	1	0	0	0	383
19:00	6	217	62	0	10	0	0	1	2	0	0	0	0	1	299
20:00	3	141	46	0	9	0	0	2	1	0	0	0	0	0	202
21:00	1	143	30	0	6	0	0	0	2	0	0	0	0	0	182
22:00	2	100	25	0	4	0	0	0	0	0	0	0	0	0	131
23:00	0	62	12	0	1	0	0	0	0	0	0	0	0	0	75
Total	82	5474	1960	24	526	103	7	82	95	0	10	0	0	14	8377
Percent	1.0%	65.3%	23.4%	0.3%	6.3%	1.2%	0.1%	1.0%	1.1%	0.0%	0.1%	0.0%	0.0%	0.2%	
AM Peak	06:00	07:00	07:00	06:00	08:00	10:00	05:00	06:00	07:00	04:00				10:00	
Vol.	9	499	172	3	45	18	1	9	11		2			3	
PM Peak	17:00	17:00	14:00	14:00	13:00	13:00	13:00	12:00	12:00		15:00			14:00	
Vol.	12	476	152	4	43	21	3	8	9		1			2	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD.- ROBLAR RD. to SR 116

Site Code: 1  
STONY-S

SOUTHBOUND

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classified	Total
5/8/10	0	32	7	0	0	0	0	0	0	0	0	0	0	0	39
01:00	0	18	4	0	1	0	0	0	0	0	0	0	0	0	23
02:00	0	14	2	0	1	1	0	0	0	0	0	0	0	0	18
03:00	1	5	2	0	0	0	0	0	0	0	0	0	0	0	8
04:00	0	16	8	0	1	0	0	0	0	0	0	0	0	0	25
05:00	0	30	11	1	3	3	0	3	2	0	0	0	0	0	53
06:00	1	118	28	0	8	3	0	3	3	0	1	0	0	0	165
07:00	2	149	65	1	25	3	1	7	2	0	1	0	0	0	256
08:00	1	189	88	1	27	3	0	13	5	0	0	1	0	0	328
09:00	2	253	102	0	31	2	0	2	5	0	0	0	0	0	397
10:00	6	318	126	0	39	2	0	6	6	0	0	0	0	0	503
11:00	8	343	148	1	38	2	1	2	3	0	0	0	0	7	553
12 PM	6	398	140	0	37	3	0	5	3	0	0	0	0	1	593
13:00	5	424	151	0	37	5	0	7	3	0	0	0	0	3	635
14:00	9	405	144	0	25	1	0	4	4	0	0	0	0	3	595
15:00	8	360	106	0	18	0	0	2	1	0	0	0	0	0	495
16:00	1	360	93	2	14	0	0	2	0	0	0	0	0	0	472
17:00	6	301	81	1	28	0	0	0	0	0	1	0	0	0	418
18:00	4	256	62	2	19	0	0	0	1	0	0	0	0	0	344
19:00	3	197	37	1	12	0	0	0	0	0	0	0	0	0	250
20:00	0	155	29	0	13	0	0	1	0	0	0	0	0	0	198
21:00	0	122	29	0	2	0	0	2	1	0	0	0	0	0	156
22:00	1	98	31	0	2	0	0	0	0	0	0	0	0	0	132
23:00	0	55	33	0	6	0	0	0	1	0	0	0	0	0	95
Total	64	4616	1527	10	387	28	2	59	40	0	3	1	0	14	6751
Percent	0.9%	68.4%	22.6%	0.1%	5.7%	0.4%	0.0%	0.9%	0.6%	0.0%	0.0%	0.0%	0.0%	0.2%	
AM Peak	11:00	11:00	11:00	05:00	10:00	05:00	07:00	08:00	10:00	06:00	06:00	08:00		11:00	
Vol.	8	343	148	1	39	3	1	13	6	1	1	1		7	
PM Peak	14:00	13:00	13:00	16:00	12:00	13:00		13:00	14:00	17:00				13:00	
Vol.	9	424	151	2	37	5		7	4	1				3	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD.- ROBLAR RD. to SR 116

Site Code: 1  
STONY-S

SOUTHBOUND															STONY-CREEK														
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total														
5/9/10	0	36	10	0	0	0	0	0	0	0	0	0	0	0	46														
01:00	0	21	6	0	1	0	0	0	0	0	0	0	0	0	28														
02:00	0	17	1	0	1	0	0	0	0	0	0	0	0	0	19														
03:00	0	12	4	0	2	0	0	0	0	0	0	0	0	0	18														
04:00	1	10	4	0	0	0	0	0	0	0	0	0	0	0	15														
05:00	0	19	8	0	2	0	0	1	0	0	0	0	0	0	30														
06:00	0	48	11	0	2	0	0	1	0	0	0	0	0	0	62														
07:00	0	98	19	0	2	0	0	1	0	0	0	0	0	0	120														
08:00	0	139	32	1	13	0	0	1	2	0	0	0	0	0	188														
09:00	0	189	55	0	12	1	0	1	1	0	0	0	0	0	259														
10:00	1	318	55	0	19	3	0	3	1	0	0	0	0	0	400														
11:00	1	332	89	0	18	0	0	2	2	0	0	0	0	0	444														
12 PM	3	599	108	1	26	3	0	5	0	0	0	0	0	0	745														
13:00	2	542	113	1	32	2	0	1	0	0	0	0	0	0	693														
14:00	1	442	79	1	24	5	0	0	0	0	0	0	0	0	552														
15:00	4	477	98	0	18	6	0	3	1	0	0	0	0	0	607														
16:00	0	415	93	0	12	2	0	2	0	0	0	0	0	1	525														
17:00	3	388	51	0	13	6	0	1	1	0	2	1	0	1	467														
18:00	0	257	61	1	17	1	0	1	0	0	0	0	0	0	338														
19:00	0	192	45	0	14	0	0	1	1	0	0	0	0	0	253														
20:00	1	146	30	0	5	0	0	0	0	0	0	0	0	0	182														
21:00	0	93	26	0	8	0	0	1	1	0	0	0	0	0	129														
22:00	0	53	24	0	0	1	0	0	0	0	0	0	0	0	78														
23:00	0	26	6	0	0	0	0	0	0	0	0	0	0	0	32														
Total	17	4869	1028	5	241	30	0	25	10	0	2	1	0	2	6230														
Percent	0.3%	78.2%	16.5%	0.1%	3.9%	0.5%	0.0%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%															
AM Peak	04:00	11:00	11:00	08:00	10:00	10:00		10:00	08:00																				
Vol.	1	332	89	1	19	3		3	2																				
PM Peak	15:00	12:00	13:00	12:00	13:00	15:00		12:00	15:00		17:00	17:00		16:00															
Vol.	4	599	113	1	32	6		5	1		2	1		1															

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD.- ROBLAR RD. to SR 116

Site Code: 1  
STONY-S

SOUTHBOUND

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classified	Total
5/10/10	0	11	2	0	0	0	0	0	1	0	2	0	0	0	16
01:00	0	7	2	0	0	0	0	0	0	0	1	0	0	0	10
02:00	0	8	0	0	2	0	0	0	0	0	1	0	0	0	11
03:00	0	8	2	1	1	0	0	0	0	0	0	0	0	0	12
04:00	0	39	13	0	3	2	0	0	0	0	2	0	0	0	59
05:00	0	124	48	4	14	4	0	3	2	0	0	0	0	1	200
06:00	2	315	113	2	35	10	0	7	3	0	0	0	0	2	489
07:00	1	533	175	3	37	13	1	24	6	0	1	1	0	1	796
08:00	1	426	128	2	44	24	1	20	7	0	0	0	0	2	655
09:00	1	302	91	2	40	17	0	28	8	0	0	0	0	1	490
10:00	0	248	103	1	25	18	0	26	4	0	0	0	0	2	427
11:00	0	266	94	1	38	11	0	25	6	0	0	0	0	0	441
12 PM	1	260	113	1	36	8	0	18	5	0	0	0	0	1	443
13:00	0	215	81	0	20	19	0	22	8	0	0	0	0	0	365
14:00	0	261	115	2	35	15	0	23	3	0	0	0	0	1	455
15:00	0	341	98	1	19	2	0	11	2	0	1	0	0	0	475
16:00	2	372	109	0	24	0	0	0	1	0	0	0	0	0	508
17:00	0	402	116	0	22	0	0	0	1	0	2	0	0	0	543
18:00	0	254	68	2	23	0	0	0	1	0	0	0	0	0	348
19:00	0	160	32	0	9	0	0	0	2	0	0	0	0	0	203
20:00	1	96	39	0	1	1	0	1	0	0	0	0	0	0	139
21:00	0	95	15	0	4	0	0	0	2	0	0	0	0	0	116
22:00	0	59	11	0	3	0	0	0	0	0	0	0	0	0	73
23:00	0	31	3	0	1	0	0	0	0	0	0	0	0	0	35
Total	9	4833	1571	22	436	144	2	208	62	0	10	1	0	11	7309
Percent	0.1%	66.1%	21.5%	0.3%	6.0%	2.0%	0.0%	2.8%	0.8%	0.0%	0.1%	0.0%	0.0%	0.2%	
AM Peak	06:00	07:00	07:00	05:00	08:00	08:00	07:00	09:00	09:00	00:00	00:00	07:00		06:00	
Vol.	2	533	175	4	44	24	1	28	8		2	1		2	
PM Peak	16:00	17:00	17:00	14:00	12:00	13:00		14:00	13:00		17:00			12:00	
Vol.	2	402	116	2	36	19		23	8		2			1	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD.- ROBLAR RD. to SR 116

Site Code: 1  
STONY-S

SOUTHBOUND														STONY-CRENSHAW													
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total												
5/11/10	0	6	4	0	2	0	0	0	0	0	1	0	0	0	13												
01:00	0	9	0	0	2	0	0	0	0	0	2	0	0	0	13												
02:00	0	12	1	0	0	0	0	0	0	0	0	0	0	0	13												
03:00	0	11	2	0	1	0	0	0	0	0	1	0	0	0	15												
04:00	0	33	12	0	4	2	0	0	1	0	0	0	0	0	52												
05:00	0	114	57	2	12	1	0	3	1	0	1	0	0	2	193												
06:00	2	324	110	0	35	6	0	3	3	0	0	0	0	0	483												
07:00	1	565	180	2	59	8	0	24	5	0	2	0	0	0	846												
08:00	3	466	152	5	63	21	2	23	10	1	0	0	0	3	749												
09:00	1	328	117	4	32	27	0	25	10	0	1	0	0	1	546												
10:00	0	225	97	0	28	20	0	26	12	0	1	0	0	0	409												
11:00	6	241	93	1	40	14	0	22	10	0	0	0	0	0	427												
12 PM	5	261	119	2	45	18	0	26	11	0	1	0	0	3	491												
13:00	4	269	130	2	20	15	0	27	12	0	0	0	0	1	480												
14:00	4	334	122	1	35	15	0	22	3	0	0	0	0	0	536												
15:00	0	371	112	2	25	8	0	4	4	0	0	0	0	2	528												
16:00	5	400	127	0	38	4	0	3	0	0	0	0	0	0	577												
17:00	2	449	134	0	39	5	0	6	4	0	1	0	0	1	641												
18:00	2	333	57	3	18	3	0	1	1	0	0	0	0	0	418												
19:00	3	184	50	0	11	0	0	2	1	0	0	0	0	0	251												
20:00	1	113	43	0	6	2	0	0	1	0	0	0	0	0	166												
21:00	0	137	33	0	4	0	0	0	1	0	0	0	0	0	175												
22:00	0	63	15	0	6	2	0	1	0	0	0	0	0	0	87												
23:00	0	38	4	0	0	0	0	0	0	0	1	0	0	0	43												
Total	39	5286	1771	24	525	171	2	219	89	1	12	0	0	13	8152												
Percent	0.5%	64.8%	21.7%	0.3%	6.4%	2.1%	0.0%	2.7%	1.1%	0.0%	0.1%	0.0%	0.0%	0.2%													
AM Peak	11:00	07:00	07:00	08:00	08:00	09:00	08:00	10:00	10:00	08:00	01:00			08:00													
Vol.	6	565	180	5	63	27	2	26	12	1	2			3													
PM Peak	12:00	17:00	17:00	18:00	12:00	12:00		13:00	13:00		12:00			12:00													
Vol.	5	449	134	3	45	18		27	12		1			3													

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD.- ROBLAR RD. to SR 116

Site Code: 1  
STONY-S

SOUTHBOUND														STONY-CR													
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total												
5/12/10	0	15	4	0	1	0	0	0	0	1	0	1	0	0	0	22											
01:00	0	7	1	0	1	0	0	0	0	1	0	2	0	0	0	12											
02:00	0	9	3	0	2	0	0	0	0	0	0	1	0	0	0	15											
03:00	0	14	4	0	0	0	0	1	1	0	0	0	0	0	0	20											
04:00	0	35	11	1	5	0	0	1	1	0	2	0	0	0	0	56											
05:00	0	102	43	2	12	3	0	1	0	0	0	0	0	1	164												
06:00	8	308	102	0	38	7	0	3	4	0	0	0	0	0	470												
07:00	5	539	176	1	56	13	1	12	12	0	1	0	1	1	818												
08:00	3	429	134	2	35	18	1	11	8	1	0	0	0	2	644												
09:00	1	304	109	3	37	27	0	6	11	0	1	0	0	1	500												
10:00	3	240	119	1	36	18	0	6	8	0	1	0	0	0	432												
11:00	1	252	116	1	33	11	0	14	11	0	0	0	0	0	439												
12 PM	6	274	110	4	33	13	1	6	9	0	1	0	0	2	459												
13:00	6	249	79	2	41	15	0	11	7	0	0	0	0	3	413												
14:00	3	283	115	4	44	16	0	6	6	0	1	0	0	1	479												
15:00	2	363	104	2	26	4	0	8	4	0	0	0	0	0	513												
16:00	7	404	114	0	32	6	0	3	2	0	1	0	0	0	569												
17:00	3	442	118	0	38	1	0	1	4	0	1	0	0	0	608												
18:00	2	306	75	1	24	0	0	2	1	0	0	0	0	0	411												
19:00	1	208	47	0	12	0	0	1	0	0	1	0	0	0	270												
20:00	1	164	51	0	8	0	0	3	0	0	0	0	0	0	227												
21:00	1	95	35	0	6	0	0	0	2	0	0	0	0	0	139												
22:00	1	56	13	0	5	0	0	0	0	0	0	0	0	0	75												
23:00	2	30	11	0	3	0	0	0	0	0	0	0	0	0	46												
Total	56	5128	1694	24	528	152	3	96	93	1	14	0	1	11	7801												
Percent	0.7%	65.7%	21.7%	0.3%	6.8%	1.9%	0.0%	1.2%	1.2%	0.0%	0.2%	0.0%	0.0%	0.1%													
AM Peak	06:00	07:00	07:00	09:00	07:00	09:00	07:00	11:00	07:00	08:00	01:00			08:00													
Vol.	8	539	176	3	56	27	1	14	12	1	2		1	2													
PM Peak	16:00	17:00	17:00	12:00	14:00	14:00	12:00	13:00	12:00		12:00			13:00													
Vol.	7	442	118	4	44	16	1	11	9		1			3													

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD.- ROBLAR RD. to SR 116

Site Code: 1  
STONY-S

SOUTHBOUND

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/13/10	0	23	5	0	2	0	0	0	0	0	1	0	0	0	31
01:00	0	7	4	0	1	1	0	0	1	0	3	0	0	0	16
02:00	1	5	0	0	0	0	0	0	0	0	2	0	0	0	8
03:00	0	18	2	0	3	0	0	0	0	0	3	0	0	0	26
04:00	0	32	10	1	3	1	0	0	1	0	2	0	0	0	50
05:00	0	123	61	3	13	5	1	0	1	0	0	0	0	0	207
06:00	7	325	113	1	36	6	0	5	7	0	0	0	0	0	500
07:00	4	485	155	2	48	12	0	6	9	0	2	0	0	2	725
08:00	6	463	156	1	46	22	2	9	10	0	0	0	0	0	715
09:00	4	338	102	2	42	22	0	8	20	1	0	0	0	0	539
10:00	4	221	109	2	31	19	0	14	7	0	1	0	0	3	411
11:00	2	268	113	0	32	12	1	7	12	0	0	0	1	0	448
12 PM	5	283	117	2	28	11	0	7	20	0	1	0	0	0	474
13:00	3	284	98	2	30	16	0	9	12	0	0	0	0	0	454
14:00	5	319	127	1	32	23	1	5	8	0	1	0	0	1	523
15:00	9	391	114	3	33	3	0	3	5	0	2	0	0	1	564
16:00	7	408	113	0	20	1	0	5	3	0	1	0	0	0	558
17:00	3	497	112	1	35	1	0	4	3	0	1	0	0	0	657
18:00	0	325	80	1	34	1	0	0	2	0	1	0	0	0	444
19:00	3	178	37	0	15	0	0	2	0	0	0	0	0	0	235
20:00	1	164	35	0	9	0	0	3	1	0	0	0	0	0	213
21:00	0	125	23	0	4	0	0	0	1	0	0	0	0	0	153
22:00	0	77	21	0	3	1	0	0	0	0	0	0	0	0	102
23:00	0	44	5	0	2	0	0	0	0	0	0	0	0	0	51
Total	64	5403	1712	22	502	156	5	88	122	1	21	0	1	7	8104
Percent	0.8%	66.7%	21.1%	0.3%	6.2%	1.9%	0.1%	1.1%	1.5%	0.0%	0.3%	0.0%	0.0%	0.1%	
AM Peak	06:00	07:00	08:00	05:00	07:00	08:00	08:00	10:00	09:00	09:00	01:00	11:00	11:00	10:00	
Vol.	7	485	156	3	48	22	2	14	20	1	3	1	1	3	
PM Peak	15:00	17:00	14:00	15:00	17:00	14:00	14:00	13:00	12:00	12:00	15:00			14:00	
Vol.	9	497	127	3	35	23	1	9	20		2			1	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD.- ROBLAR RD. to SR 116

Site Code: 1  
STONY-S

SOUTHBOUND

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/14/10	0	24	8	0	1	0	0	0	1	0	2	0	0	0	36
01:00	0	10	1	0	3	0	0	0	0	0	1	0	0	0	15
02:00	0	8	2	0	0	0	0	0	0	0	2	0	0	0	12
03:00	0	12	5	0	3	0	0	0	0	0	2	0	0	0	22
04:00	0	38	13	0	3	1	0	2	1	0	0	0	0	0	58
05:00	1	102	43	0	14	3	0	3	0	0	0	0	0	0	166
06:00	4	297	95	1	32	9	0	3	9	0	1	0	0	2	453
07:00	1	464	144	1	49	6	1	5	10	0	0	0	0	2	682
08:00	3	452	123	0	41	16	1	10	5	0	0	0	0	0	651
09:00	3	268	126	0	28	20	1	9	11	0	0	0	1	2	469
10:00	1	277	105	4	34	10	0	7	15	0	0	0	0	2	455
11:00	3	293	118	3	33	11	0	7	5	0	0	0	0	1	474
12 PM	9	298	127	1	37	12	1	9	18	0	1	0	0	1	514
13:00	7	306	136	3	43	18	1	13	11	1	1	0	0	4	534
14:00	8	382	135	0	35	12	1	8	11	1	1	0	0	2	596
15:00	7	431	121	4	33	0	0	9	5	0	0	0	0	0	610
16:00	10	514	122	0	31	1	0	4	2	0	1	0	0	0	685
17:00	2	495	109	2	38	0	0	4	1	0	1	0	0	2	654
18:00	1	347	85	1	24	0	0	5	1	0	1	0	0	0	465
19:00	2	213	64	0	16	0	0	2	1	0	0	0	0	1	299
20:00	0	162	44	0	12	0	0	0	1	0	0	0	0	0	219
21:00	0	139	28	0	9	0	0	1	2	0	0	0	0	0	179
22:00	1	111	23	0	4	0	0	0	0	0	0	0	0	0	139
23:00	1	55	14	0	1	0	0	0	0	0	1	0	0	0	72
Total	64	5698	1791	20	524	119	5	92	110	2	14	0	1	19	8459
Percent	0.8%	67.4%	21.2%	0.2%	6.2%	1.4%	0.1%	1.1%	1.3%	0.0%	0.2%	0.0%	0.0%	0.2%	
AM Peak	06:00	07:00	07:00	10:00	07:00	09:00	08:00	08:00	10:00		00:00		09:00		
Vol.	4	464	144	4	49	20	1	10	15		2		1		
PM Peak	16:00	16:00	13:00	15:00	13:00	13:00	12:00	12:00	12:00	13:00	12:00				
Vol.	10	514	136	4	43	18	1	9	18	1	1				



MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD.- ROBLAR RD. to SR 116

Site Code: 1  
STONY-S

SOUTHBOUND														STONY-C			
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total		
5/15/10	0	32	8	0	1	1	0	0	0	0	1	0	0	0	43		
01:00	0	25	4	0	3	0	0	0	0	0	1	0	0	0	33		
02:00	0	13	5	0	0	0	0	0	0	0	2	0	0	0	20		
03:00	0	11	4	0	1	0	0	0	0	0	1	0	0	0	17		
04:00	0	22	9	0	3	0	0	0	0	0	0	0	0	0	34		
05:00	0	35	8	1	0	2	0	0	0	0	0	0	0	0	46		
06:00	1	112	38	0	11	1	0	3	4	0	0	0	0	0	170		
07:00	4	152	59	2	21	3	1	2	6	0	0	0	0	0	250		
08:00	4	186	97	2	30	3	0	1	9	0	0	0	0	0	332		
09:00	1	247	101	0	29	3	0	6	7	0	0	0	0	0	394		
10:00	1	313	105	0	30	4	0	5	5	0	0	0	0	2	465		
11:00	9	345	125	0	37	4	1	8	5	0	0	0	0	0	534		
12 PM	10	390	139	1	35	3	0	6	5	0	0	0	0	1	590		
13:00	10	439	162	0	33	2	0	3	3	0	0	0	0	3	655		
14:00	11	404	131	0	35	4	0	8	3	0	0	0	0	0	596		
15:00	8	396	93	0	17	1	0	6	1	0	0	0	0	0	522		
16:00	9	385	85	1	25	0	0	3	1	0	0	0	0	0	509		
17:00	6	309	69	0	23	0	0	2	1	0	0	0	0	1	411		
18:00	4	276	64	2	10	0	0	1	1	0	1	0	0	0	359		
19:00	1	166	48	0	8	0	0	0	0	0	0	0	0	0	223		
20:00	1	151	31	0	8	0	0	1	0	0	0	0	0	0	192		
21:00	0	128	22	1	10	0	0	0	1	0	0	0	0	0	162		
22:00	0	105	29	0	5	0	0	0	0	0	0	0	0	0	139		
23:00	0	61	18	0	4	0	0	0	0	0	0	0	0	0	83		
Total	80	4703	1454	10	379	31	2	55	52	0	6	0	0	7	6779		
Percent	1.2%	69.4%	21.4%	0.1%	5.6%	0.5%	0.0%	0.8%	0.8%	0.0%	0.1%	0.0%	0.0%	0.1%			
AM Peak	11:00	11:00	11:00	07:00	11:00	10:00	07:00	11:00	08:00	02:00	02:00			10:00			
Vol.	9	345	125	2	37	4	1	8	9		2			2			
PM Peak	14:00	13:00	13:00	18:00	12:00	14:00		14:00	12:00	18:00	18:00			13:00			
Vol.	11	439	162	2	35	4		8	5		1			3			

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD.- ROBLAR RD. to SR 116

Site Code: 1  
STONY-S

SOUTHBOUND

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/16/10	0	38	7	0	0	0	0	1	0	0	0	0	0	0	46
01:00	0	20	9	0	1	0	0	0	0	0	0	0	0	0	30
02:00	0	14	2	0	1	0	0	0	0	0	0	0	0	0	17
03:00	0	8	2	0	0	0	0	0	0	0	0	0	0	0	10
04:00	0	16	2	0	2	0	0	0	0	0	0	0	0	0	20
05:00	0	31	20	0	5	1	0	1	0	0	0	0	0	0	58
06:00	0	63	26	0	7	1	0	1	2	0	0	0	0	0	100
07:00	1	111	37	0	10	0	0	2	1	0	0	0	0	0	162
08:00	2	137	45	0	22	0	0	5	1	0	0	0	0	0	212
09:00	4	153	52	1	14	0	0	3	1	0	0	0	0	1	229
10:00	2	246	72	0	14	0	0	4	1	0	0	0	0	2	341
11:00	3	283	91	0	25	0	0	3	0	0	0	0	0	0	405
12 PM	6	366	111	0	21	0	0	6	1	0	0	0	0	1	512
13:00	10	596	150	2	42	0	0	7	2	0	0	0	0	1	810
14:00	4	536	123	1	37	0	0	11	1	0	0	0	0	1	714
15:00	5	510	124	1	38	0	0	5	3	0	0	0	0	2	688
16:00	3	516	126	2	29	0	0	7	1	0	0	0	0	0	684
17:00	3	339	90	0	27	1	0	0	1	0	2	0	0	0	463
18:00	4	230	67	0	12	0	0	1	2	0	0	0	0	0	316
19:00	2	155	31	0	8	0	0	1	2	0	0	0	0	0	199
20:00	0	111	20	0	10	0	0	1	0	0	0	0	0	0	142
21:00	2	99	31	0	5	0	0	0	1	0	0	0	0	0	138
22:00	2	49	18	0	1	1	0	0	1	0	0	0	0	0	72
23:00	0	29	11	0	1	0	0	0	0	0	0	0	0	0	41
Total	53	4656	1267	7	332	4	0	59	21	0	2	0	0	8	6409
Percent	0.8%	72.6%	19.8%	0.1%	5.2%	0.1%	0.0%	0.9%	0.3%	0.0%	0.0%	0.0%	0.0%	0.1%	
AM Peak	09:00	11:00	11:00	09:00	11:00	05:00		08:00	06:00					10:00	
Vol.	4	283	91	1	25	1		5	2					2	
PM Peak	13:00	13:00	13:00	13:00	13:00	17:00		14:00	15:00		17:00			15:00	
Vol.	10	596	150	2	42	1		11	3		2			2	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD.- ROBLAR RD. to SR 116

Site Code: 1  
STONY-S

SOUTHBOUND

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/17/10	0	9	4	0	1	0	0	0	0	0	0	0	0	0	14
01:00	0	8	1	0	0	0	0	0	1	0	0	0	0	0	10
02:00	0	9	1	0	0	0	0	0	0	0	0	0	0	0	10
03:00	1	12	5	1	1	0	0	0	0	0	1	0	0	0	21
04:00	0	26	10	0	2	0	0	0	0	0	0	0	0	0	38
05:00	0	118	51	3	16	3	0	1	1	0	0	0	0	0	193
06:00	0	306	96	1	29	6	0	6	10	0	1	0	0	3	458
07:00	0	463	146	1	45	5	0	4	10	0	0	0	0	2	676
08:00	1	400	137	3	39	11	2	9	9	0	0	0	0	2	613
09:00	1	265	93	1	36	18	0	7	11	0	0	0	0	1	433
10:00	0	214	110	1	38	18	0	13	10	0	2	0	0	2	408
11:00	0	256	112	3	33	13	0	6	10	0	0	0	0	0	433
12 PM	0	266	105	2	35	9	0	7	13	0	0	0	0	0	437
13:00	1	303	109	1	31	15	1	6	11	0	0	0	0	0	478
14:00	0	316	137	3	35	21	1	3	15	0	0	0	0	1	532
15:00	0	341	105	1	33	2	0	3	5	0	0	0	0	0	490
16:00	1	471	121	0	26	0	0	2	0	0	0	0	0	0	621
17:00	2	526	114	1	32	0	0	0	2	0	2	0	0	0	679
18:00	0	338	86	1	23	1	0	1	2	0	0	0	0	0	452
19:00	0	173	38	0	5	0	0	0	1	0	0	0	0	0	217
20:00	0	137	37	0	6	0	0	0	1	0	0	0	0	0	181
21:00	0	86	21	0	4	0	0	0	0	0	0	0	0	0	111
22:00	0	53	11	0	4	0	0	1	1	0	0	0	0	0	70
23:00	0	18	9	0	3	0	0	0	0	0	0	0	0	0	30
Total	7	5114	1659	23	477	122	4	69	113	0	6	0	0	11	7605
Percent	0.1%	67.2%	21.8%	0.3%	6.3%	1.6%	0.1%	0.9%	1.5%	0.0%	0.1%	0.0%	0.0%	0.1%	
AM Peak	03:00	07:00	07:00	05:00	07:00	09:00	08:00	10:00	09:00		10:00			06:00	
Vol.	1	463	146	3	45	18	2	13	11		2			3	
PM Peak	17:00	17:00	14:00	14:00	12:00	14:00	13:00	12:00	14:00		17:00			14:00	
Vol.	2	526	137	3	35	21	1	7	15		2			1	
Grand Total	716	71085	22942	257	6338	1421	42	1306	1109	7	144	4	5	158	105534
Percent	0.7%	67.4%	21.7%	0.2%	6.0%	1.3%	0.0%	1.2%	1.1%	0.0%	0.1%	0.0%	0.0%	0.1%	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stony-n

NORTHBOUND															
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
5/4/10	0	14	4	0	1	0	0	0	0	0	0	0	0	0	19
01:00	0	15	1	0	0	0	0	0	0	0	0	0	0	0	16
02:00	0	3	0	1	1	0	0	0	0	0	0	0	0	0	5
03:00	0	7	4	0	1	0	0	0	0	0	0	0	0	0	12
04:00	0	6	2	1	0	0	0	0	0	0	0	0	0	0	9
05:00	0	16	9	0	4	0	0	1	0	0	0	0	0	0	30
06:00	0	87	33	0	6	2	0	1	5	0	0	0	0	0	134
07:00	3	199	74	0	29	7	0	1	8	0	0	0	0	0	321
08:00	3	303	102	0	30	17	0	3	8	0	0	0	0	1	467
09:00	2	191	77	0	33	29	0	4	14	0	0	0	0	0	350
10:00	1	204	106	0	28	18	0	2	3	0	0	0	0	0	362
11:00	2	235	110	3	40	16	0	7	8	0	0	0	0	2	423
12 PM	4	271	102	2	32	10	0	6	5	0	0	0	1	0	433
13:00	2	285	100	4	39	25	0	7	5	0	0	0	0	0	467
14:00	0	355	153	1	50	17	0	8	9	0	1	0	0	1	595
15:00	7	500	194	0	59	5	0	7	8	0	0	0	0	0	780
16:00	7	634	196	4	50	0	0	5	1	0	0	0	0	0	897
17:00	13	670	178	3	46	0	0	4	1	0	0	0	0	0	915
18:00	6	355	107	0	18	0	0	1	0	0	0	0	0	0	487
19:00	1	198	42	0	10	0	0	5	0	0	0	0	0	0	256
20:00	2	128	38	0	8	0	0	5	1	0	0	0	0	0	182
21:00	1	104	23	0	6	0	0	1	0	0	0	0	0	0	135
22:00	0	59	6	0	1	0	0	0	0	0	0	0	0	0	66
23:00	0	27	7	0	0	0	0	0	0	0	1	0	0	0	35
Total	54	4866	1668	19	492	146	0	68	76	0	2	0	1	4	7396
Percent	0.7%	65.8%	22.6%	0.3%	6.7%	2.0%	0.0%	0.9%	1.0%	0.0%	0.0%	0.0%	0.0%	0.1%	
AM Peak	07:00	08:00	11:00	11:00	11:00	09:00		11:00	09:00					11:00	
Vol.	3	303	110	3	40	29		7	14					2	
PM Peak	17:00	17:00	16:00	13:00	15:00	13:00		14:00	14:00		14:00		12:00	14:00	
Vol.	13	670	196	4	59	25		8	9		1		1	1	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stony-n

NORTHBOUND														
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classified
5/5/10	0	21	4	0	0	0	0	0	1	0	0	1	0	0
01:00	0	9	3	0	0	0	0	0	0	0	2	0	0	14
02:00	0	6	1	0	1	0	0	1	0	0	0	0	0	9
03:00	0	1	3	0	1	0	0	0	0	0	0	0	0	5
04:00	0	8	5	1	0	0	0	0	1	0	0	0	0	15
05:00	0	22	9	0	2	0	0	1	0	0	0	0	0	34
06:00	1	78	36	1	9	0	0	1	3	0	0	0	0	130
07:00	1	209	79	0	21	6	0	5	8	0	1	0	0	330
08:00	3	320	98	0	34	12	0	5	11	0	0	0	0	483
09:00	2	213	105	0	31	21	0	2	5	0	1	0	0	380
10:00	3	223	84	2	27	16	0	5	7	0	0	0	0	367
11:00	4	238	105	1	36	14	0	9	7	0	0	0	0	415
12 PM	3	242	98	0	43	13	0	6	7	0	0	0	0	412
13:00	6	286	136	2	33	11	0	3	9	0	0	0	0	486
14:00	3	370	137	0	44	26	0	6	9	0	0	0	0	596
15:00	6	432	212	0	48	12	0	7	6	0	0	0	0	723
16:00	10	623	219	0	40	2	0	4	1	0	0	0	0	899
17:00	7	661	203	1	44	0	0	4	2	0	0	0	0	922
18:00	7	395	87	0	19	1	0	2	0	0	0	0	0	512
19:00	3	211	66	0	18	0	0	3	0	0	0	0	0	301
20:00	1	143	33	0	7	0	0	1	1	0	0	0	0	186
21:00	2	117	22	0	5	0	0	1	0	0	4	0	0	151
22:00	0	66	12	0	4	0	0	0	0	0	0	0	0	82
23:00	0	25	3	0	2	0	0	0	0	0	0	0	0	30
Total	62	4919	1760	8	469	134	0	67	77	0	9	0	0	7509
Percent	0.8%	65.5%	23.4%	0.1%	6.2%	1.8%	0.0%	0.9%	1.0%	0.0%	0.1%	0.0%	0.0%	0.1%
AM Peak	11:00	08:00	09:00	10:00	11:00	09:00		11:00	08:00		01:00			06:00
Vol.	4	320	105	2	36	21		9	11		2			1
PM Peak	16:00	17:00	16:00	13:00	15:00	14:00		15:00	13:00		21:00			14:00
Vol.	10	661	219	2	48	26		7	9		4			1

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stony-n

NORTHBOUND															
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/6/10	0	23	3	0	2	0	0	0	0	0	1	0	0	0	29
01:00	0	11	3	0	0	0	0	0	0	0	3	0	0	0	17
02:00	0	5	4	0	0	0	0	0	0	0	2	0	0	0	11
03:00	0	4	3	1	0	0	0	0	0	0	1	0	0	0	9
04:00	0	5	3	1	3	0	0	0	0	0	0	0	0	0	12
05:00	0	25	12	0	1	0	0	1	0	0	0	0	0	0	39
06:00	0	79	35	2	6	0	0	2	3	0	0	0	0	0	127
07:00	2	213	80	0	28	8	0	2	6	0	0	0	0	0	339
08:00	3	272	114	0	33	15	0	6	8	0	1	0	0	1	453
09:00	3	205	82	2	33	27	0	3	6	0	0	0	0	0	361
10:00	1	206	93	4	27	8	0	7	5	0	0	0	0	1	352
11:00	4	256	109	0	31	15	0	2	7	1	0	0	0	0	425
12 PM	7	263	122	4	40	12	0	8	8	0	0	0	1	1	466
13:00	4	281	119	2	36	7	0	6	9	0	2	0	0	0	466
14:00	7	360	169	2	45	23	0	5	9	0	0	0	0	3	623
15:00	4	475	192	3	62	5	1	6	7	0	0	0	0	2	757
16:00	9	683	220	0	53	4	0	2	1	0	0	0	0	1	973
17:00	8	708	190	1	48	1	0	2	2	0	0	0	0	0	960
18:00	3	410	122	2	29	0	0	2	1	0	0	0	0	0	569
19:00	1	214	53	1	11	0	0	5	1	0	0	0	0	0	286
20:00	1	149	54	0	5	0	0	3	0	0	0	0	0	0	212
21:00	1	106	22	0	5	0	0	0	0	0	2	0	0	0	136
22:00	0	63	19	0	1	0	0	0	0	0	0	0	0	0	83
23:00	0	40	8	0	0	0	0	0	0	0	0	0	0	0	48
Total	58	5056	1831	25	499	125	1	62	73	1	12	0	1	9	7753
Percent	0.7%	65.2%	23.6%	0.3%	6.4%	1.6%	0.0%	0.8%	0.9%	0.0%	0.2%	0.0%	0.0%	0.1%	
AM Peak	11:00	08:00	08:00	10:00	08:00	09:00	10:00	10:00	08:00	11:00	01:00			08:00	
Vol.	4	272	114	4	33	27	7	8	8	1	3			1	
PM Peak	16:00	17:00	16:00	12:00	15:00	14:00	15:00	12:00	13:00		13:00	12:00	14:00		
Vol.	9	708	220	4	62	23	1	8	9		2	1	3		

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stonyn

NORTHBOUND															
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/7/10	0	20	3	0	0	0	0	0	0	0	1	0	0	0	24
01:00	0	10	3	1	2	0	0	0	0	0	1	0	0	0	17
02:00	0	9	1	0	2	0	0	0	0	0	0	0	0	0	12
03:00	0	8	4	1	3	0	0	0	0	0	1	0	0	0	17
04:00	0	5	6	1	1	0	0	0	0	0	0	0	0	0	13
05:00	0	16	11	0	2	0	0	0	0	0	0	0	0	0	29
06:00	0	80	37	1	11	1	0	1	3	0	0	0	0	0	134
07:00	5	197	67	0	22	6	0	3	8	0	0	0	0	0	308
08:00	2	283	86	1	33	11	0	7	7	0	0	0	0	1	431
09:00	1	211	100	0	31	17	0	1	7	0	0	0	0	1	369
10:00	6	236	118	1	32	26	0	6	6	0	0	0	0	0	431
11:00	2	262	125	0	40	14	0	6	6	0	0	0	0	1	456
12 PM	6	305	123	1	36	6	0	7	3	0	3	0	0	1	491
13:00	3	348	174	0	47	21	0	7	6	0	0	0	0	0	606
14:00	6	472	203	3	50	21	0	6	12	0	2	0	0	0	775
15:00	8	746	266	2	61	10	0	3	10	0	4	0	0	0	1110
16:00	8	817	272	2	59	0	0	10	4	0	2	0	0	0	1174
17:00	9	787	193	3	51	1	0	8	3	0	0	0	0	0	1055
18:00	5	542	130	1	31	0	0	5	2	0	0	0	0	0	716
19:00	4	280	77	0	13	0	0	1	1	0	0	0	0	0	376
20:00	3	135	31	0	6	0	0	1	0	0	0	0	0	0	176
21:00	3	135	31	0	9	0	0	0	0	0	0	0	0	1	179
22:00	2	65	17	0	2	0	0	0	0	0	0	0	0	0	86
23:00	1	55	9	0	0	0	0	0	0	0	0	0	0	0	65
Total	74	6024	2087	18	544	134	0	72	78	0	14	0	0	5	9050
Percent	0.8%	66.6%	23.1%	0.2%	6.0%	1.5%	0.0%	0.8%	0.9%	0.0%	0.2%	0.0%	0.0%	0.1%	
AM Peak	10:00	08:00	11:00	01:00	11:00	10:00		08:00	07:00		00:00			08:00	
Vol.	6	283	125	1	40	26		7	8		1			1	
PM Peak	17:00	16:00	16:00	14:00	15:00	13:00		16:00	14:00		15:00			12:00	
Vol.	9	817	272	3	61	21		10	12		4			1	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stony-n

NORTHBOUND															
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/8/10	0	36	6	0	2	0	0	0	0	0	0	0	0	0	44
01:00	0	13	2	0	1	1	0	0	0	0	0	0	0	0	16
02:00	0	10	5	0	0	0	0	0	0	0	0	0	0	0	15
03:00	0	5	3	0	1	0	0	0	0	0	0	0	0	0	9
04:00	0	4	3	1	1	0	0	0	0	0	0	0	0	0	9
05:00	0	8	3	0	1	0	0	0	0	0	0	0	0	0	12
06:00	1	44	24	0	3	0	0	1	0	0	0	0	0	0	73
07:00	1	78	39	0	16	6	0	3	4	0	0	0	0	0	147
08:00	2	140	66	1	25	5	0	8	5	0	0	0	0	1	253
09:00	2	201	110	0	33	0	0	5	4	0	0	0	0	0	355
10:00	3	323	143	0	27	2	0	6	4	0	0	0	0	0	508
11:00	7	372	146	2	36	3	0	2	4	0	0	0	0	1	573
12 PM	5	438	155	0	44	4	0	8	4	0	0	0	0	0	658
13:00	4	461	167	0	39	4	0	3	5	0	0	0	0	0	683
14:00	6	474	158	2	31	3	0	3	3	0	0	0	0	0	680
15:00	9	527	163	0	34	2	0	4	4	0	0	0	0	1	744
16:00	10	493	124	0	23	0	0	2	3	0	1	0	0	0	656
17:00	1	334	69	1	15	0	0	0	0	0	0	0	0	0	420
18:00	5	264	62	0	14	0	0	1	0	0	0	0	0	0	346
19:00	3	214	48	0	12	0	0	2	1	0	0	0	0	0	280
20:00	2	136	40	0	4	0	0	2	0	0	0	0	0	0	184
21:00	0	115	20	0	6	0	0	1	0	0	0	0	0	0	142
22:00	3	96	23	0	3	0	0	0	0	0	0	0	0	1	126
23:00	1	55	13	0	2	0	0	0	0	0	0	0	0	0	71
Total	65	4841	1592	7	373	29	0	51	41	0	1	0	0	4	7004
Percent	0.9%	69.1%	22.7%	0.1%	5.3%	0.4%	0.0%	0.7%	0.6%	0.0%	0.0%	0.0%	0.0%	0.1%	
AM Peak	11:00	11:00	11:00	11:00	11:00	07:00		08:00	08:00					08:00	
Vol.	7	372	146	2	36	6		8	5					1	
PM Peak	16:00	15:00	13:00	14:00	12:00	12:00		12:00	13:00		16:00			15:00	
Vol.	10	527	167	2	44	4		8	5		1			1	



MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stonyn

NORTHBOUND															
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classified	Total
5/9/10	0	45	10	0	1	1	0	1	0	0	0	0	0	0	58
01:00	0	24	3	0	2	0	0	0	0	0	0	0	0	0	29
02:00	0	17	6	0	2	0	0	0	0	0	0	0	0	0	25
03:00	0	9	2	0	0	0	0	0	0	0	0	0	0	0	11
04:00	0	3	4	0	0	0	0	0	0	0	0	0	0	0	7
05:00	0	2	4	0	0	0	0	0	0	0	0	0	0	0	6
06:00	0	31	7	0	3	0	0	1	0	0	0	0	0	0	42
07:00	0	55	12	0	6	0	0	0	0	0	0	0	0	0	73
08:00	0	111	45	1	11	0	0	0	0	0	0	0	0	0	168
09:00	1	196	41	0	15	0	0	1	0	0	0	0	0	0	254
10:00	3	228	67	0	15	0	0	3	0	0	0	0	0	0	316
11:00	0	262	64	0	13	0	0	4	2	0	0	0	0	0	345
12 PM	1	325	82	0	18	2	0	2	0	0	0	0	0	0	430
13:00	1	302	73	1	14	1	0	1	0	0	0	0	0	0	393
14:00	0	363	73	0	17	2	0	4	0	0	0	0	0	0	459
15:00	2	314	87	0	17	1	0	6	0	0	0	0	0	0	427
16:00	2	295	63	0	10	0	0	5	0	0	0	0	0	0	375
17:00	3	264	58	1	19	1	0	0	0	0	1	0	0	0	347
18:00	1	229	54	0	8	1	0	3	0	0	0	0	0	0	296
19:00	0	184	42	1	19	0	0	2	0	0	0	0	0	0	248
20:00	0	148	34	0	7	0	0	0	0	0	0	0	0	0	189
21:00	0	112	24	0	3	0	0	0	0	0	0	0	0	0	139
22:00	0	61	11	0	1	0	0	0	0	0	0	0	0	0	75
23:00	0	31	4	0	0	0	0	0	2	0	0	0	0	0	37
Total	14	3611	870	4	201	9	0	33	4	0	0	0	0	0	4749
Percent	0.3%	76.0%	18.3%	0.1%	4.2%	0.2%	0.0%	0.7%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	
AM Peak	10:00	11:00	10:00	08:00	09:00	00:00		11:00	11:00						
Vol.	3	262	67	1	15	1		4	2						
PM Peak	17:00	14:00	15:00	13:00	17:00	12:00		15:00	23:00		22:00				
Vol.	3	363	87	1	19	2		6	2		2				

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stony-n

NORTHBOUND															
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/10/10	0	17	1	0	1	0	0	0	0	0	1	0	0	0	20
01:00	0	7	3	0	0	0	0	0	0	0	1	0	0	0	11
02:00	0	4	1	1	1	0	0	0	0	0	0	0	0	0	7
03:00	0	3	2	1	1	0	0	0	0	0	1	0	0	0	8
04:00	0	9	5	1	2	1	0	1	1	0	0	0	0	0	20
05:00	0	29	5	0	5	1	0	1	0	0	0	0	0	0	41
06:00	0	82	38	0	7	4	0	0	2	0	0	0	0	0	133
07:00	1	204	61	0	23	26	0	2	6	0	1	0	0	1	325
08:00	0	306	91	0	26	30	0	6	2	0	0	0	0	0	461
09:00	0	200	86	0	22	39	0	4	5	0	0	0	0	0	356
10:00	0	201	102	0	39	37	0	7	3	0	0	0	0	0	389
11:00	0	227	99	0	35	27	0	7	5	0	0	0	0	0	400
12 PM	0	227	105	0	28	26	0	10	2	0	0	0	0	0	398
13:00	0	268	130	0	43	34	1	9	6	0	1	0	0	0	492
14:00	1	308	113	2	36	39	0	6	7	0	0	0	0	1	513
15:00	1	453	181	2	50	7	0	12	5	0	0	0	0	1	712
16:00	1	579	186	0	45	1	0	7	1	0	0	0	0	0	820
17:00	1	502	154	0	27	0	0	1	0	0	0	0	0	0	685
18:00	2	309	78	0	17	0	0	0	0	0	0	0	0	0	406
19:00	0	167	32	0	8	0	0	1	0	0	0	0	0	0	208
20:00	0	115	20	0	4	0	0	1	1	0	0	0	0	0	141
21:00	0	86	27	0	3	0	0	1	0	0	0	0	0	0	117
22:00	0	48	12	0	2	0	0	0	0	0	2	0	0	0	64
23:00	0	31	6	0	2	0	0	0	0	0	0	0	0	0	39
Total	7	4382	1538	7	427	272	1	76	46	0	7	0	0	3	6766
Percent	0.1%	64.8%	22.7%	0.1%	6.3%	4.0%	0.0%	1.1%	0.7%	0.0%	0.1%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	10:00	02:00	10:00	09:00		10:00	07:00		00:00			07:00	
Vol.	1	306	102	1	39	39		7	6		1			1	
PM Peak	18:00	16:00	16:00	14:00	15:00	14:00	13:00	15:00	14:00		22:00			14:00	
Vol.	2	579	186	2	50	39	1	12	7		2			1	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stony-n

NORTHBOUND														
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified
5/11/10	0	17	1	0	1	0	0	0	0	0	1	0	0	0
01:00	0	5	2	0	1	0	0	0	0	0	1	0	0	9
02:00	0	5	2	0	1	0	0	0	0	0	0	0	0	8
03:00	0	5	4	1	2	0	0	0	0	0	1	0	0	13
04:00	0	8	4	1	0	0	0	0	0	0	0	0	0	13
05:00	0	24	8	0	2	0	0	0	0	0	0	0	0	34
06:00	0	77	40	2	7	6	0	0	4	0	0	0	0	136
07:00	2	193	67	2	23	19	0	2	8	0	0	0	0	316
08:00	0	300	100	2	34	28	0	4	7	0	0	0	0	476
09:00	0	202	89	1	34	51	0	2	6	0	1	0	0	387
10:00	1	205	74	2	29	29	0	4	7	0	0	0	0	351
11:00	5	210	129	0	43	31	0	9	10	0	0	0	0	438
12 PM	3	272	108	0	32	27	0	4	5	0	0	0	0	452
13:00	1	285	130	1	27	34	0	9	7	0	0	0	0	498
14:00	3	411	172	2	57	34	0	11	7	0	0	0	0	698
15:00	9	624	237	9	72	9	0	9	5	0	0	0	0	975
16:00	7	664	217	4	53	4	0	2	3	0	0	0	0	954
17:00	5	617	164	1	45	1	0	3	1	0	0	0	0	837
18:00	3	355	95	0	22	3	0	1	1	0	0	0	0	480
19:00	2	194	52	0	9	0	0	1	1	0	0	0	0	260
20:00	2	147	41	0	4	0	0	3	1	0	0	0	0	199
21:00	1	96	20	0	9	0	0	0	0	0	2	0	0	128
22:00	1	59	15	0	1	0	0	0	0	0	0	0	0	76
23:00	0	23	9	0	0	0	0	0	0	0	0	0	0	32
Total	45	4998	1780	28	508	276	0	64	73	0	6	0	0	7790
Percent	0.6%	64.2%	22.8%	0.4%	6.5%	3.5%	0.0%	0.8%	0.9%	0.0%	0.1%	0.0%	0.0%	0.2%
AM Peak	11:00	08:00	11:00	06:00	11:00	09:00		11:00	11:00		00:00			08:00
Vol.	5	300	129	2	43	51		9	10		1			1
PM Peak	15:00	16:00	15:00	15:00	15:00	13:00		14:00	13:00		21:00			13:00
Vol.	9	664	237	9	72	34		11	7		2			4

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

NORTHBOUND														Site Code: 1 stony-n
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	
5/12/10	0	26	2	0	0	0	0	0	0	0	0	0	0	Total
01:00	0	5	2	0	0	0	0	0	0	0	1	0	0	29
02:00	0	8	2	0	1	0	0	1	0	0	2	0	0	9
03:00	0	7	5	0	3	0	0	0	0	0	0	0	0	12
04:00	0	12	5	1	1	0	0	0	0	0	0	0	0	15
05:00	0	25	6	0	4	1	0	1	0	0	0	0	0	19
06:00	0	81	33	1	9	1	0	1	6	0	0	0	0	37
07:00	3	200	72	0	19	12	0	2	6	0	1	0	0	132
08:00	4	319	89	0	29	16	0	1	7	0	0	0	0	315
09:00	2	187	88	1	31	25	0	3	6	0	0	0	0	466
10:00	4	203	97	0	50	27	0	4	5	0	0	0	0	1
11:00	0	235	105	3	32	18	0	5	10	0	0	0	0	344
12 PM	4	262	108	2	38	14	0	5	10	0	0	0	0	2
13:00	2	297	129	4	41	19	0	9	8	0	1	0	0	443
14:00	6	368	151	0	62	25	0	7	7	0	0	0	0	511
15:00	3	468	184	2	45	7	0	5	7	0	0	0	0	629
16:00	11	582	189	1	45	1	0	5	0	0	0	0	0	721
17:00	6	579	160	2	39	1	0	7	0	0	0	0	0	834
18:00	4	383	99	0	21	0	0	1	1	0	0	0	0	794
19:00	3	224	59	0	14	0	0	1	0	0	0	0	0	510
20:00	2	143	39	0	5	0	0	0	1	0	0	0	0	301
21:00	1	106	27	0	5	0	0	0	0	0	5	0	0	190
22:00	0	78	16	0	2	0	0	0	0	0	0	0	0	144
23:00	0	33	9	0	3	0	0	0	0	0	0	0	0	96
Total	55	4831	1676	17	499	167	0	58	74	0	10	0	0	45
Percent	0.7%	65.3%	22.7%	0.2%	6.7%	2.3%	0.0%	0.8%	1.0%	0.0%	0.1%	0.0%	0	7396
AM Peak	08:00	08:00	11:00	11:00	10:00	10:00	0.0%	11:00	11:00	0.0%	01:00	0.0%	0	9
Vol.	4	319	105	3	50	27		5	10		2			11:00
PM Peak	16:00	16:00	16:00	13:00	14:00	14:00		13:00	12:00		21:00			14:00
Vol.	11	582	189	4	62	25		9	10		5			3

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

NORTHBOUND														
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified
5/13/10	0	31	1	0	0	0	0	0	0	0	0	0	0	0
01:00	0	9	2	0	0	0	0	0	0	0	2	0	0	32
02:00	0	10	2	0	1	0	0	0	0	0	3	0	0	13
03:00	0	4	4	0	0	0	0	0	0	0	2	0	0	16
04:00	1	12	6	2	3	0	0	0	0	0	0	0	0	10
05:00	0	20	9	0	3	0	0	0	0	0	0	0	0	24
06:00	0	72	37	2	11	0	0	1	6	0	0	0	0	32
07:00	2	198	69	0	32	8	0	3	10	0	1	0	0	129
08:00	3	282	99	3	31	20	0	5	8	0	0	0	0	323
09:00	3	242	89	1	30	25	0	5	8	0	0	0	0	1
10:00	2	199	99	1	35	19	0	6	7	1	0	0	0	452
11:00	7	264	105	1	29	17	0	7	15	1	0	0	0	403
12 PM	5	257	103	1	38	8	0	4	19	0	2	0	0	371
13:00	3	246	125	2	38	18	0	5	15	0	0	0	0	446
14:00	5	440	158	3	50	28	0	7	9	0	0	0	0	1
15:00	9	656	253	2	66	12	0	11	6	0	1	0	0	438
16:00	7	774	230	1	56	4	0	7	3	0	0	0	0	2
17:00	4	751	210	2	49	2	0	9	3	0	0	0	0	700
18:00	8	495	121	1	35	1	0	3	0	0	0	0	0	1019
19:00	6	214	57	0	12	1	0	3	0	0	0	0	0	3
20:00	1	163	54	0	6	1	0	0	1	0	0	0	0	664
21:00	1	110	33	0	9	0	0	1	0	0	0	0	0	293
22:00	0	77	10	0	5	0	0	0	0	0	0	0	0	226
23:00	0	38	6	0	2	0	0	0	0	0	0	0	0	154
Total	67	5564	1882	22	541	164	0	77	110	2	11	0	0	0
Percent	0.8%	65.8%	22.3%	0.3%	6.4%	1.9%	0.0%	0.9%	1.3%	0.0%	0.1%	0.0%	0.0%	0.1%
AM Peak	11:00	08:00	11:00	08:00	10:00	09:00		11:00	11:00	10:00	02:00			10:00
Vol.	7	282	105	3	35	25		7	15	1	3			2
PM Peak	15:00	16:00	15:00	14:00	15:00	14:00		15:00	12:00		12:00			15:00
Vol.	9	774	253	3	66	28		11	19		2			3

Site Code: 1  
stony-n

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stonyn

NORTHBOUND														
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified
5/14/10	0	27	6	0	1	0	0	0	0	0	1	0	0	0
01:00	0	30	5	0	0	0	0	0	0	0	1	0	0	35
02:00	0	4	1	0	3	0	0	0	0	0	0	0	0	36
03:00	0	7	6	1	2	0	0	0	0	0	0	0	0	8
04:00	0	4	7	1	3	0	0	0	0	0	0	0	0	17
05:00	0	18	9	0	3	0	0	0	0	0	0	0	0	15
06:00	0	61	33	1	12	4	0	0	0	0	0	0	0	30
07:00	0	193	76	0	15	7	0	1	8	0	0	0	0	112
08:00	1	296	98	0	37	9	0	6	8	0	0	0	0	300
09:00	1	208	91	2	27	27	0	6	7	0	0	0	0	455
10:00	0	226	116	0	36	19	0	7	10	0	0	0	0	369
11:00	7	262	126	3	30	12	0	8	10	0	0	0	0	416
12 PM	5	460	177	2	61	8	0	10	8	0	0	0	0	458
13:00	7	511	197	3	41	20	0	9	15	1	1	0	0	733
14:00	5	590	243	2	64	22	0	15	19	1	1	0	0	807
15:00	7	718	253	5	70	13	0	8	5	1	1	0	0	966
16:00	10	779	250	1	62	2	0	8	4	0	1	0	0	1082
17:00	10	700	202	4	48	2	0	5	1	0	0	0	0	1116
18:00	8	518	146	1	32	0	0	5	0	0	0	0	0	973
19:00	2	290	77	1	23	0	0	3	0	0	0	0	0	711
20:00	1	163	48	0	9	0	0	0	1	0	0	0	0	396
21:00	2	143	28	0	5	0	0	0	0	0	1	0	0	222
22:00	0	95	22	0	3	0	0	1	0	0	0	0	0	179
23:00	0	70	14	0	2	0	0	0	0	0	0	0	0	121
Total	66	6373	2231	27	589	145	0	92	97	3	7	0	0	86
Percent	0.7%	66.1%	23.1%	0.3%	6.1%	1.5%	0.0%	1.0%	1.0%	0.0%	0.1%	0.0%	0.0%	0.1%
AM Peak	11:00	08:00	11:00	11:00	08:00	09:00		11:00	10:00		00:00			10:00
Vol.	7	296	126	3	37	27		8	10		1			2
PM Peak	16:00	16:00	15:00	15:00	15:00	14:00		14:00	14:00	13:00	13:00			14:00
Vol.	10	779	253	5	70	22		15	19	1	1			4

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stonyn

NORTHBOUND

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/15/10	0	29	4	0	1	0	0	0	0	0	0	0	0	0	34
01:00	0	16	2	0	1	0	0	0	0	0	1	0	0	0	20
02:00	0	5	2	0	1	0	0	0	0	0	0	0	0	0	8
03:00	0	3	2	0	0	0	0	1	0	0	0	0	0	0	6
04:00	0	5	2	1	1	0	0	0	0	0	0	0	0	0	9
05:00	0	13	3	0	2	0	0	0	0	0	0	0	0	0	18
06:00	1	46	14	1	3	0	0	1	1	0	0	0	0	0	67
07:00	0	83	45	0	20	6	0	2	7	0	0	0	0	0	163
08:00	3	127	70	1	25	3	0	3	6	0	0	0	0	0	238
09:00	2	209	106	1	36	1	0	3	5	0	0	0	0	0	363
10:00	5	273	111	1	31	3	0	15	3	0	0	0	0	0	442
11:00	4	402	130	0	42	5	0	8	4	0	0	0	0	0	595
12 PM	5	420	174	0	28	2	0	6	7	0	0	0	0	0	642
13:00	9	429	157	0	45	3	0	7	3	0	0	0	0	0	653
14:00	8	442	167	1	37	3	0	3	4	0	0	0	0	2	667
15:00	12	370	136	0	27	3	0	3	3	0	0	0	0	2	556
16:00	7	377	114	0	17	0	0	3	0	0	0	0	0	1	519
17:00	14	342	80	1	23	0	0	0	0	0	1	0	0	2	463
18:00	6	236	62	0	12	0	0	1	1	0	0	0	0	1	319
19:00	5	208	52	0	15	0	0	3	0	0	0	0	0	2	285
20:00	5	133	38	0	9	0	0	1	1	0	0	0	0	0	187
21:00	2	119	30	0	8	0	0	1	0	0	0	0	0	0	160
22:00	0	94	21	0	3	0	0	0	0	0	0	0	0	0	118
23:00	0	52	10	0	5	0	0	0	0	0	0	0	0	0	67
Total	88	4433	1532	7	392	29	0	61	45	0	2	0	0	10	6599
Percent	1.3%	67.2%	23.2%	0.1%	5.9%	0.4%	0.0%	0.9%	0.7%	0.0%	0.0%	0.0%	0.0%	0.2%	
AM Peak	10:00	11:00	11:00	04:00	11:00	07:00		10:00	07:00		01:00				
Vol.	5	402	130	1	42	6		15	7		1				
PM Peak	17:00	14:00	12:00	14:00	13:00	13:00		13:00	12:00		17:00			14:00	
Vol.	14	442	174	1	45	3		7	7		1			2	

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

NORTHBOUND														
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified
5/16/10	0	37	11	0	2	0	0	0	0	0	0	0	0	0
01:00	0	25	9	0	1	0	0	0	0	0	0	0	0	0
02:00	0	11	2	0	4	0	0	0	0	0	0	0	0	0
03:00	0	10	0	0	1	0	0	0	0	0	0	0	0	0
04:00	0	9	4	0	1	0	0	0	0	0	0	0	0	0
05:00	0	8	3	0	4	0	0	0	0	0	0	0	0	0
06:00	0	38	15	0	5	0	0	1	0	0	0	0	0	0
07:00	1	59	20	0	8	0	0	0	1	0	0	0	0	0
08:00	4	90	37	0	12	0	0	1	0	0	0	0	0	0
09:00	3	187	71	2	25	0	0	3	0	0	0	0	0	0
10:00	4	202	73	0	20	0	0	6	1	0	0	0	0	0
11:00	1	249	83	0	23	0	0	5	2	0	0	0	0	2
12 PM	3	296	97	0	19	0	0	6	0	0	0	0	0	0
13:00	7	589	168	1	39	0	0	6	2	0	0	0	0	1
14:00	8	428	121	0	18	0	0	6	1	0	0	0	0	0
15:00	5	302	83	0	30	0	0	6	2	0	0	0	0	2
16:00	6	321	65	0	4	1	0	9	0	0	1	0	0	1
17:00	6	260	66	0	17	1	0	4	0	0	0	0	0	1
18:00	6	194	57	0	12	1	0	2	0	0	0	0	0	0
19:00	0	166	46	0	13	0	0	2	0	0	0	0	0	0
20:00	1	129	39	0	11	0	0	1	1	0	0	0	0	0
21:00	0	104	30	0	7	0	0	3	0	0	0	0	0	0
22:00	0	42	11	0	1	0	0	0	0	0	0	0	0	0
23:00	0	23	8	0	0	0	0	0	0	0	0	0	0	0
Total	55	3779	1119	3	277	3	0	61	11	0	1	0	0	7
Percent	1.0%	71.1%	21.0%	0.1%	5.2%	0.1%	0.0%	1.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.1%
AM Peak	08:00	11:00	11:00	09:00	09:00			10:00	11:00					11:00
Vol.	4	249	83	2	25			6	2					2
PM Peak	14:00	13:00	13:00	13:00	13:00	16:00		16:00	13:00		16:00			15:00
Vol.	8	589	168	1	39	1		9	2		1			2

Site Code: 1  
stony-n



MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stonyn

NORTHBOUND															
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Not Classified	Total
5/17/10	0	22	2	0	1	0	0	0	0	0	0	0	0	0	25
01:00	0	7	0	0	0	0	0	0	0	0	0	0	0	0	7
02:00	0	3	1	1	0	0	0	0	0	0	0	0	0	0	5
03:00	0	2	2	1	0	0	0	0	0	0	1	0	0	0	6
04:00	0	10	8	1	2	0	0	0	0	0	0	0	0	0	21
05:00	0	18	12	0	1	1	0	0	0	0	0	0	0	0	32
06:00	0	82	43	1	9	1	0	1	4	0	0	0	0	0	141
07:00	0	209	79	0	20	11	0	0	7	0	1	0	0	0	327
08:00	0	291	101	0	28	10	0	5	5	0	0	0	0	0	440
09:00	0	182	96	1	33	19	0	9	8	0	0	0	0	0	348
10:00	1	213	117	3	26	22	0	6	8	0	0	0	0	0	396
11:00	0	259	143	2	37	13	0	5	8	0	0	0	0	0	467
12 PM	0	276	150	2	53	8	0	9	5	0	0	0	0	0	503
13:00	0	314	149	1	38	17	0	9	13	0	0	0	0	0	541
14:00	1	413	189	3	52	31	0	6	18	0	0	0	0	0	713
15:00	1	448	200	2	41	6	0	7	8	0	1	0	0	0	714
16:00	1	556	197	1	44	0	0	4	0	0	0	0	0	0	803
17:00	1	512	153	1	23	0	0	4	1	0	0	0	0	1	696
18:00	1	309	79	0	18	0	0	1	0	0	0	0	0	0	408
19:00	0	164	45	0	9	0	0	1	0	0	0	0	0	0	219
20:00	0	118	29	0	8	0	0	0	1	0	0	0	0	0	156
21:00	0	81	17	0	7	0	0	0	0	0	0	0	0	0	105
22:00	0	43	8	0	4	0	0	0	0	0	0	0	0	0	55
23:00	0	35	5	0	0	0	0	0	0	0	0	0	0	0	40
Total	6	4567	1825	20	454	139	0	67	86	0	3	0	0	1	7168
Percent	0.1%	63.7%	25.5%	0.3%	6.3%	1.9%	0.0%	0.9%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	08:00	11:00	10:00	11:00	10:00		09:00	09:00		03:00				
Vol.	1	291	143	3	37	22		9	8		1				
PM Peak	14:00	16:00	15:00	14:00	12:00	14:00		12:00	14:00		15:00			17:00	
Vol.	1	556	200	3	53	31		9	18		1			1	
Grand Total	716	68244	23391	212	6265	1772	2	909	891	6	88	0	2	92	102590
Percent	0.7%	66.5%	22.8%	0.2%	6.1%	1.7%	0.0%	0.9%	0.9%	0.0%	0.1%	0.0%	0.0%	0.1%	

## CITY OF PETALUMA

[illegible]

## CITY OF PETALUMA

NORTHBOUND		Site Code: 2 meacham-n																							
Start Time	1	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	Hour Total				
30	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	9999	10				
5/5/10	0	0	0	0	0	0	1	0	0	1	2	0	0	1	1	1	0	0	0	0	7				
01:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1				
02:00	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	3				
03:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1				
04:00	1	1	0	0	0	0	0	0	0	0	0	0	1	3	0	1	0	0	0	0	9				
05:00	0	1	3	0	0	0	1	1	1	1	0	1	1	1	0	1	0	0	0	1	13				
06:00	6	4	0	0	2	1	6	4	5	9	9	3	5	1	1	1	1	1	0	0	59				
07:00	5	5	4	3	2	2	9	9	21	20	17	17	8	9	0	0	0	1	0	0	132				
08:00	6	2	2	2	4	9	10	22	26	32	24	18	5	7	3	2	2	0	0	0	176				
09:00	9	1	2	0	2	3	16	22	40	31	16	17	11	5	3	0	1	0	0	0	179				
10:00	4	2	2	0	4	5	20	27	33	27	19	20	8	11	3	1	0	1	0	1	188				
11:00	2	2	1	0	4	11	11	27	44	38	19	20	8	12	6	2	1	1	0	1	210				
12 PM	7	2	3	4	1	5	10	22	23	32	26	23	7	10	3	3	4	1	0	0	186				
13:00	2	4	3	0	4	4	18	14	27	36	16	21	16	10	5	2	1	0	0	0	130				
14:00	6	1	2	2	3	4	12	25	38	35	24	32	20	9	5	6	2	2	1	1	230				
15:00	1	3	1	2	1	3	9	17	48	41	37	37	21	18	8	5	4	0	0	0	256				
16:00	3	1	2	0	0	2	8	2	21	38	37	38	19	19	9	7	0	2	0	3	217				
17:00	4	3	2	1	0	0	2	5	17	18	19	18	6	16	9	7	3	0	1	0	131				
18:00	7	2	1	1	1	1	0	3	9	12	14	18	5	10	9	4	1	2	1	1	104				
19:00	1	2	0	1	1	2	0	5	1	5	10	9	5	5	7	4	0	0	0	1	59				
20:00	1	1	0	0	3	1	1	6	2	7	2	9	3	1	1	0	0	0	0	0	38				
21:00	1	2	0	1	1	0	1	2	2	3	6	4	3	3	3	1	0	0	0	1	34				
22:00	0	0	1	1	0	0	1	0	3	1	4	4	0	4	1	0	1	0	0	0	22				
23:00	0	0	1	0	0	0	0	0	0	1	1	1	1	1	1	0	0	1	0	0	6				
Total	65	41	30	18	29	52	141	219	361	388	303	310	154	156	78	48	22	12	3	10	2440				
Percentage	2.7%	1.7%	1.2%	0.7%	1.2%	2.1%	5.8%	9.0%	14.8%	15.9%	12.4%	12.7%	6.3%	6.4%	3.2%	2.0%	0.9%	0.5%	0.1%	0.4%					
Statistical C	15th Percentile : 42 MPH																								

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL DW to STONY PT. RD

NORTHBOUND  
Site Code: 2  
meacham-n

NORTHBOUND		meacham																																Hour Total							
Start Time	1	31	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	9999			
5/6/10	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	0	1	0	0	0	0	0	1	7		
01:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0		
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0		
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
04:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	1	1	0	1	0	0	1	1	0	0	0	0	0	0	9	0	
05:00	3	2	1	0	0	0	0	0	0	0	0	3	2	2	2	2	2	2	2	2	1	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	
06:00	5	2	0	0	0	0	0	0	0	0	2	7	8	9	8	9	3	8	8	8	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	48	0	
07:00	8	9	4	1	0	0	0	0	0	0	9	13	30	22	10	13	30	22	10	13	8	7	5	3	7	5	0	0	0	0	2	0	0	0	0	0	0	0	141	0	
08:00	7	1	4	1	4	1	4	1	4	7	13	19	28	35	25	28	35	25	25	18	6	5	3	4	1	3	4	1	3	4	1	0	1	0	0	1	0	0	182	0	
09:00	6	2	2	3	3	5	3	5	13	27	38	34	21	31	27	38	34	21	17	6	3	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	185	0	
10:00	5	3	0	0	0	5	6	8	6	8	25	27	21	31	21	27	21	31	16	8	8	0	8	0	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	167	0
11:00	4	2	2	2	0	8	11	12	11	12	24	24	44	42	42	44	42	42	19	25	12	5	3	1	3	3	1	3	1	3	0	0	0	0	0	0	0	0	0	218	0
12 PM	7	5	1	0	0	2	7	17	7	17	28	35	38	29	38	35	38	29	24	20	15	8	7	5	8	7	4	7	5	1	0	0	0	0	0	0	0	0	220	0	
13:00	3	3	1	3	0	5	17	16	3	5	16	30	29	25	30	29	29	25	15	12	4	4	2	12	4	4	2	2	0	2	0	2	0	0	0	0	0	0	2	173	0
14:00	3	1	1	1	1	5	12	27	9	12	37	34	42	31	42	34	42	31	16	15	15	4	3	0	4	3	0	0	0	4	1	0	0	0	0	0	0	0	0	237	0
15:00	4	1	0	1	1	3	9	18	9	9	20	38	56	31	56	38	56	31	32	8	11	3	2	0	11	3	2	0	2	0	0	0	0	0	0	0	0	0	0	237	0
16:00	8	3	2	0	0	1	3	5	10	3	5	10	34	38	30	34	38	30	29	18	16	16	15	6	16	15	6	3	6	3	0	0	0	0	0	0	0	0	0	222	0
17:00	3	2	8	0	0	0	2	9	2	9	9	9	13	16	21	13	16	21	25	13	11	8	6	11	8	6	1	8	6	1	0	0	0	0	0	0	0	0	1	148	0
18:00	2	2	0	0	0	0	0	1	1	1	3	9	11	3	9	11	11	6	14	13	9	3	9	6	8	6	5	3	2	0	0	2	0	0	0	0	0	0	2	91	0
19:00	2	2	1	0	0	0	0	1	1	1	1	3	6	3	3	3	6	3	3	14	11	6	3	2	0	0	3	2	0	0	0	0	0	0	0	0	0	0	1	58	0
20:00	0	2	0	0	1	0	1	1	0	1	7	5	9	3	9	3	9	3	7	7	5	3	3	1	2	0	3	1	2	0	0	0	0	0	0	0	0	0	1	57	0
21:00	0	1	1	1	1	1	1	1	0	1	0	3	1	3	1	3	1	3	1	3	2	4	1	2	4	1	1	1	1	0	0	0	0	0	0	0	0	0	0	24	0
22:00	0	0	0	0	0	0	0	0	1	0	3	2	2	4	2	2	4	2	2	2	1	2	1	2	1	2	1	2	1	2	1	0	0	0	0	0	0	0	0	21	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	7	0
Total	72	45	28	13	32	28	32	72	160	253	386	413	413	386	413	386	413	303	303	276	153	109	73	42	29	109	73	42	29	1.7%	1.2%	0.2%	0.1%	0.4%	0.1%	0.4%	0.1%	0.4%	2476	9	

Percentage	2.9%	1.8%	1.1%	0.5%	1.3%	2.9%	6.5%	10.2%	15.6%	16.7%	12.2%	11.1%	6.2%	4.4%	2.9%	1.7%	1.2%	0.2%	0.1%	0.4%
Statistical	15th Percentile : 42 MPH																			

15th Percentile : 42 MPH  
50th Percentile : 47 MPH  
85th Percentile : 53 MPH  
95th Percentile : 57 MPH

Mean Speed(Average) : 47 MPH  
10 MPH Pace Speed : 43-52 MPH  
Number in Pace : 1631  
Percent in Pace : 65.9%

Number of Vehicles > 45 MPH : 1608  
Percent of Vehicles > 45 MPH : 64.9%

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL DW to STONY PT. RD

NORTHBOUND  
Site Code: 2  
meacham-n

NORTHBOUND		meacham																															
Start	1	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	Hour												
Time	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	9999	Total												
5/7/10	0	0	0	0	0	0	0	0	2	0	0	0	0	1	1	0	0	0	0	0	5												
01:00	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	0	1	0	0	5												
02:00	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2												
03:00	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	4												
04:00	0	0	0	1	0	0	0	2	1	0	0	0	0	0	0	0	0	0	1	0	5												
05:00	4	2	1	0	0	2	0	1	1	1	2	0	0	0	1	0	0	0	0	0	15												
06:00	6	1	1	1	1	1	4	6	13	6	5	7	2	5	2	3	0	2	0	0	61												
07:00	6	4	0	3	0	0	5	15	24	17	15	18	9	5	1	2	2	0	0	0	126												
08:00	5	4	6	4	0	1	7	17	32	31	22	19	10	3	7	5	1	0	0	1	175												
09:00	4	2	2	2	3	3	16	18	32	34	25	18	6	5	5	1	3	2	1	0	182												
10:00	5	2	2	2	4	13	16	22	43	23	28	20	4	8	4	0	2	0	1	0	199												
11:00	1	2	1	1	3	9	4	23	24	42	31	28	14	13	4	6	3	1	0	1	211												
12 PM	5	2	1	0	2	3	8	16	33	24	41	26	17	12	7	3	3	0	0	1	204												
13:00	5	4	2	0	1	10	13	35	40	45	31	25	12	14	9	1	0	0	1	2	250												
14:00	2	2	1	1	2	6	5	26	38	39	43	23	13	10	8	2	2	1	1	2	227												
15:00	1	5	1	0	3	4	15	23	32	40	44	40	19	15	6	5	2	1	0	1	257												
16:00	0	3	2	2	0	1	5	7	29	41	36	40	14	8	14	11	3	1	0	1	218												
17:00	4	1	1	1	2	1	3	3	11	12	27	25	12	13	10	4	2	1	1	2	138												
18:00	2	1	1	2	0	0	3	4	9	16	16	14	9	4	4	8	1	3	2	0	99												
19:00	6	0	4	2	0	2	4	2	2	6	4	6	4	6	5	3	2	0	0	4	64												
20:00	2	2	1	1	0	2	4	5	2	5	8	6	3	7	2	0	0	2	0	0	52												
21:00	2	0	0	1	0	0	1	0	6	3	5	4	6	7	3	4	1	1	1	0	45												
22:00	2	0	1	0	0	1	1	2	2	5	2	0	1	1	0	0	0	0	0	0	17												
23:00	0	0	0	0	2	0	0	0	0	2	1	0	1	0	2	0	0	0	0	1	9												
Total	64	37	29	25	22	59	114	228	369	401	386	319	158	136	95	59	27	16	9	17	2570												

Perce ntage	2.5%	1.4%	1.1%	1.0%	0.9%	2.3%	4.4%	8.9%	14.4%	15.6%	15.0%	12.4%	6.1%	5.3%	3.7%	2.3%	1.1%	0.6%	0.4%	0.7%
Statisti c																				
				15th Percentile :	43 MPH															
				50th Percentile :	48 MPH															
				85th Percentile :	54 MPH															
				95th Percentile :	58 MPH															

Mean Speed(Average) : 48 MPH  
10 MPH Pace Speed : 43-52 MPH  
Number in Pace : 1703  
Percent in Pace : 66.3%  
Number of Vehicles > 45 MPH : 1808  
Percent of Vehicles > 45 MPH : 70.4%

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL DW to STONY PT. RD

NORTHBOUND  
Site Code: 2  
meacham-n

NORTHBOUND		meacham																																								
Start	1	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	Hour			
Time	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	60	61	62	63	64	65	66	9999	Total				
5/8/10	0	0	0	0	0	0	0	0	0	0	0	1	2	2	1	2	1	2	2	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	12	
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4		
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6		
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	5			
06:00	5	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24			
07:00	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93			
08:00	5	4	1	2	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	150			
09:00	5	3	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	178			
10:00	4	2	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	217			
11:00	6	1	2	2	2	4	2	4	2	15	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	244			
12 PM	5	5	3	4	1	1	8	15	14	39	35	35	36	24	9	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	242		
13:00	5	9	0	1	6	3	12	18	43	43	32	22	16	16	8	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	240		
14:00	3	1	3	2	6	8	7	17	39	41	30	35	10	20	11	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	240		
15:00	8	5	0	4	6	2	22	28	26	35	27	33	10	7	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	225		
16:00	10	6	1	1	1	1	0	1	1	0	3	9	7	14	12	16	19	16	12	12	5	16	2	7	4	1	0	2	2	7	4	4	1	0	0	0	0	0	2	122		
17:00	10	1	5	2	1	0	1	1	0	1	2	2	5	11	16	19	9	11	11	16	9	11	5	4	3	4	1	2	5	4	3	4	1	2	0	1	2	1	114			
18:00	3	2	4	0	1	0	1	0	1	0	2	5	5	8	12	9	9	8	9	9	9	3	2	3	2	0	1	3	2	3	2	3	1	2	0	1	72	72				
19:00	4	2	2	2	0	0	0	0	0	0	2	2	3	3	8	14	11	3	8	14	11	11	5	3	2	0	0	2	3	2	0	0	0	0	0	0	0	0	70			
20:00	0	1	1	2	4	1	2	4	3	3	3	3	2	3	2	6	8	3	6	6	4	3	7	3	0	1	0	3	3	0	1	0	0	0	0	0	0	0	1	51		
21:00	3	0	1	0	1	0	1	0	1	2	2	2	2	5	6	4	6	5	6	4	6	5	4	2	0	1	0	2	2	0	1	0	0	0	0	0	0	0	0	44		
22:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31			
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	17		
Total	79	45	32	32	26	32	32	32	32	41	120	192	314	314	314	333	167	157	84	45	26	15	12	18	2403																	

Percentage	3.3%	1.9%	1.3%	1.1%	1.3%	1.7%	5.0%	8.0%	13.1%	14.6%	13.1%	13.9%	6.9%	6.5%	3.5%	1.9%	1.1%	0.6%	0.5%	0.7%
Statistic	15th Percentile : 42 MPH																			

15th Percentile : 42 MPH  
50th Percentile : 48 MPH  
85th Percentile : 54 MPH  
95th Percentile : 58 MPH

Mean Speed(Average) : 48 MPH  
10 MPH Pace Speed : 43-52 MPH  
Number in Pace : 1504

Percent in Pace : 62.6%  
Number of Vehicles > 45 MPH : 1679  
Percent of Vehicles > 45 MPH : 69.9%

## CITY OF PETALUMA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL DW to STONY PT. RD

NORTHBOUND		Site Code: 2 meacham-n																																				
Start Time	1	31	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	Hour Total
5/9/10	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	1	0	0	2	1	1	1	1	0	1	0	1	0	0	0	0	0	0	11
01:00	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	2	1	0	1	0	1	1	1	1	1	0	1	0	1	0	0	0	0	0	0	0	8
02:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	6
03:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
06:00	2	0	0	0	0	0	0	0	0	0	0	0	4	1	1	1	1	1	1	0	0	2	0	2	0	0	3	1	0	0	0	0	0	1	0	0	1	17
07:00	2	2	1	0	0	1	0	0	1	0	1	0	1	0	1	1	6	3	2	0	1	1	1	0	1	1	1	1	1	1	2	0	0	1	25	0	0	25
08:00	14	1	0	2	1	0	2	1	0	1	0	3	4	3	6	3	6	6	8	3	2	0	3	2	2	2	2	2	0	2	0	2	1	0	0	0	0	58
09:00	5	2	0	1	1	1	1	1	1	1	2	4	6	10	5	14	10	5	14	6	3	4	6	3	4	2	1	1	0	2	1	1	1	0	0	0	68	
10:00	7	1	0	1	1	0	1	3	2	4	6	8	14	17	17	17	6	5	3	2	1	2	10	9	5	3	2	1	1	2	1	1	1	0	0	0	101	
11:00	6	5	3	1	1	0	1	1	0	0	3	8	8	13	23	10	9	5	6	0	1	0	1	10	9	5	6	0	1	0	0	0	0	0	0	0	0	103
12 PM	4	1	4	1	1	1	1	1	2	7	8	16	17	13	16	10	7	5	4	2	0	2	0	10	7	5	4	2	0	0	0	0	0	0	0	0	0	119
13:00	2	0	3	0	3	0	0	0	13	0	6	20	17	12	10	6	7	6	1	0	2	0	2	0	6	7	6	1	0	2	1	0	2	0	1	0	0	98
14:00	0	3	0	1	1	1	1	2	3	9	6	11	15	12	11	6	5	0	1	2	1	0	2	1	6	5	0	1	2	1	0	2	0	0	0	0	0	83
15:00	2	0	1	0	1	0	1	1	1	3	16	23	15	19	12	2	1	2	0	0	0	0	2	1	2	1	2	0	0	0	0	0	0	0	0	0	0	98
16:00	6	2	1	1	1	0	5	3	0	5	3	7	12	11	16	12	3	5	4	1	0	0	3	5	4	1	0	0	0	0	0	0	0	0	0	0	0	90
17:00	0	1	1	1	3	0	3	1	2	9	4	13	13	5	5	5	5	6	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	72	
18:00	2	0	0	0	0	0	1	1	1	1	2	3	7	10	8	6	3	8	2	2	0	0	8	3	8	2	2	0	0	0	0	0	0	0	0	0	0	63
19:00	0	1	1	1	2	1	1	1	1	1	0	3	11	7	5	6	10	3	4	1	0	0	10	3	3	4	1	0	0	0	0	0	0	0	0	0	0	59
20:00	0	2	0	0	3	2	1	0	3	4	4	5	6	6	6	5	2	4	2	0	0	0	5	2	4	2	4	2	0	0	0	0	0	0	0	0	0	49
21:00	0	1	0	3	0	3	0	0	3	0	3	1	2	5	9	3	3	2	0	0	0	0	3	3	3	2	2	2	0	0	0	0	0	0	0	0	0	37
22:00	1	0	1	0	1	0	0	0	1	0	1	0	6	2	2	3	1	3	0	1	0	0	3	3	1	3	0	1	0	0	0	0	0	0	0	0	0	26
23:00	1	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	1	2	0	0	0	0	0	0	2	0	2	0	2	1	1	0	0	0	0	0	0	10
Total	57	25	13	13	22	13	13	1.1%	2.1%	2.1%	3.0%	3.6	8.5	150	158	160	170	170	93	66	63	34	17	10	3	9	1209											
Percentage	4.7%	2.1%	1.1%	1.1%	1.8%	1.1%	1.1%				3.0%	7.0%	12.4%	13.1%	13.2%	14.1%	14.1%	7.7%	5.5%	5.2%	2.8%	1.4%	0.8%	0.2%	0.7%													
Statistical C	15th Percentile : 42 MPH																																					

## CITY OF PETALUMA

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Perce



MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL DW to STONY PT. RD

NORTHBOUND		Site Code: 2																														meacham-n										
Start Time	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	9999	67	Hour Total		
5/11/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	4
01:00	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
02:00	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
03:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
04:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
05:00	2	1	2	1	0	1	0	0	0	0	0	0	0	3	0	2	3	3	0	1	3	0	3	2	2	0	0	0	0	0	2	0	0	1	2	0	0	0	0	0	23	
06:00	7	0	1	0	1	0	0	0	0	0	1	2	0	4	3	3	9	3	0	3	9	3	4	3	4	2	0	0	0	0	2	0	1	2	0	0	0	0	0	0	52	
07:00	6	3	3	4	0	0	0	0	0	0	0	6	14	28	16	28	34	18	34	18	15	7	7	7	7	4	3	1	0	0	3	1	1	1	0	0	0	0	0	0	154	
08:00	1	7	4	6	4	6	4	6	4	6	13	16	13	16	16	25	21	25	21	25	23	14	6	6	6	2	1	0	0	6	2	1	0	1	0	0	0	0	0	0	180	
09:00	4	2	2	0	2	0	1	5	17	14	5	17	14	38	23	14	38	23	23	23	14	9	4	4	5	0	2	0	0	4	1	0	2	1	0	0	0	0	0	0	164	
10:00	5	0	4	3	2	0	2	13	13	24	2	13	24	24	19	13	11	13	11	11	11	13	4	4	13	4	0	0	0	4	0	2	1	0	0	0	0	0	0	0	155	
11:00	2	1	0	2	5	14	2	5	14	25	32	32	32	43	27	21	43	27	21	14	11	6	4	4	0	2	1	0	0	2	0	1	1	0	0	0	0	0	0	200		
12 PM	5	5	3	6	4	20	4	4	20	30	33	32	30	33	32	17	11	17	11	11	11	8	3	3	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	190	
13:00	6	2	3	0	9	21	3	0	9	21	31	33	33	35	40	40	40	40	40	26	30	10	10	10	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	232	
14:00	4	4	0	4	5	11	4	5	11	17	33	33	33	40	33	40	40	40	26	30	8	8	8	8	6	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	244	
15:00	3	9	6	5	2	8	4	2	8	4	18	4	4	18	44	50	37	50	37	32	14	9	4	5	1	5	1	0	0	6	1	0	3	2	0	0	0	0	0	0	264	
16:00	4	5	1	1	1	2	5	2	2	5	14	5	14	41	23	36	32	36	32	45	18	11	11	11	8	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	243	
17:00	6	0	2	1	0	2	2	0	2	2	11	2	11	14	23	19	23	19	17	18	8	5	8	8	5	8	7	4	2	2	2	2	2	2	2	2	2	2	2	2	151	
18:00	6	1	1	1	2	0	1	2	0	0	8	2	8	9	9	18	18	17	18	17	10	3	2	2	3	2	3	2	0	0	3	3	3	2	0	0	0	0	0	0	89	
19:00	2	1	0	0	0	0	1	0	0	1	1	1	3	4	3	3	5	9	4	5	9	4	8	8	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	52	
20:00	1	0	0	0	2	1	3	0	1	3	8	4	4	3	4	6	4	6	4	7	2	4	3	4	3	3	3	1	0	0	3	1	1	1	0	0	0	0	0	0	51	
21:00	0	1	1	1	1	0	0	0	0	0	2	2	2	4	2	4	6	4	6	4	7	2	2	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	
22:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	3	1	0	0	1	2	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	13	
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	
Total	68	43	34	34	39	36	107	178	264	391	373	277	274	159	98	71	43	27	16	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	7	2514	

Perce ntage	2.7%	1.7%	1.4%	1.6%	1.4%	4.3%	7.1%	10.5%	15.6%	14.8%	11.0%	10.9%	6.3%	3.9%	2.8%	1.7%	1.1%	0.6%	0.4%	0.3%
Statisti c																				

15th Percentile : 41 MPH  
50th Percentile : 47 MPH  
85th Percentile : 53 MPH  
95th Percentile : 58 MPH  
Mean Speed(Average) : 47 MPH  
10 MPH Pace Speed : 43-52 MPH  
Number in Pace : 1579  
Percent in Pace : 62.8%  
Number of Vehicles > 45 MPH : 1549  
Percent of Vehicles > 45 MPH : 61.6%

## CITY OF PETALUMA

NORTHBOUND										Site Code: 2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	Hour																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Start	Time	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
5/12/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0</

[illegible]

## MARKS TRAFFIC DATA

NORTHBOUND		Site Code: 2																								meacham-n					
		1	31	33	35	37	39	41	43	44	45	46	47	48	49	51	53	54	55	56	57	59	61	63	64			65	66	67	9999
Start Time	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	Total
5/13/1	0	0	0	0	0	0	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
01:00	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:00	1	0	0	0	0	0	0	1	0	0	2	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
05:00	3	2	0	2	1	0	0	1	1	0	5	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
06:00	4	3	1	2	0	2	1	4	4	6	2	5	6	1	5	1	0	1	2	0	1	2	0	1	2	0	1	0	0	0	50
07:00	7	2	6	1	1	2	2	8	13	26	21	29	11	8	3	1	2	0	1	0	144	0	1	0	144	0	1	0	0	0	157
08:00	2	6	4	3	2	2	7	10	25	26	25	22	7	5	5	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	194
09:00	6	2	1	0	4	11	11	27	30	41	30	15	5	6	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	191
10:00	6	2	0	0	6	10	9	18	27	29	23	15	15	14	6	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	182
11:00	4	2	1	0	1	5	10	12	36	31	25	22	11	19	3	5	2	1	1	1	1	1	1	1	1	1	1	1	1	0	191
12 PM	5	3	0	4	4	8	13	19	23	34	34	26	17	10	6	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	212
13:00	1	1	0	1	2	10	12	25	29	30	28	20	18	13	6	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	198
14:00	4	2	2	2	1	1	15	22	33	39	28	28	14	12	9	4	1	0	1	0	0	1	0	1	0	1	0	0	0	0	218
15:00	3	1	3	1	0	3	11	22	47	59	48	34	16	15	6	6	2	2	0	0	0	0	0	0	0	0	0	0	0	0	279
16:00	2	4	2	4	3	3	4	13	19	27	22	40	27	11	11	6	5	2	1	1	207										
17:00	2	3	2	1	0	2	5	8	17	22	19	22	10	5	6	4	4	2	1	136											
18:00	1	3	3	0	1	2	5	6	14	12	15	14	18	13	6	1	2	0	1	0	117										
19:00	7	0	1	0	1	0	3	5	14	10	7	9	3	2	0	1	0	1	0	72											
20:00	0	0	0	0	2	1	1	2	9	6	5	4	9	1	3	4	0	0	0	53											
21:00	1	1	0	2	0	0	1	1	3	5	7	1	3	3	2	1	0	0	0	33											
22:00	2	0	0	0	0	0	1	0	3	0	2	0	2	3	0	4	0	0	1	0	15										
23:00	1	0	0	0	0	0	0	1	0	1	1	1	0	1	0	0	0	0	1	1	8										
Total	62	38	26	23	29	62	111	207	335	399	357	310	193	162	81	53	29	10	11	5	2503										
Percentage	2.5%	1.5%	1.0%	0.9%	1.2%	2.5%	4.4%	8.3%	13.4%	15.9%	14.3%	12.4%	7.7%	6.5%	3.2%	2.1%	1.2%	0.4%	0.4%	0.2%											
Statistics																															
C																									15th Percentile :						
																									43 MPH						
																									50th Percentile :						
																									48 MPH						
																									85th Percentile :						
																									54 MPH						
																									95th Percentile :						
																									58 MPH						
																									Mean Speed(Average) :						
																									48 MPH						
																								10 MPH Pace Speed :							
																								43-52 MPH							
																								Number in Pace :							
																								1608							
																								Percent in Pace :							
																								64.2%							
																								Number of Vehicles > 45 MPH :							
																								1778							
																								Percent of Vehicles > 45 MPH :							
																								71.0%							



MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL DW to STONY PT. RD

NORTHBOUND  
Site Code: 2  
meacham-n

NORTHBOUND		meacham																																							
		1	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	9999	Hour Total
Start Time	5/15/1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	1	1	1	0	0	0	3	0	0	0	0	0	1	0	0	9
01:00		0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	5		
02:00		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
03:00		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	
04:00		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	3		
05:00		0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	7		
06:00		2	0	0	0	2	1	0	0	0	0	1	0	1	5	1	1	1	4	3	3	3	1	1	1	1	1	2	1	2	0	0	1	2	0	0	1	1	32		
07:00		2	0	0	0	0	0	0	0	0	0	1	2	11	13	10	13	10	12	12	13	4	5	3	4	5	3	2	2	3	2	0	2	0	0	0	0	0	80		
08:00		3	1	3	3	3	4	2	13	16	22	23	22	14	12	22	23	22	14	12	7	9	3	2	7	9	3	2	3	2	0	3	1	0	0	0	0	1	145		
09:00		3	1	3	1	4	1	4	14	20	23	23	29	22	22	13	6	22	13	6	2	2	6	2	2	13	6	2	2	0	0	0	0	0	0	0	0	0	173		
10:00		3	5	2	1	2	1	2	5	17	29	30	39	18	23	9	12	10	3	3	1	1	1	0	0	0	0	0	3	3	1	1	0	0	0	0	0	0	213		
11:00		6	4	1	3	2	5	13	21	26	48	33	36	23	36	32	28	24	18	8	7	2	1	0	0	0	0	2	2	1	1	0	0	0	0	0	0	0	318		
12 PM		2	4	4	4	3	4	13	17	52	38	41	36	23	10	7	2	2	7	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	0	0	264		
13:00		2	1	2	3	5	6	6	22	36	48	41	32	16	8	6	3	3	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	245			
14:00		4	5	1	5	2	6	14	25	33	31	35	39	23	20	7	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	257		
15:00		2	3	6	7	6	5	20	23	37	28	30	25	15	12	4	3	2	4	3	2	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	1	231		
16:00		5	5	0	0	0	3	5	9	17	19	13	14	6	7	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	120		
17:00		3	3	2	0	1	0	3	3	6	9	13	18	9	13	7	8	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	104		
18:00		1	1	1	0	0	3	4	3	8	15	10	8	1	5	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	83		
19:00		3	3	1	0	0	0	0	1	0	4	6	3	9	3	7	5	6	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58		
20:00		2	2	0	0	2	3	1	1	3	5	2	3	6	3	2	2	2	2	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	41		
21:00		2	0	0	0	0	0	0	1	1	1	5	3	7	1	0	3	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28		
22:00		0	0	0	1	0	0	0	0	0	1	5	4	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27		
23:00		1	0	0	0	0	2	0	1	0	1	0	0	1	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	

Perce ntage	1.9%	1.5%	1.1%	1.3%	1.5%	1.9%	5.3%	8.7%	13.6%	14.2%	12.4%	12.5%	7.0%	6.2%	4.1%	2.8%	1.9%	0.9%	0.6%	0.4%
Statisti c																				

15th Percentile : 43 MPH  
50th Percentile : 48 MPH  
85th Percentile : 55 MPH  
95th Percentile : 60 MPH

Mean Speed(Average) : 48 MPH  
10 MPH Pace Speed : 43-52 MPH  
Number in Pace : 1513  
Percent in Pace : 61.6%  
Number of Vehicles > 45 MPH : 1719  
Percent of Vehicles > 45 MPH : 69.9%



## MARKS TRAFFIC DATA

NORTHBOUND		Site Code: meacham-n																																							
		1 Start Time	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	Hour Total
5/17/1		0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	0	0	0	7
01:00		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
02:00		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
03:00		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
04:00		1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
05:00		1	0	0	3	1	0	0	1	0	0	0	1	3	0	1	3	0	0	1	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	13
06:00		6	1	0	0	0	1	0	1	3	6	9	7	4	5	2	3	2	2	2	3	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
07:00		2	3	3	0	0	2	4	9	14	21	27	18	12	7	5	4	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	134
08:00		5	6	2	6	7	12	13	24	22	16	12	13	6	7	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	158
09:00		1	5	1	1	1	13	17	29	22	27	16	11	4	3	4	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159
10:00		2	1	1	1	6	10	19	32	34	23	14	10	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	190
11:00		5	3	1	7	9	19	29	32	34	35	11	14	2	3	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	209
12 PM		4	3	0	10	18	25	36	28	34	20	11	7	5	7	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	215
13:00		3	0	1	3	6	10	10	27	20	31	17	18	4	7	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	165
14:00		3	0	3	3	3	5	12	24	30	33	23	25	16	8	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	193
15:00		3	5	1	0	2	9	21	24	29	25	33	26	11	11	8	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	213
16:00		4	3	3	1	2	3	8	10	31	38	46	22	16	21	6	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	221
17:00		3	0	1	2	1	2	4	7	13	12	9	15	8	12	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96
18:00		1	2	1	1	1	0	1	3	7	11	13	7	6	9	1	5	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73
19:00		0	0	1	1	1	0	1	3	5	7	5	4	6	3	2	2	1	1	3	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
20:00		0	0	2	1	0	2	2	7	2	4	6	3	1	4	3	0	1	4	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
21:00		1	0	3	1	1	0	2	2	1	4	3	3	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
22:00		0	0	0	1	0	0	0	0	0	0	1	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
23:00		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	
Total		46	33	33	27	45	63	126	203	273	321	321	321	103	104	57	34	14	17	4	6	2248																			
Percentage		2.0%	1.5%	1.5%	1.2%	2.0%	2.8%	5.6%	9.0%	12.1%	14.3%	14.3%	14.3%	4.6%	4.6%	2.5%	1.5%	0.6%	0.8%	0.2%	0.3%																				
Statistics																																									
		15th Percentile :																					40 MPH																		
		50th Percentile :																					46 MPH																		
		85th Percentile :																					53 MPH																		
		95th Percentile :																					57 MPH																		
		Mean Speed(Average) :																					46 MPH																		
		10 MPH Pace Speed :																					43-52 MPH																		
		Number in Pace :																					1366																		
		Percent in Pace :																					60.8%																		
		Number of Vehicles > 45 MPH :																					1272																		
		Percent of Vehicles > 45 MPH :																					56.6%																		
Total		831	553	400	361	421	869	1807	2970	4442	4736	4014	3715	2117	1769	1108	648	391	192	109	165	31618																			

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL DW to STONY PT. RD

SOUTHBOUND  
Site Code: 2  
meacham-s

Start Time	1	31	32	34	33	44	48	82	124	219	307	327	325	254	204	142	82	51	34	20	13	65	66	67	Hour Total
5/4/10	1	0	0	1	0	1	0	0	0	1	1	0	0	1	3	0	1	0	0	1	0	0	0	1	9
01:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	3
02:00	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
03:00	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	1	1	0	0	0	0	0	6
04:00	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	2	0	0	1	0	1	0	0	0	8
05:00	0	0	0	0	0	0	0	0	0	1	6	0	3	7	5	5	3	0	1	2	0	0	0	0	33
06:00	1	1	1	1	0	5	11	19	35	26	22	16	17	9	13	2	10	7	4	2	1	1	0	0	186
07:00	1	0	1	2	2	8	18	21	30	36	34	21	22	22	24	1	1	7	4	2	1	1	0	0	221
08:00	1	2	1	1	1	5	15	30	29	26	16	11	10	4	4	4	4	4	4	3	0	1	0	0	168
09:00	2	1	1	1	2	0	15	30	26	21	19	17	11	2	7	1	2	7	1	0	0	0	0	1	185
10:00	2	0	1	2	2	5	6	16	27	22	23	24	14	5	2	4	5	2	4	1	0	1	0	1	169
11:00	1	1	4	3	2	6	9	28	40	26	25	9	9	4	0	1	9	4	0	1	0	0	0	0	177
12 PM	4	2	7	4	17	15	15	18	28	25	16	7	8	2	3	2	2	3	2	1	0	0	0	1	175
13:00	10	7	6	11	12	16	33	29	10	21	8	12	2	5	0	2	5	0	2	0	1	0	0	0	185
14:00	4	3	3	4	9	18	9	20	22	25	18	16	7	3	2	3	2	3	2	0	3	0	1	0	170
15:00	3	2	5	5	3	2	10	15	19	18	11	15	13	4	3	0	4	3	0	0	0	0	0	1	129
16:00	5	2	3	2	5	6	6	13	13	20	11	12	5	3	2	0	3	2	0	1	2	0	0	0	111
17:00	6	4	5	4	5	2	8	6	9	14	11	12	6	3	3	3	3	3	3	2	1	0	0	0	104
18:00	2	3	1	3	4	3	9	9	12	15	11	8	5	5	1	5	5	5	1	2	1	0	0	0	99
19:00	0	0	1	1	3	2	3	4	5	17	14	8	7	4	2	1	4	2	1	0	0	1	0	2	82
20:00	3	3	2	1	3	7	10	10	4	5	8	3	1	0	1	0	1	0	1	0	0	0	0	0	64
21:00	2	0	1	1	1	0	3	6	5	8	3	4	5	2	5	2	5	2	0	0	0	0	0	0	47
22:00	0	1	0	0	0	0	0	3	2	2	5	5	4	0	1	0	0	1	2	1	0	0	0	0	24
23:00	2	0	0	0	2	0	2	0	2	0	0	1	2	2	0	1	0	1	0	0	1	1	1	0	13
Total	50	32	44	44	48	82	124	219	307	327	325	254	204	142	82	51	34	20	13	65	66	67	9999	7	2370

Perce ntage	2.1%	1.4%	1.9%	2.0%	3.5%	5.2%	9.2%	13.0%	13.8%	13.7%	10.7%	8.6%	6.0%	3.5%	2.2%	1.4%	0.8%	0.5%	0.2%	0.3%
Statisti c																				

15th Percentile : 40 MPH  
50th Percentile : 46 MPH  
85th Percentile : 52 MPH  
95th Percentile : 57 MPH

Mean Speed(Average) : 46 MPH  
10 MPH Pace Speed : 41-50 MPH  
Number in Pace : 1432  
Percent in Pace : 60.4%

Number of Vehicles > 45 MPH : 1300  
Percent of Vehicles > 45 MPH : 54.9%



MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL DW to STONY PT. RD

SOUTHBOUND  
Site Code: 2  
meacham-s

SOUTHBOUND		1	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	Hour Total
Start Time	30	0	0	0	1	1	1	1	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
5/5/10		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
01:00		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
02:00		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
03:00		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
04:00		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	1	1	1	0	0	0	0	0	0	0	0	9
05:00		0	0	0	0	0	0	0	0	0	1	4	2	4	2	4	4	2	4	2	4	3	3	1	1	1	1	1	1	2	2	1	0	0	0	0	0	0	0	27
06:00		0	0	1	0	0	3	11	12	15	24	28	34	34	34	24	28	34	34	28	14	11	11	5	5	5	6	2	1	2	1	0	0	0	0	0	0	0	0	175
07:00		5	2	4	2	8	10	21	32	28	33	36	36	36	32	36	33	36	33	36	22	17	12	12	3	2	1	1	3	2	1	0	0	0	0	0	0	0	0	241
08:00		0	3	3	3	3	2	8	15	29	18	28	28	11	13	4	1	0	1	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	167
09:00		3	2	5	7	6	14	17	26	22	34	13	15	4	6	3	3	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180
10:00		4	4	1	9	15	11	18	37	16	26	18	12	4	3	2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	182
11:00		4	2	5	4	2	5	18	24	43	41	21	13	12	3	2	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	201
12 PM		1	1	3	3	3	9	20	23	30	25	27	17	16	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	181
13:00		2	3	3	7	7	20	21	31	32	12	15	19	11	6	5	1	6	5	1	2	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	198
14:00		3	5	7	3	14	15	26	25	24	20	19	17	9	6	8	6	0	1	1	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	209
15:00		1	1	1	2	2	1	11	7	20	20	18	17	12	5	4	6	0	1	0	1	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	130
16:00		1	2	5	2	3	3	7	8	6	9	8	10	4	3	2	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79
17:00		8	2	3	5	7	2	12	3	11	14	13	12	9	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	111
18:00		0	7	3	2	1	3	5	7	7	10	6	13	9	6	2	1	0	1	0	1	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	83
19:00		3	4	3	4	4	3	4	3	9	6	13	6	2	10	1	3	1	0	1	3	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	90
20:00		1	0	0	0	4	2	5	5	10	7	10	8	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63
21:00		1	1	1	0	0	2	6	4	2	5	4	5	3	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
22:00		3	1	1	1	2	0	1	3	2	1	4	3	4	2	1	1	1	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
23:00		0	1	0	0	0	2	1	0	2	1	0	2	0	2	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Total	40	41	50	50	56	86	126	223	295	313	334	291	220	148	88	48	39	14	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2430

Percentage	1.6%	1.7%	2.1%	2.3%	3.5%	5.2%	9.2%	12.1%	12.9%	13.7%	12.0%	9.1%	6.1%	3.6%	2.0%	1.6%	0.6%	0.3%	0.3%	0.2%
Statistic C	15th Percentile : 40 MPH																			

15th Percentile : 40 MPH  
50th Percentile : 46 MPH  
85th Percentile : 52 MPH  
95th Percentile : 56 MPH  
  
Mean Speed(Average) : 46 MPH  
10 MPH Pace Speed : 41-50 MPH  
Number in Pace : 1456  
Percent in Pace : 59.9%  
Number of Vehicles > 45 MPH : 1357  
Percent of Vehicles > 45 MPH : 55.8%

MEACHAM RD- LANDFILL D/W to STONY PT. RD

SOUTHBOUND		Site Code: 2 meacham-s																										
		1	31	33	35	37	39	41	43	44	45	47	48	49	51	53	54	55	57	58	59	61	63	64	65	66	67	Hour
Start	Time	30	32	34	36	38	40	42	44	46	48	50	52	54	56	60	62	64	66	9999	Total							
5/6/10	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
02:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	0	0	0	0	0	0	0	0	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	7
04:00	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
05:00	0	0	0	0	0	1	2	3	3	6	5	7	3	4	5	1	2	0	0	0	0	0	1	0	0	0	0	43
06:00	1	0	0	0	0	3	4	11	20	31	27	17	22	15	9	6	2	2	0	0	0	0	0	0	0	0	0	171
07:00	1	1	0	1	3	12	12	22	22	38	38	36	25	17	10	9	5	2	0	1	0	233	0	0	0	0	0	233
08:00	9	3	4	3	8	14	20	33	21	20	24	12	12	12	8	3	1	0	0	0	0	198	0	0	0	0	0	198
09:00	3	0	2	8	7	14	19	17	32	39	22	20	20	14	4	6	0	2	0	0	0	209	0	0	0	0	0	209
10:00	2	2	2	4	1	4	15	20	25	27	29	14	12	9	3	0	0	0	0	0	0	169	0	0	0	0	0	169
11:00	3	0	5	3	7	7	13	24	27	43	30	14	11	4	3	1	0	0	0	0	0	195	0	0	0	0	0	195
12 PM	2	2	2	4	10	16	27	29	34	33	17	9	11	6	8	5	0	0	0	1	0	216	0	0	0	0	0	216
13:00	5	3	1	3	6	12	12	29	24	32	21	13	10	6	1	1	1	0	0	0	180	0	0	0	0	0	0	180
14:00	4	6	4	4	10	14	18	32	46	31	15	9	13	4	2	0	1	1	0	0	214	0	0	0	0	0	0	214
15:00	2	7	2	7	5	5	8	11	16	15	18	13	8	2	3	2	2	0	0	0	126	0	0	0	0	0	0	126
16:00	1	2	3	3	1	3	7	6	18	12	9	7	10	5	10	5	1	0	0	1	0	94	0	0	0	0	0	94
17:00	4	1	6	1	4	2	4	8	15	15	18	10	6	6	4	1	0	0	0	2	107	0	0	0	0	0	0	107
18:00	1	4	3	4	2	5	6	7	9	16	10	12	8	8	3	3	1	1	0	1	104	0	0	0	0	0	0	104
19:00	2	1	3	6	1	1	1	4	6	10	7	6	5	6	9	3	6	0	0	0	76	0	0	0	0	0	0	76
20:00	2	4	0	0	1	1	4	5	8	11	7	8	7	2	3	3	0	0	0	0	66	0	0	0	0	0	0	66
21:00	1	0	2	1	1	1	0	2	5	5	5	6	8	4	1	1	0	0	0	0	42	0	0	0	0	0	0	42
22:00	0	0	0	2	1	1	0	3	1	3	4	3	4	3	3	2	0	0	0	0	27	0	0	0	0	0	0	27
23:00	2	0	0	0	1	1	0	0	1	1	1	1	1	1	0	0	0	0	0	0	8	0	0	0	0	0	0	8
Total	46	36	39	54	73	120	190	283	375	378	298	205	164	107	68	34	13	3	3	5	2494							
Percentage	1.8%	1.4%	1.6%	2.2%	2.9%	4.8%	7.6%	11.3%	15.0%	15.2%	11.9%	8.2%	6.6%	4.3%	2.7%	1.4%	0.5%	0.1%	0.1%	0.2%								
Statistical C	15th Percentile : 41 MPH																											

MEACHAM RD- LANDFILL D/W to STONY PT. RD

SOUTHBOUND		Site Code: 2 meacham-s																															
		1	31	33	35	37	39	41	43	44	45	46	47	48	49	51	52	53	54	55	56	57	58	59	61	62	63	64	65	66	67	Hour	
Start	Time	30	32	34	36	38	40	42	44	46	48	50	51	52	53	54	55	56	57	58	60	62	64	66	9999	Total							
577/10		0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	4						
01:00		0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	1	1	1	0	0	0	0	0	5						
02:00		0	0	0	0	0	0	0	0	2	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	5						
03:00		0	0	0	0	0	0	0	0	2	0	0	1	0	0	2	0	2	0	0	0	0	0	0	0	0	5						
04:00		0	0	0	0	1	0	0	0	2	0	1	0	1	0	0	0	0	1	1	0	0	0	0	0	0	6						
05:00		0	0	0	0	0	3	1	3	7	5	3	3	3	3	3	1	3	1	3	2	0	0	0	0	0	34						
06:00		2	1	1	1	0	7	21	25	24	24	19	13	14	14	8	8	5	2	1	0	0	0	0	0	1	177						
07:00		6	0	2	0	15	3	20	32	32	31	42	19	13	6	5	3	0	0	0	0	0	0	0	0	0	229						
08:00		1	2	5	3	6	13	12	23	38	23	19	18	11	9	6	4	2	1	0	0	0	0	0	0	0	196						
09:00		7	0	2	2	4	14	19	16	27	38	33	17	8	6	1	3	1	0	0	0	0	0	0	0	0	198						
10:00		1	0	4	1	3	12	24	28	31	26	18	23	10	6	5	1	0	0	0	0	0	0	0	0	0	193						
11:00		3	2	4	5	9	10	18	29	39	31	18	15	10	9	4	2	1	0	0	0	0	0	0	0	0	209						
12 PM		7	3	2	1	9	6	12	27	26	37	22	10	11	4	5	0	1	0	0	0	0	0	0	0	0	184						
13:00		0	3	3	5	20	21	34	31	36	25	26	11	7	3	4	0	0	0	0	0	0	0	0	0	0	229						
14:00		1	0	4	4	7	11	10	35	24	31	24	25	14	8	3	4	0	0	0	0	0	0	0	0	0	205						
15:00		0	3	3	7	2	6	5	14	16	15	16	18	8	3	4	1	2	0	0	0	0	0	0	0	0	124						
16:00		4	4	4	2	2	2	8	12	15	22	12	9	11	5	4	0	3	0	1	0	0	0	0	0	0	120						
17:00		1	1	5	5	1	5	8	11	14	11	21	16	7	4	3	1	2	0	0	0	0	0	0	0	0	116						
18:00		2	3	2	5	4	4	2	9	9	15	5	8	4	9	5	1	1	0	0	0	0	0	0	0	0	89						
19:00		5	1	2	4	1	2	6	9	8	7	7	10	7	6	0	1	1	0	0	0	0	0	0	0	0	78						
20:00		10	3	4	2	2	5	7	8	8	7	3	4	7	2	1	1	1	0	0	0	0	0	0	0	0	76						
21:00		3	2	0	2	1	1	6	9	6	6	8	5	7	0	1	0	0	0	0	0	0	0	0	0	0	58						
22:00		3	1	1	0	0	2	3	9	3	2	4	1	5	3	0	0	0	0	0	0	0	0	0	0	0	38						
23:00		1	0	1	0	1	2	0	0	2	4	3	0	2	1	2	1	2	0	0	0	0	0	0	0	0	20						
Total		57	29	49	50	88	129	216	332	371	360	307	228	160	95	67	31	17	5	3	4	2598											
Percentage		2.2%	1.1%	1.9%	1.9%	3.4%	5.0%	8.3%	12.8%	14.3%	13.9%	11.8%	8.8%	6.2%	3.7%	2.6%	1.2%	0.7%	0.2%	0.1%	0.2%												
Statistical C		15th Percentile : 40 MPH																															

## CITY OF PETALUMA

SOUTHBOUND		Site Code: 2 meacham-s																							
		1	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	Hour			
Start Time	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	9999	Total				
5/8/10	0	0	1	0	0	0	1	1	1	2	3	0	1	3	1	0	0	0	0	0	1	15			
01:00	0	0	0	0	0	1	2	1	0	2	2	0	1	0	0	0	0	0	0	0	0	9			
02:00	0	0	1	0	0	0	0	1	1	2	0	0	1	0	0	1	0	0	0	0	7				
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1				
04:00	0	0	0	0	0	0	1	0	0	1	2	1	0	0	0	1	0	0	0	0	6				
05:00	0	1	0	0	0	0	0	1	0	0	0	4	1	1	0	1	2	0	0	0	11				
06:00	0	1	1	0	2	7	7	7	8	5	2	4	3	2	4	3	0	1	0	0	57				
07:00	0	0	1	0	3	5	13	16	18	20	14	9	6	4	4	0	0	0	3	1	117				
08:00	0	3	3	6	10	8	19	18	24	24	13	13	7	9	1	3	2	1	0	1	157				
09:00	0	1	7	7	8	6	14	26	29	22	27	18	12	5	1	1	0	0	1	1	186				
10:00	4	2	1	3	6	16	19	23	46	33	32	24	11	3	3	3	0	0	0	0	229				
11:00	4	6	7	5	7	13	30	41	47	34	25	16	7	6	2	2	2	0	0	0	254				
12 PM	0	4	6	7	7	7	25	32	28	37	35	16	15	9	3	3	0	0	0	0	234				
13:00	9	4	6	5	12	17	18	38	38	41	30	14	15	13	7	2	1	0	0	0	270				
14:00	7	8	11	8	14	18	12	31	39	31	28	20	18	9	6	2	1	0	0	0	263				
15:00	3	1	3	7	6	1	11	11	27	20	9	14	7	2	2	0	0	0	0	0	124				
16:00	3	0	1	5	3	6	2	2	13	13	8	13	6	7	4	1	0	0	1	1	89				
17:00	0	3	3	3	4	1	5	9	12	13	16	14	6	8	2	1	1	1	2	0	104				
18:00	1	3	2	0	5	3	4	4	4	10	14	6	4	1	5	2	2	1	0	0	71				
19:00	0	1	1	1	2	0	2	5	5	5	8	7	5	3	5	1	2	1	0	0	54				
20:00	1	2	1	1	1	3	0	7	3	7	3	3	3	2	2	1	0	1	2	0	47				
21:00	1	1	2	2	1	3	10	15	7	10	2	7	4	0	1	0	1	0	1	1	69				
22:00	6	2	3	3	3	2	2	6	5	4	5	2	5	4	0	1	0	0	0	0	53				
23:00	1	0	0	0	0	2	3	8	7	5	3	2	6	0	0	0	0	0	0	0	37				
Total	40	43	61	63	96	116	207	299	356	341	281	207	144	92	53	29	14	6	10	6	2464				
Percentage	1.6%	1.7%	2.5%	2.6%	3.9%	4.7%	8.4%	12.1%	14.4%	13.8%	11.4%	8.4%	5.8%	3.7%	2.2%	1.2%	0.6%	0.2%	0.4%	0.2%					
Statistical C	15th Percentile : 40 MPH																								

## CITY OF PETALUMA

SOUTHBOUND		Site Code: 2																							meacham-s	
		1	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	Hour	Total			
Start Time	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	9999	0	14				
5/9/10	1	0	0	0	0	0	1	1	3	3	0	1	2	2	0	0	0	0	0	0	0	0				
01:00	0	0	0	1	0	0	1	0	0	0	1	1	0	0	1	0	1	0	0	0	0	6				
02:00	0	0	0	0	1	1	0	3	0	2	1	0	0	0	0	2	0	0	0	0	0	10				
03:00	1	0	0	0	0	0	1	0	0	0	1	1	0	1	1	0	0	0	0	0	0	6				
04:00	0	0	0	0	0	0	1	0	3	0	0	1	0	0	0	0	0	0	0	0	0	5				
05:00	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	1	0	0	1	0	0	6				
06:00	0	0	0	0	0	0	1	2	3	3	2	0	3	2	0	2	0	0	0	0	0	18				
07:00	1	0	0	3	0	2	7	4	5	5	6	4	4	3	2	1	1	1	1	1	1	46				
08:00	2	0	1	1	2	3	4	5	11	9	10	5	4	0	1	2	0	0	0	0	1	61				
09:00	2	1	3	1	3	1	4	5	8	8	5	6	11	5	1	2	0	0	0	0	1	67				
10:00	0	1	2	4	2	0	3	9	12	13	10	10	6	7	2	1	0	1	0	0	0	83				
11:00	1	2	1	5	0	5	3	9	14	14	8	10	14	6	3	0	2	3	0	0	0	89				
12 PM	0	2	2	3	3	3	3	7	18	14	12	17	9	5	5	0	4	1	0	0	0	108				
13:00	1	1	4	2	4	7	7	16	14	14	11	10	6	7	4	0	2	0	0	0	0	110				
14:00	2	0	1	3	5	7	4	19	21	14	6	5	5	3	4	2	1	0	0	0	1	103				
15:00	3	2	3	2	3	6	11	17	19	14	5	5	8	4	0	0	0	0	0	0	0	102				
16:00	0	1	3	5	5	1	5	5	8	9	12	13	7	6	4	1	1	1	0	0	0	97				
17:00	2	1	2	4	3	1	5	5	15	12	12	5	9	4	1	1	0	0	2	0	0	84				
18:00	4	2	2	1	1	1	1	3	9	13	8	6	8	8	1	1	0	1	0	1	0	71				
19:00	1	2	4	2	6	7	2	7	6	8	11	5	5	2	3	1	1	0	0	0	1	74				
20:00	0	0	0	1	2	3	4	4	9	8	7	4	1	2	1	0	0	0	0	0	1	47				
21:00	1	2	2	1	1	4	1	5	7	1	1	2	3	1	1	1	1	0	0	0	0	35				
22:00	0	0	0	0	0	1	1	2	4	4	3	2	1	1	0	1	0	0	0	0	0	21				
23:00	1	0	0	0	1	0	2	2	0	1	1	0	0	0	0	0	0	0	0	0	0	8				
Total	23	17	30	39	42	53	67	129	185	173	136	113	107	70	35	20	13	8	4	7	1271					
Percentage	1.8%	1.3%	2.4%	3.1%	3.3%	4.2%	5.3%	10.1%	14.6%	13.6%	10.7%	8.9%	8.4%	5.5%	2.8%	1.6%	1.0%	0.6%	0.3%	0.6%						
Statistical C	15th Percentile : 40 MPH																									

## CITY OF PETALUMA

SOUTHBOUND																			Site Code: 2 meacham-s									
1	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	Hour								
Start	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	9999	Total							
5/10/1	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	3							
01:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1							
02:00	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	3							
03:00	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	1	0	0	0	0	4							
04:00	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0	1	0	5							
05:00	1	1	0	0	0	3	3	1	6	7	8	4	3	2	2	0	0	0	0	0	41							
06:00	1	1	3	3	0	5	18	28	18	24	18	14	14	9	2	2	0	2	1	0	163							
07:00	0	0	0	1	3	19	30	35	41	38	37	19	6	9	7	3	1	0	0	0	249							
08:00	3	3	3	2	4	10	16	22	29	36	19	20	6	2	1	1	1	0	0	0	178							
09:00	1	0	4	4	11	13	17	29	35	28	10	14	5	0	0	1	1	0	0	0	170							
10:00	0	1	2	3	5	11	23	24	26	27	23	11	3	3	3	0	0	0	0	0	164							
11:00	4	1	1	0	4	14	17	20	22	30	18	11	5	4	2	1	2	1	0	1	158							
12 PM	3	3	3	5	8	13	16	25	23	16	19	12	6	7	1	4	0	0	0	0	164							
13:00	0	3	1	4	4	11	21	24	22	20	21	13	8	6	3	3	0	0	0	0	189							
14:00	4	3	7	5	3	8	21	37	23	20	23	19	7	4	1	3	0	1	0	0	127							
15:00	2	2	4	0	6	4	5	16	15	14	20	15	6	9	3	3	3	0	0	0	104							
16:00	4	2	3	1	1	4	9	15	17	11	11	4	7	8	3	3	1	0	0	0	105							
17:00	2	3	9	6	2	6	6	13	12	12	9	10	9	5	4	3	0	0	0	0	82							
18:00	0	3	1	4	2	4	2	6	7	14	11	12	9	3	3	0	0	0	0	1	65							
19:00	1	1	0	1	0	2	6	5	8	8	10	2	5	3	8	2	1	2	0	0	38							
20:00	1	1	3	1	1	2	1	2	4	5	6	3	2	4	2	0	0	0	0	0	42							
21:00	0	0	3	1	0	1	3	3	6	7	9	4	2	1	2	0	0	0	0	0	26							
22:00	1	1	0	0	0	4	4	1	3	0	4	2	2	0	1	1	2	0	0	0	13							
23:00	0	0	0	0	0	2	1	3	0	0	2	3	1	1	0	0	1	0	0	0	2258							
Total	28	30	43	41	54	136	221	300	321	318	280	195	108	80	49	31	12	7	2	2	2258							

[illegible]

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL DW to STONY PT. RD

SOUTHBOUND  
Start Time 5/11/11  
Site Code: 2  
meacham-s

SOUTHBOUND																														meacham-	
Start	1	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	Hour										
Time	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	9999	Total										
5/11/1	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	3										
01:00	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	3										
02:00	0	0	0	1	0	1	1	0	0	0	0	1	0	0	1	0	0	0	0	0	5										
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2										
04:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	2	0	0	0	5										
05:00	0	1	0	0	1	2	2	5	9	2	8	1	5	5	5	0	1	1	0	0	47										
06:00	1	0	0	0	2	10	7	17	28	21	16	17	21	13	10	6	1	2	1	3	179										
07:00	0	1	0	0	2	4	7	18	39	52	42	31	29	15	10	4	2	2	1	2	261										
08:00	2	3	2	2	3	5	17	28	31	15	27	16	10	5	5	2	0	0	0	0	173										
09:00	5	4	3	1	6	12	18	28	30	32	24	17	11	6	4	2	0	0	0	0	203										
10:00	1	0	2	3	6	9	24	32	28	25	19	7	5	7	2	0	1	0	0	0	171										
11:00	2	2	5	9	12	6	21	38	32	19	8	11	3	2	0	0	0	0	0	0	170										
12 PM	5	1	4	11	14	27	40	36	32	24	9	11	3	4	1	2	0	0	0	0	224										
13:00	2	3	4	7	8	13	34	40	31	25	19	13	8	3	4	1	0	1	0	0	216										
14:00	1	2	0	6	5	7	15	24	33	33	24	16	11	6	4	0	0	0	0	0	187										
15:00	5	0	5	3	9	5	12	15	9	19	15	13	10	4	1	0	0	0	0	0	127										
16:00	1	2	2	2	2	2	8	16	10	18	13	7	7	5	1	0	0	1	2	0	99										
17:00	4	1	2	2	6	4	2	9	24	14	12	13	6	8	4	1	0	0	0	1	113										
18:00	1	3	3	3	2	5	2	4	12	15	11	8	7	7	6	3	2	0	0	1	95										
19:00	1	1	2	6	3	2	2	10	7	8	17	6	9	3	2	0	0	1	0	1	81										
20:00	11	0	0	0	1	4	4	6	3	7	5	5	2	1	0	1	0	1	0	0	57										
21:00	3	0	2	1	0	3	5	5	6	11	8	2	6	3	0	1	1	0	0	0	51										
22:00	2	1	0	1	0	0	1	1	3	4	4	2	2	2	2	0	0	0	0	0	25										
23:00	0	1	1	0	0	0	0	0	2	0	2	1	2	1	2	0	0	0	0	0	14										
Total	47	26	37	61	82	121	225	332	370	345	283	200	159	100	64	25	10	8	6	9	2510										

Perce ntage Statisti c	1.9%	1.0%	1.5%	2.4%	3.3%	4.8%	9.0%	13.2%	14.7%	13.7%	11.3%	8.0%	6.3%	4.0%	2.5%	1.0%	0.4%	0.3%	0.2%	0.4%
------------------------	------	------	------	------	------	------	------	-------	-------	-------	-------	------	------	------	------	------	------	------	------	------

15th Percentile : 41 MPH  
50th Percentile : 46 MPH  
85th Percentile : 53 MPH  
95th Percentile : 56 MPH  
  
Mean Speed(Average) : 46 MPH  
10 MPH Pace Speed : 41-50 MPH  
Number in Pace : 1555  
Percent in Pace : 62.0%  
Number of Vehicles > 45 MPH : 1394  
Percent of Vehicles > 45 MPH : 55.5%

# MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL DW to STONY PT. RD

SOUTHBOUND  
Start Time 5/12/1  
Site Code: 2  
meacham-s

SOUTHBOUND		meacham-																													
1	31	33	35	37	38	39	41	43	44	45	46	47	48	49	51	52	53	54	55	56	57	58	59	61	63	64	65	66	67	Hour	
Start	Time	30	32	34	36	40	42	44	46	48	50	52	54	56	60	62	64	66	9999	Total											
5/12/1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
02:00	0	0	0	0	0	1	0	0	1	0	1	1	1	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	6	
03:00	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	1	2	0	0	0	0	6	
04:00	0	0	0	0	0	0	1	1	0	0	0	0	1	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	4	
05:00	0	0	0	1	0	0	4	2	5	1	2	2	6	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	25	
06:00	0	0	0	0	1	1	5	31	34	29	25	21	18	9	10	2	0	0	0	0	10	2	0	0	0	0	0	0	0	4	
07:00	2	2	4	0	5	4	13	32	53	24	32	27	22	8	7	7	2	1	0	8	7	7	2	1	0	0	0	0	1	190	
08:00	0	1	1	3	6	5	11	29	28	23	24	7	12	4	5	2	0	0	0	4	5	2	0	0	1	0	0	0	0	162	
09:00	2	1	3	5	4	11	17	22	27	17	14	11	10	4	0	1	0	0	0	4	0	1	0	0	0	0	0	0	0	150	
10:00	0	2	3	5	11	6	17	33	27	21	17	11	9	3	3	0	0	0	0	3	3	0	0	0	0	0	0	0	0	168	
11:00	3	1	0	8	3	7	14	21	27	31	35	15	7	7	5	0	0	0	0	7	5	0	0	0	0	1	0	0	0	186	
12 PM	4	2	7	2	4	18	10	22	28	27	36	16	6	9	4	0	0	0	0	9	4	0	0	0	0	0	0	0	0	195	
13:00	5	2	7	8	6	9	21	29	27	24	18	10	6	5	2	1	0	0	0	5	2	1	0	0	0	0	0	0	0	180	
14:00	3	3	2	3	7	17	19	22	32	32	22	15	12	2	3	0	0	0	0	2	3	0	0	0	0	0	0	0	0	194	
15:00	3	0	2	4	1	3	11	12	12	16	15	13	13	5	3	2	0	0	0	3	3	2	0	0	0	0	0	0	0	115	
16:00	4	1	5	3	6	5	12	9	16	17	8	6	6	6	3	1	1	0	0	6	3	1	1	0	0	0	0	0	0	109	
17:00	3	1	6	8	6	2	5	7	16	14	6	16	9	5	3	4	1	0	0	5	3	4	1	1	0	0	0	0	0	114	
18:00	2	2	2	2	4	4	3	10	16	7	7	11	8	6	3	2	1	0	0	6	3	2	1	0	0	0	0	0	0	90	
19:00	2	1	3	3	4	2	5	11	7	8	10	8	4	4	2	1	0	0	0	4	2	1	0	0	0	0	0	0	0	76	
20:00	3	0	1	0	3	4	3	13	9	7	7	5	2	2	2	1	0	0	0	2	2	2	1	0	0	0	0	0	0	64	
21:00	3	0	0	1	1	5	2	6	6	9	2	7	4	3	2	1	0	0	0	3	2	1	0	0	0	0	0	0	0	52	
22:00	4	0	0	0	1	0	4	1	2	3	2	4	3	1	1	2	0	0	0	1	1	1	2	0	0	0	0	0	0	29	
23:00	0	0	1	0	0	0	0	2	1	3	1	0	1	1	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	11
Total	44	19	47	57	72	108	174	317	375	314	286	206	158	86	60	30	7	7	1	86	60	30	7	7	7	1	1	8	2376		

Perce ntage	1.9%	0.8%	2.0%	2.4%	3.0%	4.5%	7.3%	13.3%	15.8%	13.2%	12.0%	8.7%	6.6%	3.6%	2.5%	1.3%	0.3%	0.3%	0.0%	0.3%
Statisti c																				

15th Percentile : 41 MPH  
50th Percentile : 46 MPH  
85th Percentile : 53 MPH  
95th Percentile : 56 MPH  
Mean Speed(Average) : 46 MPH  
10 MPH Pace Speed : 43-52 MPH  
Number in Pace : 1498  
Percent in Pace : 63.0%  
Number of Vehicles > 45 MPH : 1350  
Percent of Vehicles > 45 MPH : 56.8%





MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL DW to STONY PT. RD

SOUTHBOUND Site Code: 2  
meacham-s

Start Time	1	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	Hour Total
5/14/1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
05:00	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	166
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	212
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	184
09:00	2	1	6	9	20	22	32	29	26	17	11	8	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	186
10:00	1	3	3	1	6	12	21	38	21	28	16	11	4	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	172
11:00	1	2	2	10	9	11	26	39	32	30	23	13	4	2	3	2	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	209
12 PM	6	2	5	7	6	19	22	37	26	27	21	13	4	5	2	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206
13:00	11	2	4	6	9	23	26	30	34	15	26	15	8	8	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	222
14:00	0	1	1	9	10	21	23	35	34	30	32	9	11	13	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	233
15:00	1	3	2	2	2	4	6	9	11	18	16	23	20	7	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	130
16:00	4	2	6	3	2	3	7	12	21	8	8	3	5	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	92
17:00	2	0	1	4	5	4	10	12	14	17	17	10	11	9	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120
18:00	0	8	2	5	5	3	4	10	10	12	10	10	5	5	3	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	98
19:00	5	5	2	4	3	1	0	10	7	10	12	11	2	3	0	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80
20:00	0	1	1	0	2	4	8	15	10	14	12	3	5	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80
21:00	4	2	1	1	1	2	5	5	5	5	6	5	9	5	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59
22:00	0	0	1	1	2	1	1	5	1	5	10	6	2	2	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
23:00	0	0	2	2	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
Total	38	32	45	71	98	164	249	352	354	338	303	216	128	91	44	25	17	8	6	1	2580																		

Percentage	1.5%	1.2%	1.7%	2.8%	3.8%	6.4%	9.7%	13.6%	13.7%	13.1%	11.7%	8.4%	5.0%	3.5%	1.7%	1.0%	0.7%	0.3%	0.2%	0.0%
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Statistic	15th Percentile :	40 MPH
	50th Percentile :	46 MPH
	85th Percentile :	52 MPH
	95th Percentile :	56 MPH
	Mean Speed(Average) :	46 MPH
	10 MPH Pace Speed :	41-50 MPH
	Number in Pace :	1596
	Percent in Pace :	61.9%
	Number of Vehicles > 45 MPH :	1354
	Percent of Vehicles > 45 MPH :	52.5%



## CITY OF PETALUMA

[illegible]

MARKS TRAFFIC DATA

CITY OF PETALUMA  
MEACHAM RD- LANDFILL DW to STONY PT. RD

SOUTHBOUND  
Site Code: 2  
meacham-s

SOUTHBOUND																														meacham-		
Start	1	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	Hour											
Time	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	9999	Total											
5/17/1	0	0	0	0	0	0	0	1	1	1	0	1	0	0	1	0	0	0	0	0	5											
01:00	1	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	5											
02:00	0	0	0	0	0	0	1	2	0	0	0	0	0	0	1	0	0	0	0	0	4											
03:00	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2											
04:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2											
05:00	0	0	0	0	0	0	3	2	5	4	5	3	4	0	2	0	1	0	2	1	32											
06:00	0	1	2	0	2	2	10	16	30	25	26	19	14	8	4	3	0	3	1	1	167											
07:00	3	2	2	0	4	6	14	25	37	28	27	15	18	14	7	10	3	1	0	0	216											
08:00	5	4	2	6	8	17	18	26	16	21	18	5	7	3	3	0	2	1	0	0	162											
09:00	4	4	5	2	12	16	23	31	33	19	4	8	6	3	3	0	0	0	0	0	173											
10:00	0	0	3	1	13	25	33	42	24	12	9	6	1	0	1	0	0	0	0	0	170											
11:00	0	3	1	0	10	12	23	29	31	26	10	7	8	1	4	0	1	0	0	0	166											
12 PM	4	6	3	5	16	20	20	23	27	16	7	4	3	1	0	1	0	0	0	0	156											
13:00	0	0	0	1	9	18	23	25	27	19	9	11	5	3	0	1	1	1	0	0	153											
14:00	1	4	6	3	8	9	18	26	21	15	14	18	9	3	2	1	2	1	0	0	161											
15:00	0	1	2	1	5	3	6	11	15	16	15	13	8	7	4	2	1	1	0	0	111											
16:00	2	1	2	3	2	5	7	9	11	8	10	5	6	9	2	2	1	0	0	0	85											
17:00	11	6	3	10	5	4	4	6	11	9	8	7	4	2	2	4	1	1	0	0	98											
18:00	4	1	6	5	2	5	3	7	10	14	9	15	12	7	4	2	2	1	0	0	109											
19:00	3	1	2	1	10	5	2	4	12	9	6	5	4	4	1	1	1	2	1	0	74											
20:00	2	3	2	0	1	3	2	8	6	7	14	3	7	5	0	0	0	0	0	0	63											
21:00	1	1	1	0	1	0	3	5	8	5	4	4	3	1	2	0	0	0	1	0	40											
22:00	0	0	0	0	1	4	0	3	3	3	3	5	0	2	1	0	1	0	0	0	25											
23:00	0	1	0	0	0	0	0	2	2	2	2	2	1	1	1	0	0	0	1	0	16											
Total	41	40	43	38	109	154	213	303	331	260	201	157	120	75	46	27	17	12	6	2	2195											

Percentage	1.9%	1.8%	2.0%	1.7%	5.0%	7.0%	9.7%	13.8%	15.1%	11.8%	9.2%	7.2%	5.5%	3.4%	2.1%	1.2%	0.8%	0.5%	0.3%	0.1%
Statistics																				

## CITY OF PETALUMA

[illegible]

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stony-n

NORTHBOUND		1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour
Start	Time	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999	Total
	5/5/10	1	0	0	0	0	1	2	0	4	5	1	4	2	1	1	4	0	1	0	1	27
	01:00	0	0	0	0	1	0	1	1	0	3	3	3	3	1	0	1	0	0	0	0	14
	02:00	0	0	0	0	1	0	0	1	0	3	0	2	1	1	0	0	0	0	0	0	9
	03:00	0	0	0	0	0	0	0	0	1	1	2	1	0	0	0	0	0	0	0	0	5
	04:00	0	0	0	0	0	0	0	0	0	5	4	2	2	2	0	0	0	0	0	0	15
	05:00	0	0	0	0	0	1	0	3	3	9	5	6	2	1	1	2	1	0	0	0	34
	06:00	0	0	0	0	1	2	7	11	14	21	18	24	17	7	5	1	1	0	1	0	130
	07:00	0	0	1	0	1	2	9	18	46	62	76	56	31	23	4	0	0	0	1	0	330
	08:00	0	0	0	0	1	11	25	49	54	83	76	74	57	29	15	5	3	0	1	0	483
	09:00	1	0	0	1	3	12	42	68	64	85	48	26	18	9	1	1	1	0	0	0	380
	10:00	0	0	0	0	3	12	24	39	50	77	66	42	31	11	3	5	1	1	1	1	367
	11:00	0	0	0	0	1	3	15	22	40	87	73	42	28	16	5	4	0	0	0	0	415
	12 PM	0	0	0	0	1	11	24	51	65	80	72	48	33	20	5	1	1	0	0	0	412
	13:00	0	0	0	3	6	12	40	52	90	90	75	55	26	20	9	1	5	2	0	0	486
	14:00	0	0	5	3	11	22	25	64	78	99	117	84	49	25	10	3	0	1	0	0	596
	15:00	4	1	2	0	2	16	35	55	98	145	142	117	57	26	12	5	4	2	0	0	723
	16:00	2	0	0	0	0	0	36	51	112	180	205	146	92	45	22	5	1	0	0	2	899
	17:00	2	1	0	1	2	5	13	30	86	192	192	162	126	61	29	15	5	0	0	0	922
	18:00	0	0	0	0	0	2	5	15	35	75	90	111	92	49	24	10	1	1	0	2	512
	19:00	0	0	0	0	1	2	1	10	26	47	52	60	53	25	13	6	3	0	1	1	301
	20:00	0	0	0	0	2	4	6	18	33	29	33	31	13	11	4	1	1	0	0	0	186
	21:00	0	0	0	0	1	6	12	17	18	28	31	12	13	6	3	2	2	0	0	0	151
	22:00	0	0	0	0	0	2	4	9	9	13	10	14	12	5	3	0	0	0	0	1	82
	23:00	0	0	0	0	0	1	2	1	5	5	6	1	6	0	2	0	1	0	0	0	30
Total		10	2	8	9	38	129	305	577	982	1395	1434	1145	770	402	180	71	31	8	5	8	7509

Percentage	0.1%	0.0%	0.1%	0.1%	0.5%	1.7%	4.1%	7.7%	13.1%	18.6%	19.1%	15.2%	10.3%	5.4%	2.4%	0.9%	0.4%	0.1%	0.1%	0.1%
Statistic																				
C	15th Percentile :	50 MPH																		
	50th Percentile :	54 MPH																		
	85th Percentile :	58 MPH																		
	95th Percentile :	61 MPH																		

Mean Speed(Average) : 54 MPH  
10 MPH Pace Speed : 50-59 MPH  
Number in Pace : 5726  
Percent in Pace : 76.3%  
Number of Vehicles > 55 MPH : 2615  
Percent of Vehicles > 55 MPH : 34.8%

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stony-n

NORTHBOUND		1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour
Start	Time	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999	Total
5/6/10	0	0	1	0	0	0	0	2	4	6	3	3	2	3	0	0	3	1	0	0	1	29
01:00	0	0	0	1	0	0	0	0	3	0	1	2	4	2	1	1	1	0	0	0	1	17
02:00	0	0	0	0	0	0	0	0	0	1	1	0	2	5	0	0	1	0	0	0	1	11
03:00	0	0	0	0	0	0	0	0	0	0	3	1	1	3	0	0	0	0	1	0	0	9
04:00	0	0	0	0	0	0	0	0	0	1	2	3	2	2	1	1	0	0	0	0	0	12
05:00	0	0	0	0	0	0	0	3	6	2	7	6	4	3	2	5	1	0	0	0	0	39
06:00	0	0	0	0	1	0	4	7	11	11	25	21	17	14	14	6	2	3	1	0	1	127
07:00	0	0	2	0	1	3	11	31	53	53	56	53	50	42	15	12	8	1	1	0	0	339
08:00	0	0	1	2	5	10	30	37	57	57	107	65	77	33	17	10	0	0	1	0	1	453
09:00	2	0	0	0	6	5	31	45	43	74	68	39	25	13	3	3	4	2	1	0	0	361
10:00	0	2	0	1	3	4	14	32	76	75	67	42	25	5	2	4	0	0	0	0	0	352
11:00	0	0	0	3	4	15	36	43	59	59	83	66	60	28	15	10	2	0	0	0	1	425
12 PM	2	0	2	3	4	20	23	70	64	77	78	58	31	19	11	3	1	0	0	0	0	466
13:00	0	1	1	6	9	11	25	36	60	60	86	87	67	38	21	11	2	3	1	0	1	466
14:00	5	7	11	32	31	41	70	81	107	81	81	62	45	40	6	1	2	1	0	0	0	623
15:00	17	4	2	8	10	30	54	64	125	119	145	119	107	38	19	9	4	1	0	0	0	757
16:00	3	0	1	0	2	8	27	83	150	235	213	138	66	31	10	5	1	0	0	0	0	973
17:00	0	0	0	1	2	3	22	51	148	200	218	172	88	31	14	7	2	1	0	0	0	960
18:00	0	0	0	0	1	0	5	18	41	73	121	161	62	75	47	18	6	2	0	0	0	569
19:00	0	0	0	0	0	0	0	0	7	22	48	64	61	32	24	18	4	4	1	0	1	286
20:00	0	0	0	0	2	7	12	13	32	34	45	34	33	16	10	2	3	2	1	0	0	212
21:00	0	0	0	2	1	5	10	20	24	27	24	12	6	5	4	0	1	1	0	0	0	136
22:00	0	0	0	0	1	6	5	5	6	14	18	11	6	9	4	2	0	1	0	0	0	83
23:00	0	0	0	0	1	1	2	6	6	4	11	7	4	7	2	1	0	1	0	0	1	48
Total	29	14	21	60	83	169	386	663	1100	1483	1393	1165	630	301	147	63	27	10	0	0	9	7753

Percentage	0.4%	0.2%	0.3%	0.8%	1.1%	2.2%	5.0%	8.6%	14.2%	19.1%	18.0%	15.0%	8.1%	3.9%	1.9%	0.8%	0.3%	0.1%	0.0%	0.1%
Statistic																				
C	15th Percentile :					49 MPH														
	50th Percentile :					53 MPH														
	85th Percentile :					58 MPH														
	95th Percentile :					61 MPH														

Mean Speed(Average) : 53 MPH  
10 MPH Pace Speed : 48-57 MPH  
Number in Pace : 5804  
Percent in Pace : 74.9%  
Number of Vehicles > 55 MPH : 2352  
Percent of Vehicles > 55 MPH : 30.3%



MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stony-n

NORTHBOUND		1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour
Start Time	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999	Total	
5/7/10	0	0	0	0	0	3	2	2	3	5	3	2	2	2	0	1	0	1	0	0	0	24
01:00	0	0	0	0	1	0	1	0	1	5	2	3	0	4	0	0	0	0	0	0	0	17
02:00	0	0	0	0	0	1	0	1	0	3	4	1	1	1	1	0	0	0	0	0	0	12
03:00	0	0	0	0	0	0	0	2	4	5	0	5	0	0	1	0	0	0	0	0	0	17
04:00	0	0	0	0	1	1	0	2	0	1	3	1	1	0	0	1	2	0	1	0	1	13
05:00	0	0	0	0	0	0	0	1	1	5	4	8	3	5	1	0	0	0	0	0	1	29
06:00	1	0	0	0	2	1	6	7	14	23	23	20	16	9	5	4	1	2	0	0	0	134
07:00	0	1	0	0	2	1	6	21	34	67	60	54	29	22	7	2	1	0	0	0	1	308
08:00	0	0	0	2	4	2	15	41	71	69	85	59	40	18	16	3	3	2	1	0	0	431
09:00	1	0	0	0	0	7	9	23	50	75	93	54	31	13	5	5	1	2	0	0	0	369
10:00	0	0	0	0	2	8	19	57	73	93	70	43	39	17	4	6	0	0	0	0	0	431
11:00	1	0	0	0	1	8	24	47	69	85	66	67	47	20	13	3	2	3	0	0	0	456
12 PM	0	1	0	0	2	3	27	39	77	97	94	68	49	21	6	3	1	1	0	2	0	491
13:00	0	0	0	2	4	25	41	71	72	94	105	96	57	25	6	3	2	2	1	0	0	606
14:00	0	0	1	0	1	21	39	78	128	147	136	111	62	33	8	6	3	1	0	0	0	775
15:00	5	4	10	4	10	26	57	129	210	232	201	119	57	29	10	5	1	0	1	0	0	1110
16:00	3	4	3	2	6	9	36	93	140	243	238	202	116	53	17	5	1	3	0	0	0	1174
17:00	1	0	0	0	1	4	9	56	115	187	258	228	115	41	23	9	5	2	0	1	0	1055
18:00	0	0	0	0	0	1	12	27	51	96	135	160	123	65	26	15	2	2	0	1	0	716
19:00	0	0	0	1	0	0	6	6	36	50	62	80	75	37	10	9	2	0	0	2	0	376
20:00	0	1	0	0	1	2	13	15	15	30	33	24	18	12	4	3	3	0	1	1	0	176
21:00	1	0	0	0	4	4	11	25	28	33	25	21	12	7	3	1	2	0	1	1	0	179
22:00	0	0	0	1	1	3	6	6	15	20	9	10	4	6	2	0	0	1	0	2	0	86
23:00	0	0	0	0	1	0	5	6	7	12	9	9	9	8	4	0	3	0	1	0	0	65

Percentage	0.1%	0.1%	0.2%	0.1%	0.5%	1.4%	3.8%	8.3%	13.4%	18.5%	19.0%	16.0%	10.0%	4.9%	1.8%	1.0%	0.4%	0.2%	0.1%	0.1%
Statistic																				
c	15th Percentile :										50 MPH									
	50th Percentile :										54 MPH									
	85th Percentile :										58 MPH									
	95th Percentile :										61 MPH									

Mean Speed(Average) : 54 MPH  
10 MPH Pace Speed : 50-59 MPH  
Number in Pace : 6958  
Percent in Pace : 76.9%  
Number of Vehicles > 55 MPH : 3112  
Percent of Vehicles > 55 MPH : 34.4%

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stony-n

NORTHBOUND		1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour
Start	Time	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999	Total
	5/8/10	0	0	0	0	0	0	2	4	4	4	7	8	9	6	0	0	0	0	0	0	44
	01:00	0	0	0	0	0	1	1	0	4	2	3	1	2	1	0	0	0	0	1	0	16
	02:00	1	0	0	0	0	0	0	0	4	1	3	3	3	0	0	0	0	0	0	0	15
	03:00	0	0	0	0	0	0	0	0	3	1	1	1	1	2	0	0	0	0	0	0	9
	04:00	0	0	0	0	0	0	0	1	2	2	0	1	1	1	0	0	0	0	1	0	9
	05:00	0	0	0	0	0	0	1	0	1	3	2	1	1	1	1	0	1	0	0	0	12
	06:00	0	0	0	0	0	1	0	7	14	7	6	9	8	6	7	2	5	0	0	1	73
	07:00	0	0	0	0	0	3	8	6	25	21	25	23	12	12	8	1	3	0	0	0	147
	08:00	0	0	0	0	0	7	7	21	36	48	31	35	35	16	8	2	3	3	1	0	253
	09:00	0	0	1	3	3	4	11	24	42	59	76	58	33	23	6	4	6	1	1	0	355
	10:00	0	1	0	0	4	9	26	45	66	102	109	84	32	17	9	3	1	0	0	0	508
	11:00	1	0	0	3	5	14	19	44	96	110	117	71	49	27	12	3	2	0	0	0	573
	12 PM	1	0	0	1	3	14	37	72	89	119	118	98	57	32	7	7	2	1	0	0	658
	13:00	0	0	0	5	2	28	39	69	103	104	106	97	74	36	13	3	3	0	0	1	683
	14:00	3	1	1	1	2	11	19	75	127	121	113	109	60	19	14	3	1	0	0	0	680
	15:00	9	4	0	5	7	12	29	62	91	153	152	111	53	34	16	4	2	0	0	0	744
	16:00	0	0	0	0	0	6	16	35	73	118	157	121	73	29	10	9	5	1	0	3	656
	17:00	1	1	2	0	2	1	4	11	43	58	80	80	72	33	22	8	2	0	0	0	420
	18:00	0	1	0	0	0	1	4	12	23	40	68	75	51	38	22	6	3	1	1	0	346
	19:00	0	0	0	0	1	3	4	12	25	50	52	48	41	19	16	4	1	4	0	0	280
	20:00	0	0	0	0	0	4	6	15	27	26	37	19	22	8	15	3	2	0	0	0	184
	21:00	0	0	0	0	0	2	2	19	24	22	30	21	12	4	0	4	1	1	0	0	142
	22:00	0	0	0	0	0	0	6	10	19	25	22	18	13	3	2	3	2	0	0	1	126
	23:00	2	0	0	0	0	2	3	6	4	16	14	8	4	7	2	1	1	0	0	1	71
Total		18	8	4	18	31	123	245	550	945	1212	1329	1100	718	373	190	70	46	12	5	7	7004

Perce	ntage	0.3%	0.1%	0.1%	0.3%	0.4%	1.8%	3.5%	7.9%	13.5%	17.3%	19.0%	15.7%	10.3%	5.3%	2.7%	1.0%	0.7%	0.2%	0.1%	0.1%
Statisti		c																			

15th Percentile : 50 MPH  
50th Percentile : 54 MPH  
85th Percentile : 59 MPH  
95th Percentile : 61 MPH

Mean Speed(Average) : 54 MPH  
10 MPH Pace Speed : 50-59 MPH  
Number in Pace : 5304  
Percent in Pace : 75.8%

Number of Vehicles > 55 MPH : 2516  
Percent of Vehicles > 55 MPH : 35.9%

## CITY OF PETALUMA

Mean Speed(Average) :	55 MPH
10 MPH Pace Speed :	50-59 MPH
Number in Pace :	3720
Percent in Pace :	78.4%
Number of Vehicles > 55 MPH :	2162
Percent of Vehicles > 55 MPH :	45.5%



## CITY OF PETALUMA

[illegible]

## CITY OF PETALUMA

Mean Speed(Average) :	54 MPH
10 MPH Pace Speed :	50-59 MPH
Number in Pace :	5630
Percent in Pace :	76.1%
Number of Vehicles > 55 MPH :	2703
Percent of Vehicles > 55 MPH :	36.6%

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

NORTHBOUND  
Start Time 1 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 71 Hour  
5/13/1 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65 67 69 70 9999 Total  
Site Code: 1  
stony-n

NORTHBOUND		1		36		38		40		42		44		46		48		50		52		54		56		58		60		62		64		66		68		70		71		Hour Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
		35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	71	9999																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
5/13/1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Perce	0.2%	0.1%	0.1%	0.3%	0.5%	1.3%	3.5%	7.2%	12.0%	17.7%	20.0%	16.9%	10.7%	5.1%	2.5%	1.1%	0.4%	0.2%	0.1%	0.1%
ntage																				
Statisti																				
c																				

15th Percentile : 50 MPH  
50th Percentile : 54 MPH  
85th Percentile : 58 MPH  
95th Percentile : 61 MPH  
  
Mean Speed(Average) : 54 MPH  
10 MPH Pace Speed : 50-59 MPH  
Number in Pace : 6539  
Percent in Pace : 77.5%  
Number of Vehicles > 55 MPH : 3127  
Percent of Vehicles > 55 MPH : 37.0%

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

Site Code: 1  
stony-n

NORTHBOUND		1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour
Start Time		35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999	Total
5/14/1		0	1	0	0	0	1	2	2	2	1	5	10	4	4	1	1	1	0	0	0	35
01:00		0	0	0	0	1	0	0	1	1	1	6	6	3	2	5	6	1	0	0	3	36
02:00		0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	0	0	0	0	0	8
03:00		0	0	0	0	0	0	0	0	1	2	6	5	0	0	1	2	0	0	0	0	17
04:00		0	0	0	0	0	0	0	2	2	3	5	2	0	0	0	0	0	0	0	1	15
05:00		0	0	0	0	0	0	3	3	4	3	2	6	5	3	0	0	1	0	0	0	30
06:00		0	1	0	1	0	1	4	6	8	15	16	24	12	7	8	7	1	1	0	0	112
07:00		1	0	1	1	0	4	9	23	37	44	61	53	37	18	8	2	1	0	0	0	300
08:00		0	0	0	0	0	7	12	28	58	87	112	71	47	21	6	5	0	0	1	0	455
09:00		5	0	0	0	1	14	26	44	53	80	52	53	19	13	6	1	0	1	0	1	369
10:00		0	0	0	0	6	11	20	30	57	89	86	59	33	12	8	2	2	1	0	0	416
11:00		0	0	0	0	5	7	33	56	74	89	57	53	29	17	7	7	4	1	0	0	458
12 PM		1	0	0	0	1	13	30	69	119	166	138	93	53	32	7	6	3	1	1	0	733
13:00		0	0	0	2	12	23	61	101	126	144	138	109	50	29	5	5	1	1	0	0	807
14:00		6	3	3	3	6	23	76	114	158	185	172	111	63	23	11	3	4	1	0	1	966
15:00		7	4	7	6	24	24	40	129	204	234	197	111	60	19	10	4	1	0	0	1	1082
16:00		3	1	0	0	4	7	17	76	187	259	237	179	91	33	13	7	1	1	0	0	1116
17:00		0	1	0	0	2	2	8	26	93	176	213	201	136	71	27	15	2	0	0	0	973
18:00		0	0	0	0	0	0	7	15	54	122	137	154	109	52	34	17	7	2	1	0	711
19:00		0	1	0	0	0	3	3	19	20	50	71	80	73	47	17	5	5	2	0	0	396
20:00		1	0	1	0	6	1	4	14	27	37	43	43	16	13	10	2	0	2	0	2	222
21:00		0	0	0	0	1	3	4	15	24	29	37	35	18	3	5	3	0	1	0	1	179
22:00		0	0	0	2	1	0	4	5	17	22	22	18	9	10	6	3	0	2	0	0	121
23:00		0	0	0	0	1	0	2	2	12	11	11	18	11	6	7	2	2	0	0	1	86
Total		24	12	12	20	73	156	365	780	1339	1850	1825	1495	879	437	202	105	38	17	3	11	9643

Percentage	0.2%	0.1%	0.1%	0.2%	0.8%	1.6%	3.8%	8.1%	13.9%	19.2%	18.9%	15.5%	9.1%	4.5%	2.1%	1.1%	0.4%	0.2%	0.0%	0.1%
------------	------	------	------	------	------	------	------	------	-------	-------	-------	-------	------	------	------	------	------	------	------	------

Statistic	15th Percentile :	50 MPH
	50th Percentile :	54 MPH
	85th Percentile :	58 MPH
	95th Percentile :	61 MPH
	Mean Speed(Average) :	54 MPH
10 MPH Pace Speed :		50-59 MPH
Number in Pace :		7388
Percent in Pace :		76.6%
Number of Vehicles > 55 MPH :		3184
Percent of Vehicles > 55 MPH :		33.0%



CITY OF PETALUMA  
STONY POINT RD. - ROBLAR RD. to SR 116

NORTHBOUND																					Site Code: stony-n									
Start Time	1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour Total									
Time	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999										
5/15/1	0	0	0	0	1	0	1	3	1	4	2	13	3	4	0	0	1	0	1	0	34									
01:00	0	0	0	0	0	0	1	1	2	1	5	3	5	0	0	2	0	0	0	0	20									
02:00	0	0	0	0	0	0	0	0	1	3	1	0	2	0	0	1	0	0	0	0	8									
03:00	0	0	0	0	0	0	0	0	0	1	3	1	1	0	0	0	0	0	0	0	6									
04:00	0	0	0	0	0	0	0	1	1	0	2	0	1	1	0	0	1	2	0	0	9									
05:00	0	0	0	0	0	1	1	0	1	3	3	2	2	2	2	1	0	0	0	0	18									
06:00	0	0	0	0	1	1	1	3	5	18	13	8	7	5	4	1	0	0	0	0	67									
07:00	1	0	0	0	2	3	11	14	29	29	30	17	9	10	4	2	0	0	0	2	163									
08:00	0	2	1	1	5	7	13	31	34	42	28	25	24	15	5	2	0	0	1	2	238									
09:00	1	0	0	0	0	5	12	32	58	64	69	50	37	18	13	2	0	2	0	0	363									
10:00	0	0	0	2	6	10	16	33	55	78	83	62	49	23	12	6	3	2	2	0	442									
11:00	2	2	3	2	9	17	34	29	54	113	91	91	63	32	25	20	6	1	0	1	595									
12 PM	0	0	0	3	4	8	28	59	86	110	113	88	81	38	13	10	1	0	0	0	642									
13:00	4	1	0	0	3	10	27	65	90	126	109	100	59	35	16	3	5	0	0	0	653									
14:00	1	0	0	0	4	11	25	51	104	123	119	93	79	31	13	6	2	4	1	0	667									
15:00	5	0	6	2	0	8	25	53	65	87	103	80	58	32	20	8	2	2	0	0	556									
16:00	1	1	0	0	0	2	8	10	42	78	91	110	81	51	28	11	5	1	0	0	519									
17:00	0	0	0	0	0	2	2	16	28	54	93	106	86	35	23	11	4	1	2	0	463									
18:00	0	0	0	0	0	1	5	12	24	45	33	62	57	40	16	12	6	4	0	2	319									
19:00	0	0	0	0	2	1	8	9	19	33	53	50	43	30	17	8	6	4	2	0	285									
20:00	0	0	1	0	0	7	6	16	21	32	32	31	18	12	7	2	1	1	0	0	187									
21:00	0	0	0	0	5	3	9	21	15	28	28	25	15	4	3	3	1	0	0	0	160									
22:00	0	0	0	0	0	3	3	11	13	19	21	19	15	5	4	3	2	0	0	0	118									
23:00	0	0	0	1	0	2	1	8	4	10	16	7	7	6	4	1	0	0	0	0	67									
Total	15	6	11	11	42	102	237	478	752	1101	1141	1043	802	428	229	115	46	24	9	7	6599									
Percentage	0.2%	0.1%	0.2%	0.2%	0.6%	1.5%	3.6%	7.2%	11.4%	16.7%	17.3%	15.8%	12.2%	6.5%	3.5%	1.7%	0.7%	0.4%	0.1%	0.1%										
Statistics																														
C	15th Percentile :										50 MPH																			
	50th Percentile :										54 MPH																			
	85th Percentile :										59 MPH																			
	95th Percentile :										62 MPH																			
	Mean Speed(Average) :										54 MPH																			
	10 MPH Pace Speed :										50-59 MPH																			
	Number in Pace :										4839																			
	Percent in Pace :										73.4%																			
	Number of Vehicles > 55 MPH :										2694																			
	Percent of Vehicles > 55 MPH :										40.9%																			

## CITY OF PETALUMA

NORTHBOUND																			Site Code: story-n									
Start Time	1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour							
Time	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999	Total							
5/16/1	0	0	2	0	0	0	2	4	6	8	8	2	10	3	2	1	1	0	0	1	50							
01:00	0	0	0	0	0	1	1	1	6	4	5	5	4	2	2	1	2	0	0	1	35							
02:00	0	0	0	0	0	0	0	2	1	1	4	2	4	0	2	0	0	0	0	1	17							
03:00	1	0	0	0	0	0	1	0	0	1	2	3	2	1	0	0	0	0	0	0	11							
04:00	0	0	0	0	0	0	1	1	0	3	3	2	0	0	1	1	1	0	1	0	14							
05:00	0	0	0	0	0	0	0	1	0	2	3	5	1	0	2	1	0	0	0	0	15							
06:00	0	0	0	0	0	0	1	5	6	5	10	10	8	6	2	4	1	0	0	1	59							
07:00	0	0	0	0	0	0	4	5	11	12	11	9	11	14	6	4	2	0	0	0	89							
08:00	0	0	0	0	1	2	5	3	10	19	20	26	18	16	7	9	4	2	1	1	144							
09:00	0	0	0	0	0	6	11	22	24	52	55	46	30	24	14	5	2	0	0	0	291							
10:00	0	0	0	1	3	8	9	24	39	50	53	42	41	17	8	5	5	1	0	0	306							
11:00	0	0	0	0	0	2	3	16	31	62	72	76	36	36	16	9	3	3	0	0	365							
12 PM	0	0	0	2	0	2	9	20	41	75	77	81	47	34	20	9	3	1	0	0	421							
13:00	0	0	0	0	0	2	21	45	93	141	177	151	85	56	25	9	4	2	1	1	813							
14:00	0	1	0	1	1	7	15	46	71	98	109	104	52	39	23	8	6	2	0	0	582							
15:00	11	0	1	1	0	0	8	11	41	77	60	96	66	32	20	5	1	0	0	0	430							
16:00	0	0	0	0	0	10	5	12	34	74	72	81	54	41	19	3	1	0	1	1	408							
17:00	0	0	0	0	0	0	1	8	4	20	33	63	60	49	28	10	6	0	0	0	355							
18:00	2	0	0	0	0	3	1	3	11	54	38	54	42	25	19	11	3	2	2	2	272							
19:00	1	0	1	0	0	2	10	7	23	34	39	43	28	23	6	6	3	1	0	0	227							
20:00	0	0	1	2	0	4	4	8	28	23	21	34	21	11	14	8	1	1	0	2	182							
21:00	0	0	1	1	1	1	2	10	21	21	31	29	11	9	4	2	0	0	0	0	144							
22:00	0	0	0	0	0	1	3	5	9	8	8	7	7	3	3	2	1	0	0	0	54							
23:00	0	0	0	0	0	1	0	2	3	3	2	2	9	6	2	1	0	1	0	0	32							
Total	15	0	7	7	6	53	124	257	529	860	943	983	646	447	244	113	49	16	6	11	5316							

[illegible]

## MARKS TRAFFIC DATA

NORTHBOUND		Site Code: stony-n																			
Start Time	1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour Total
5/17/1	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999	
0	0	0	0	0	0	0	0	1	4	6	5	3	2	2	0	2	0	0	0	0	25
01:00	0	0	0	0	0	0	0	1	1	1	0	0	0	3	0	1	0	0	0	0	7
02:00	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0	1	0	0	5
03:00	0	0	0	0	0	0	0	0	1	3	2	0	0	0	0	0	0	0	0	0	6
04:00	0	0	0	0	0	0	0	1	1	1	4	3	4	1	2	0	0	0	0	3	21
05:00	0	0	0	1	0	1	1	3	1	6	4	3	2	4	2	3	0	1	0	0	32
06:00	1	0	0	0	0	1	4	6	11	13	20	28	20	19	8	4	5	1	0	0	141
07:00	2	0	0	1	0	1	5	17	43	59	69	52	38	23	9	8	0	0	0	0	327
08:00	0	0	0	1	5	19	29	34	69	82	72	65	36	17	3	6	0	2	0	0	440
09:00	1	0	0	2	2	3	17	36	73	55	57	42	33	17	6	3	0	1	0	0	348
10:00	0	0	0	1	4	10	35	58	54	74	50	56	30	12	7	4	1	0	0	0	396
11:00	5	0	2	1	6	20	21	49	70	92	86	59	27	17	8	2	0	1	0	1	467
12 PM	3	3	1	0	2	11	35	64	87	93	87	67	32	10	5	3	0	0	0	0	503
13:00	1	0	0	3	7	15	39	60	82	98	84	63	52	22	9	4	2	0	0	0	541
14:00	2	1	1	1	7	18	41	83	124	141	108	92	54	28	7	2	3	0	0	0	713
15:00	0	0	1	1	6	19	32	59	83	142	150	111	64	32	10	2	1	1	0	0	714
16:00	0	0	0	0	0	0	10	35	67	136	202	166	96	55	22	9	2	2	0	1	803
17:00	0	0	0	0	0	1	7	24	48	100	140	164	113	56	32	8	2	1	0	0	696
18:00	1	0	0	0	0	0	6	3	22	48	83	89	80	43	21	9	3	0	0	0	408
19:00	0	0	0	0	0	2	3	12	20	30	39	42	32	25	7	5	1	1	0	0	219
20:00	0	0	0	0	0	4	6	7	11	29	28	28	21	10	7	4	1	0	0	0	156
21:00	0	0	0	0	2	1	4	6	11	16	21	15	13	5	5	4	1	0	0	1	105
22:00	0	0	0	0	0	1	2	3	4	8	14	7	4	4	4	3	1	0	0	0	55
23:00	0	0	0	1	0	0	2	5	3	8	3	3	8	1	4	1	1	0	0	0	40
Total	16	4	5	13	42	128	300	567	890	1241	1329	1159	761	406	178	87	24	12	0	6	7168
Percentage	0.2%	0.1%	0.1%	0.2%	0.6%	1.8%	4.2%	7.9%	12.4%	17.3%	18.5%	16.2%	10.6%	5.7%	2.5%	1.2%	0.3%	0.2%	0.0%	0.1%	
Statistic																					
C	15th Percentile :										49 MPH										
	50th Percentile :										54 MPH										
	85th Percentile :										59 MPH										
	95th Percentile :										61 MPH										
	Mean Speed(Average) :										54 MPH										
C	10 MPH Pace Speed :										50-59 MPH										
	Number in Pace :										5380										
	Percent in Pace :										75.1%										
	Number of Vehicles > 55 MPH :										2633										
	Percent of Vehicles > 55 MPH :										36.7%										
Total	246	102	135	268	610	1690	3939	7974	13356	18548	19098	16391	10386	5369	2516	1105	487	190	55	125	10259
																					0

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY PT. RD.- ROBLAR RD. to SR 116

Site Code: 1  
stony-s

SOUTHBOUND		1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour
Start	Time	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999	Total
5/4/10	0	0	0	1	0	2	2	4	2	2	4	1	0	0	1	1	0	0	1	0	1	22
01:00	0	0	0	0	0	1	1	1	1	2	4	2	0	2	0	0	0	0	0	0	0	13
02:00	0	1	0	1	1	1	3	0	0	1	1	3	0	0	0	0	0	0	0	0	0	11
03:00	0	0	0	0	0	0	1	3	2	2	6	3	4	0	0	0	0	0	1	0	0	20
04:00	0	0	0	0	1	2	2	4	7	4	13	5	4	5	1	1	0	0	0	0	1	50
05:00	0	0	0	0	3	5	1	10	21	32	31	25	24	17	5	1	1	1	0	0	2	179
06:00	11	9	13	8	18	14	14	30	57	79	79	66	51	12	6	2	1	0	2	0	2	460
07:00	14	9	14	9	17	50	80	121	140	151	116	116	52	16	4	1	0	0	0	0	0	794
08:00	19	12	16	15	30	57	88	102	107	111	89	51	11	11	5	3	0	0	0	0	0	716
09:00	7	3	3	6	19	35	65	104	75	65	65	52	35	19	4	1	0	0	0	0	0	493
10:00	5	1	3	3	10	30	53	58	68	72	50	31	16	3	0	1	0	0	0	0	0	404
11:00	10	2	3	7	4	29	46	85	82	69	47	21	6	7	3	0	0	0	0	0	0	421
12 PM	6	5	4	6	9	30	48	62	85	64	43	29	10	10	7	1	2	0	0	0	0	411
13:00	15	2	6	8	26	47	62	65	64	58	41	23	11	11	1	2	1	0	0	0	1	433
14:00	8	2	7	6	17	9	29	56	81	81	80	59	20	14	3	1	3	1	0	0	1	469
15:00	6	2	1	5	9	20	46	92	102	102	102	76	44	12	2	2	1	0	0	0	0	522
16:00	1	1	0	2	8	19	41	85	128	148	74	38	12	5	2	2	2	0	3	0	0	569
17:00	0	3	3	2	7	24	36	86	117	119	119	71	54	26	18	6	0	0	0	0	0	572
18:00	0	0	1	3	2	9	32	58	91	66	66	87	39	24	11	2	1	0	0	0	0	426
19:00	0	0	2	1	9	14	25	37	46	49	50	32	16	6	4	2	2	2	0	0	0	295
20:00	0	0	1	1	2	9	18	32	34	33	19	8	7	4	2	2	0	0	0	0	0	170
21:00	0	0	2	1	3	3	11	26	30	35	35	18	10	2	2	2	0	0	0	0	0	145
22:00	0	0	0	0	0	6	11	5	10	15	5	5	8	2	2	0	0	0	0	0	0	69
23:00	0	0	0	0	0	0	4	3	7	3	8	4	3	6	0	0	0	0	0	0	0	38
Total	102	52	80	88	206	443	765	1202	1390	1390	1373	1006	581	246	97	37	15	4	7	0	8	7702

Perce	ntage	1.3%	0.7%	1.0%	1.1%	2.7%	5.8%	9.9%	15.6%	18.0%	17.8%	13.1%	7.5%	3.2%	1.3%	0.5%	0.2%	0.1%	0.1%	0.0%	0.1%
Statisti	c																				

15th Percentile : 46 MPH  
50th Percentile : 51 MPH  
85th Percentile : 55 MPH  
95th Percentile : 58 MPH  
  
Mean Speed(Average) : 50 MPH  
10 MPH Pace Speed : 46-55 MPH  
Number in Pace : 5736  
Percent in Pace : 74.5%  
Number of Vehicles > 55 MPH : 995  
Percent of Vehicles > 55 MPH : 12.9%

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY PT. RD.- ROBLAR RD. to SR 116

Site Code: 1  
stony-s

SOUTHBOUND		1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour
Start Time	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999	Total	
5/5/10	0	0	1	0	0	1	1	0	4	3	5	0	1	0	0	0	1	0	0	0	17	
01:00	0	0	0	0	1	0	1	2	3	0	5	1	0	0	1	0	0	0	0	1	15	
02:00	0	0	0	1	0	1	0	0	2	1	1	2	1	0	1	1	0	0	0	0	11	
03:00	0	0	0	0	1	0	1	2	2	3	2	2	1	0	1	0	1	0	0	0	16	
04:00	0	0	0	0	1	4	3	4	5	9	7	6	6	1	1	1	1	1	0	0	49	
05:00	0	0	0	0	1	5	15	18	18	30	26	22	10	11	5	3	1	1	1	0	166	
06:00	2	5	8	8	13	14	40	47	77	96	67	44	20	11	4	5	0	2	0	0	463	
07:00	23	9	7	6	14	40	85	120	121	151	78	55	25	16	4	1	1	0	0	0	756	
08:00	5	6	3	10	15	33	85	126	125	109	84	48	21	8	4	1	0	0	0	0	683	
09:00	1	2	6	15	17	32	54	84	81	84	67	38	9	3	1	1	0	0	0	0	495	
10:00	10	1	12	8	25	42	48	62	86	61	30	20	10	7	2	1	0	0	0	0	425	
11:00	2	2	1	8	9	26	65	85	78	61	43	25	10	3	4	0	0	1	0	0	423	
12 PM	12	3	5	14	22	37	66	81	88	70	26	29	6	3	2	0	0	0	0	0	464	
13:00	7	5	11	19	40	57	59	55	61	58	47	12	10	6	2	1	1	0	0	0	451	
14:00	3	9	12	19	24	43	62	81	68	72	39	26	12	11	0	1	0	0	0	0	482	
15:00	6	1	2	2	9	25	60	83	128	90	65	24	19	7	0	1	0	0	0	0	522	
16:00	13	2	2	4	7	31	46	84	119	123	80	31	20	11	2	0	0	0	0	0	575	
17:00	9	2	1	8	8	32	60	106	123	119	73	36	23	9	2	1	2	0	0	0	614	
18:00	0	0	0	0	0	4	18	48	76	73	56	48	22	6	3	0	0	0	0	0	354	
19:00	0	0	0	0	2	12	19	37	48	70	42	36	10	7	2	3	0	0	0	1	289	
20:00	0	0	1	4	6	10	11	23	40	19	17	20	8	2	0	1	1	0	0	0	163	
21:00	0	0	2	0	6	15	23	27	38	22	11	13	1	2	1	1	0	0	0	0	162	
22:00	0	0	3	1	4	5	7	10	18	16	9	15	2	1	1	0	2	1	0	0	95	
23:00	0	0	0	0	1	3	7	1	7	14	8	1	0	0	0	0	0	0	0	0	42	

Perce ntage	1.2%	0.6%	1.0%	1.6%	2.9%	6.1%	10.8%	15.3%	18.3%	17.5%	11.5%	7.2%	3.2%	1.6%	0.5%	0.3%	0.1%	0.1%	0.0%	0.0%
Statisti c																				

15th Percentile : 46 MPH

50th Percentile : 51 MPH

85th Percentile : 55 MPH

95th Percentile : 58 MPH

Mean Speed(Average) : 50 MPH

10 MPH Pace Speed : 46-55 MPH

Number in Pace : 5680

Percent in Pace : 73.5%

Number of Vehicles > 55 MPH : 1010

Percent of Vehicles > 55 MPH : 13.1%

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY PT. RD.- ROBLAR RD. to SR 116

Site Code: 1  
stony-s

SOUTHBOUND		1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour
Start	Time	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999	Total
5/6/10	0	0	0	0	1	0	3	1	0	3	4	4	6	2	0	0	1	0	0	0	0	25
01:00	0	0	1	0	0	0	1	1	2	1	2	5	1	2	0	0	1	0	0	0	1	18
02:00	0	0	1	0	0	0	0	0	1	2	2	2	1	1	1	1	0	0	0	0	0	12
03:00	0	0	0	0	0	0	0	1	2	4	4	2	3	4	1	1	1	0	0	0	0	23
04:00	0	0	0	0	0	0	0	1	4	5	6	5	5	8	3	2	2	0	0	0	1	42
05:00	0	0	0	0	1	2	2	6	17	28	34	32	24	23	11	3	2	1	2	0	1	187
06:00	5	4	4	8	16	16	30	30	59	86	80	68	50	22	10	6	1	2	1	0	0	468
07:00	11	2	3	13	12	43	59	49	120	139	126	99	75	33	14	5	2	0	1	0	0	757
08:00	13	4	8	17	46	48	49	85	122	132	132	112	58	28	6	4	1	0	0	0	0	733
09:00	7	0	1	2	12	23	52	64	99	87	72	54	24	24	12	3	2	2	0	0	0	516
10:00	1	0	1	0	5	14	46	60	86	75	56	40	17	9	1	2	0	0	0	0	0	413
11:00	14	3	0	5	16	32	70	75	81	67	43	33	30	10	5	1	0	0	0	0	0	455
12 PM	13	5	4	8	16	35	86	82	96	73	42	26	15	5	5	4	1	1	1	0	0	513
13:00	8	5	5	22	25	27	66	66	86	95	69	40	22	6	3	0	0	1	0	0	0	483
14:00	18	16	13	21	51	66	78	116	78	37	23	21	8	3	3	2	0	0	0	0	0	551
15:00	4	0	1	2	7	14	80	120	123	79	46	33	16	6	6	4	0	0	0	0	0	535
16:00	2	2	6	13	13	21	58	111	100	112	57	44	16	9	1	2	0	0	0	0	0	567
17:00	1	0	1	5	13	28	71	114	148	142	69	39	19	9	1	5	0	0	0	0	1	666
18:00	0	0	4	5	4	8	29	49	79	94	71	54	15	9	4	4	2	2	0	0	0	429
19:00	0	1	0	1	2	6	16	30	48	49	32	25	18	4	4	8	3	0	0	0	0	243
20:00	0	0	1	2	4	22	31	24	28	32	18	14	9	5	1	2	1	0	0	0	0	194
21:00	1	0	2	1	3	7	22	33	32	30	15	10	4	3	3	0	0	0	0	1	0	164
22:00	0	0	0	1	7	8	13	9	13	12	12	8	3	3	3	1	0	1	0	0	0	91
23:00	0	0	2	1	5	2	3	3	3	3	8	4	3	1	2	1	0	1	0	0	0	39

Percentage	1.2%	0.6%	0.7%	1.6%	3.2%	5.2%	10.7%	15.6%	18.5%	16.7%	11.4%	8.0%	3.7%	1.6%	0.7%	0.4%	0.1%	0.1%	0.0%	0.0%
Statistic																				
C																				

15th Percentile : 46 MPH  
50th Percentile : 51 MPH  
85th Percentile : 55 MPH  
95th Percentile : 58 MPH  
  
Mean Speed(Average) : 50 MPH  
10 MPH Pace Speed : 46-55 MPH  
Number in Pace : 5919  
Percent in Pace : 72.9%  
Number of Vehicles > 55 MPH : 1191  
Percent of Vehicles > 55 MPH : 14.7%

Site Code: 1  
stony-s

SOUTHBOUND																					station
Start	1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour
Time	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999	Total
5/7/10	0	0	0	1	1	2	3	4	4	1	5	1	0	2	0	1	0	0	0	0	0
01:00	0	0	0	1	2	1	1	2	2	1	3	1	1	0	1	0	0	0	0	0	16
02:00	0	0	0	0	0	0	0	1	3	4	1	1	4	0	0	0	0	0	0	0	14
03:00	0	0	0	0	1	0	0	1	4	2	9	3	3	1	0	0	0	0	0	0	24
04:00	0	0	2	0	0	4	1	5	4	8	4	6	2	2	3	1	1	1	0	0	44
05:00	0	0	4	0	5	4	3	19	24	20	34	16	15	4	2	3	2	0	0	1	156
06:00	16	4	7	12	11	26	31	52	69	71	48	46	24	13	4	1	1	1	0	0	437
07:00	15	4	4	6	13	18	43	111	141	163	132	58	23	11	2	2	0	0	0	0	744
08:00	3	5	14	18	29	45	71	82	109	125	78	57	17	9	3	1	0	0	0	0	666
09:00	9	4	7	16	28	33	43	71	89	93	68	47	14	5	1	0	0	0	0	0	528
10:00	10	0	5	11	21	23	62	90	98	55	48	23	8	5	2	0	0	0	0	0	461
11:00	9	2	5	7	13	24	51	72	97	87	71	30	7	4	1	0	0	0	0	0	480
12 PM	15	6	13	13	22	29	66	86	67	75	42	26	8	7	0	1	0	0	0	1	477
13:00	4	2	2	23	44	56	60	82	78	67	42	20	10	3	1	1	0	0	0	0	495
14:00	5	1	9	17	37	50	95	105	101	100	57	18	7	5	1	0	0	0	0	0	608
15:00	3	7	5	11	26	40	73	123	125	89	54	32	11	2	2	0	0	0	0	0	603
16:00	0	0	2	9	18	38	72	97	151	111	90	50	20	6	2	0	0	0	0	0	666
17:00	0	1	0	1	7	21	61	111	146	138	105	59	9	4	1	0	0	0	0	0	664
18:00	0	0	0	2	1	10	31	64	60	68	60	57	19	8	2	1	0	0	0	0	383
19:00	0	0	0	0	4	4	23	38	53	70	43	36	20	3	1	2	1	0	0	0	299
20:00	0	1	1	7	7	23	24	32	28	20	27	15	8	4	0	2	2	0	0	1	202
21:00	0	0	0	3	11	22	27	29	21	19	11	4	4	4	0	2	0	1	0	1	182
22:00	0	0	0	2	4	10	15	29	21	20	16	5	4	2	1	0	1	0	0	0	131
23:00	1	2	0	2	3	5	3	14	13	10	11	3	4	2	0	2	0	0	0	0	75

[illegible]

## CITY OF PETALUMA

Mean Speed(Average) :	51 MPH
10 MPH Pace Speed :	46-55 MPH
Number in Pace :	5033
Percent in Pace :	74.6%
Number of Vehicles > 55 MPH :	890
Percent of Vehicles > 55 MPH :	13.2%



MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY PT. RD.- ROBLAR RD. to SR 116

Site Code: 1  
stony-s

SOUTHBOUND		1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour
Start Time	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999	Total	
5/9/10	0	0	0	1	1	4	5	7	8	4	9	3	2	2	0	0	0	0	0	0	46	
01:00	0	0	0	0	2	5	2	4	2	4	2	4	1	1	0	0	1	0	0	0	28	
02:00	0	1	0	3	0	4	1	2	4	0	0	2	1	1	0	1	0	0	0	0	19	
03:00	0	0	0	0	0	0	0	1	2	6	1	7	1	1	0	0	0	0	0	0	18	
04:00	0	0	0	0	1	0	2	1	3	3	2	1	0	0	0	0	0	1	0	1	15	
05:00	0	0	0	0	0	0	2	4	3	2	6	3	4	2	2	1	0	0	1	0	30	
06:00	0	0	0	0	0	2	4	6	8	13	11	7	2	4	1	2	2	0	0	0	62	
07:00	0	1	2	1	1	1	4	6	18	27	18	15	11	7	3	2	3	1	0	0	120	
08:00	2	0	1	0	0	7	26	22	34	31	21	26	11	5	1	0	1	0	0	0	188	
09:00	0	0	1	1	2	11	23	41	56	44	36	24	14	4	1	1	0	0	0	0	259	
10:00	0	0	3	3	2	10	30	59	81	72	75	40	15	3	6	0	1	0	0	0	400	
11:00	0	0	5	0	4	34	44	52	86	96	71	31	9	8	3	1	0	0	0	0	444	
12 PM	1	4	5	9	12	36	92	147	145	140	87	46	17	2	2	0	2	0	0	0	745	
13:00	0	0	2	9	21	46	79	100	145	136	84	46	15	7	3	0	0	0	0	0	693	
14:00	1	0	4	2	11	19	48	106	119	111	68	40	15	4	2	1	1	0	0	0	552	
15:00	0	0	0	0	6	32	38	88	131	142	79	61	13	14	2	0	0	1	0	0	607	
16:00	0	0	3	0	6	12	47	63	115	105	61	72	20	12	7	1	0	1	0	0	525	
17:00	3	1	0	5	7	12	27	49	95	96	87	37	22	15	7	3	0	1	0	0	467	
18:00	0	0	0	0	7	9	24	59	53	76	58	32	7	9	2	1	1	0	0	0	338	
19:00	0	0	1	2	1	12	21	32	42	50	43	29	12	4	4	0	0	0	0	0	253	
20:00	0	0	0	0	6	9	24	29	32	37	27	11	4	0	1	0	1	0	0	0	182	
21:00	1	0	2	1	4	14	16	21	27	17	14	3	5	3	1	0	0	0	0	0	129	
22:00	2	0	1	1	0	6	9	13	17	12	8	7	0	0	1	1	0	0	0	0	78	
23:00	1	1	1	1	1	2	6	4	2	3	2	2	2	2	2	0	2	0	0	0	32	

Percentage	0.2%	0.1%	0.5%	0.6%	1.5%	4.6%	9.2%	14.7%	19.7%	19.7%	14.0%	8.8%	3.3%	1.7%	0.8%	0.3%	0.2%	0.1%	0.0%	0.0%
Statistic																				
c	15th Percentile :					47 MPH														
	50th Percentile :					51 MPH														
	85th Percentile :					56 MPH														
	95th Percentile :					58 MPH														

Mean Speed(Average) : 51 MPH  
10 MPH Pace Speed : 46-55 MPH  
Number in Pace : 4815  
Percent in Pace : 77.3%  
Number of Vehicles > 55 MPH : 944  
Percent of Vehicles > 55 MPH : 15.2%

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY PT. RD.- ROBLAR RD. to SR 116

SOUTHBOUND  
Start Time 5/10/11  
Site Code: 1 stony-s

1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour Total
35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	71	9999
0	0	0	0	0	0	4	5	1	3	1	0	1	0	0	0	0	0	0	1	16
01:00	0	0	0	1	1	1	1	4	1	1	0	0	0	0	0	0	0	0	0	10
02:00	1	0	0	1	1	1	1	3	0	2	1	1	0	0	0	0	0	0	0	11
03:00	0	0	0	0	0	0	1	3	1	2	2	2	1	0	0	0	0	0	0	12
04:00	1	0	0	0	0	2	4	5	11	11	13	2	3	1	0	1	1	1	0	59
05:00	0	0	0	1	1	11	28	39	45	24	25	11	5	5	2	1	1	0	1	200
06:00	10	4	14	13	20	28	45	60	74	104	54	27	17	6	8	2	1	0	0	489
07:00	73	17	7	16	29	58	97	131	145	122	59	27	9	4	1	0	1	0	0	796
08:00	55	15	5	16	27	48	71	77	102	124	74	26	10	3	2	0	0	0	0	655
09:00	39	5	11	7	33	42	62	87	65	64	34	29	5	5	1	0	1	0	0	490
10:00	41	4	7	11	32	44	51	65	85	51	16	7	9	2	0	0	0	0	0	427
11:00	81	13	20	17	25	40	41	57	52	53	24	12	4	2	0	0	0	0	0	441
12 PM	27	3	8	10	28	34	63	81	68	56	31	20	9	4	1	0	0	0	0	443
13:00	31	8	1	22	27	35	57	49	59	42	23	8	2	1	0	0	0	0	0	365
14:00	40	5	5	9	33	35	49	48	70	72	48	19	13	7	1	0	1	0	0	455
15:00	6	1	11	11	10	27	36	68	102	90	59	25	21	7	1	0	0	0	0	475
16:00	0	0	2	3	8	19	55	92	106	94	74	30	17	7	0	0	0	0	1	508
17:00	1	0	0	0	3	18	35	106	117	126	67	33	21	9	3	1	0	0	0	543
18:00	0	0	1	3	5	5	30	45	62	59	58	18	13	1	2	0	0	0	0	348
19:00	0	0	0	3	2	5	16	22	44	42	31	21	9	5	3	0	0	0	0	203
20:00	0	0	0	2	1	8	21	23	24	23	16	12	5	3	0	0	1	0	0	139
21:00	0	0	0	1	8	11	12	17	24	17	11	8	3	2	1	1	0	0	0	116
22:00	0	0	0	0	1	5	10	14	8	8	8	1	2	1	1	0	0	0	0	73
23:00	0	0	0	0	2	3	1	7	5	5	1	2	1	0	0	1	0	0	0	35
Total	406	75	92	144	297	471	771	1089	1273	1215	733	400	191	92	32	11	8	5	1	7309

Perce ntage	5.6%	1.0%	1.3%	2.0%	4.1%	6.4%	10.5%	14.9%	17.4%	16.6%	10.0%	5.5%	2.6%	1.3%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%
Statisti c																				

15th Percentile : 44 MPH  
50th Percentile : 50 MPH  
85th Percentile : 55 MPH  
95th Percentile : 57 MPH  
  
Mean Speed(Average) : 48 MPH  
10 MPH Pace Speed : 46-55 MPH  
Number in Pace : 5081  
Percent in Pace : 69.5%  
Number of Vehicles > 55 MPH : 742  
Percent of Vehicles > 55 MPH : 10.2%

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY PT. RD.- ROBLAR RD. to SR 116

Site Code: 1  
stony-s

SOUTHBOUND		1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour
Start Time		35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999	Total
5/11/1		0	0	0	1	0	2	2	1	2	0	3	0	1	0	1	0	0	0	0	0	13
01:00		0	0	0	0	0	1	1	2	2	2	1	1	1	0	1	0	1	0	0	0	13
02:00		0	0	2	0	0	1	0	3	2	4	1	0	0	0	0	0	0	0	0	0	13
03:00		0	0	0	0	0	0	1	2	4	3	2	1	0	1	0	0	0	0	1	0	15
04:00		1	0	0	1	2	4	1	1	10	9	7	3	6	3	1	1	0	1	0	1	52
05:00		1	0	0	1	7	8	8	21	30	38	33	17	17	5	6	1	0	0	0	0	193
06:00		7	8	9	5	13	23	43	51	74	84	77	50	19	11	6	3	0	0	0	0	483
07:00		61	8	6	0	20	62	88	108	143	171	89	57	28	4	0	1	0	0	0	0	846
08:00		82	5	10	17	21	71	79	97	121	119	81	26	14	5	0	0	0	0	0	0	749
09:00		40	18	10	11	16	41	67	94	86	82	48	19	10	1	2	1	0	0	0	0	546
10:00		36	11	8	6	10	25	54	76	78	44	42	10	6	0	3	0	0	0	0	0	409
11:00		23	3	7	10	33	48	75	83	58	45	22	14	4	1	0	0	0	1	0	0	427
12 PM		37	14	18	24	20	52	92	69	63	49	31	15	3	2	1	1	0	0	0	0	491
13:00		25	8	9	24	34	59	70	75	77	53	27	12	3	2	1	1	0	0	0	0	480
14:00		39	14	11	8	22	40	76	84	89	66	48	24	9	3	1	2	0	0	0	0	536
15:00		3	4	3	7	17	43	63	94	114	84	49	29	12	4	2	0	0	0	0	0	528
16:00		0	1	1	4	15	26	62	99	135	116	61	27	14	11	4	0	1	0	0	0	577
17:00		0	0	1	3	12	35	68	132	136	118	78	33	16	5	3	0	0	0	0	0	641
18:00		0	0	1	4	4	7	33	54	88	77	70	41	21	13	4	0	1	0	0	0	418
19:00		2	0	1	1	4	9	12	45	41	61	34	18	17	3	3	0	0	0	0	0	251
20:00		11	0	4	3	2	8	13	23	29	31	19	8	9	4	0	2	0	0	0	0	166
21:00		0	0	0	3	8	17	19	28	39	28	20	8	4	1	0	0	0	0	0	0	175
22:00		1	0	0	1	4	12	9	7	18	11	12	4	4	3	0	1	0	0	0	0	87
23:00		0	0	1	0	2	1	7	5	8	9	3	2	1	3	0	0	0	1	0	0	43
Total		369	94	102	134	266	595	943	1254	1447	1304	858	419	219	85	39	14	3	3	1	3	8152

Percentage	4.5%	1.2%	1.3%	1.6%	3.3%	7.3%	11.6%	15.4%	17.8%	16.0%	10.5%	5.1%	2.7%	1.0%	0.5%	0.2%	0.0%	0.0%	0.0%
Statistic																			

15th Percentile : 44 MPH  
50th Percentile : 50 MPH  
85th Percentile : 54 MPH  
95th Percentile : 57 MPH  
  
Mean Speed(Average) : 49 MPH  
10 MPH Pace Speed : 46-55 MPH  
Number in Pace : 5806  
Percent in Pace : 71.2%  
Number of Vehicles > 55 MPH : 785  
Percent of Vehicles > 55 MPH : 9.6%

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY PT. RD.- ROBLAR RD. to SR 116

SOUTHBOUND  
Start Time 5/12/11  
Site Code: 1  
stony-s

SOUTHBOUND		1		36		37		38		40		42		44		46		48		50		52		54		56		58		60		62		64		66		68		70		71		Hour Total		
		Start Time	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71							
5/12/1		0	0	0	0	0	0	0	0	1	0	0	3	3	1	2	3	3	3	4	4	0	2	4	9	2	0	1	1	2	2	2	1	0	0	0	0	0	0	0	0	0	0			
01:00		0	0	0	0	0	0	0	0	1	0	0	1	2	1	3	2	0	0	0	0	1	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
02:00		0	0	0	2	0	1	1	1	0	1	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
03:00		0	0	0	0	0	1	0	0	1	0	1	2	1	6	0	2	1	1	1	2	1	0	0	0	1	1	3	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	
04:00		0	0	0	0	0	0	0	0	2	1	1	2	4	13	11	8	9	9	9	2	0	0	0	0	0	0	1	1	1	1	1	0	1	0	2	0	0	0	0	0	0	0	0		
05:00		0	0	0	0	0	0	0	0	1	7	11	18	25	28	24	18	19	19	18	19	6	4	1	1	1	6	4	1	1	1	0	1	0	1	1	1	1	1	1	0	0	0	0		
06:00		4	11	10	6	8	27	45	74	70	78	60	40	20	10	4	0	1	1	1	1	10	4	0	1	1	1	1	4	0	1	1	0	1	1	1	1	1	1	1	1	0	0			
07:00		37	7	9	7	26	44	87	116	158	139	106	55	15	8	2	1	0	1	0	1	106	2	1	0	1	8	2	1	0	1	0	1	0	1	0	1	0	1	0	0	0	0	0		
08:00		17	6	5	5	35	44	59	100	124	106	69	45	23	4	2	0	0	0	0	45	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
09:00		14	4	0	5	16	37	47	94	86	81	70	24	12	8	1	0	1	0	1	24	8	1	0	1	0	0	8	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0		
10:00		5	3	10	18	20	47	63	71	74	55	34	19	10	2	0	0	0	0	19	10	2	0	0	0	0	2	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0		
11:00		12	2	1	7	9	34	57	116	87	47	37	17	8	2	2	0	0	0	17	8	2	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0		
12 PM		8	0	7	12	17	31	71	90	82	66	42	23	4	4	1	0	1	0	23	4	4	1	0	1	0	4	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0		
13:00		11	6	5	23	38	41	56	80	56	47	31	8	9	1	1	0	0	8	9	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
14:00		9	4	13	34	23	40	52	98	79	52	51	16	3	3	0	1	1	0	16	3	3	0	1	0	0	3	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0		
15:00		17	2	3	11	8	16	48	90	111	114	57	22	10	4	0	0	0	22	10	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
16:00		1	0	1	3	8	33	65	120	128	84	73	31	10	8	1	0	0	31	10	8	1	0	0	0	0	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
17:00		0	0	0	0	1	7	17	48	119	153	129	81	34	10	6	3	0	0	34	10	6	3	0	0	0	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18:00		1	0	3	0	1	9	22	50	84	76	72	41	25	15	7	5	0	0	25	15	7	5	0	0	0	7	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
19:00		2	2	0	3	4	6	9	20	32	52	54	25	5	5	2	0	0	25	5	5	2	0	0	0	0	5	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0		
20:00		0	0	1	4	4	10	24	32	40	43	25	11	6	3	2	1	0	11	6	3	2	1	0	0	0	3	2	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0		
21:00		0	0	1	4	5	7	24	24	26	28	13	2	3	2	0	0	0	2	3	2	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
22:00		1	0	1	0	1	4	8	8	9	16	8	13	2	3	2	0	0	13	2	3	2	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
23:00		0	0	0	0	1	1	1	6	7	9	14	4	1	2	0	0	0	14	4	1	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Percentage	1.8%	0.6%	0.9%	1.9%	3.3%	6.3%	10.9%	17.7%	18.9%	16.3%	11.5%	5.6%	2.4%	1.2%	0.4%	0.1%	0.1%	0.1%	0.0%	0.1%
Statistic																				

15th Percentile : 46 MPH  
50th Percentile : 50 MPH  
85th Percentile : 55 MPH  
95th Percentile : 57 MPH  
  
Mean Speed(Average) : 50 MPH  
10 MPH Pace Speed : 46-55 MPH  
Number in Pace : 5873  
Percent in Pace : 75.3%  
Number of Vehicles > 55 MPH : 776  
Percent of Vehicles > 55 MPH : 9.9%

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY PT. RD.- ROBLAR RD. to SR 116

SOUTHBOUND  
Start Time 5/13/1  
Site Code: 1  
stony-s

SOUTHBOUND																								story-
1	36	37	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour			
Start Time	35	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	71	9999	Total			
5/13/1	0	0	0	2	0	4	7	7	3	3	3	3	0	1	0	1	0	0	0	0	0			
01:00	0	0	2	0	1	1	1	3	3	3	2	0	2	0	1	0	0	0	0	0	16			
02:00	0	1	0	0	0	0	0	2	2	2	3	0	0	0	0	0	0	0	0	0	8			
03:00	0	0	0	0	0	3	4	4	4	4	3	2	1	2	2	1	0	0	0	0	26			
04:00	0	0	0	1	1	3	5	7	9	9	9	5	8	2	0	0	0	0	0	0	50			
05:00	0	0	3	0	6	11	30	40	28	28	28	29	17	5	6	2	1	0	0	1	207			
06:00	2	3	13	15	18	44	66	111	94	47	47	37	23	5	5	1	3	0	0	0	500			
07:00	12	4	8	14	18	36	81	82	137	146	82	60	30	9	5	1	0	0	0	0	725			
08:00	15	13	11	18	27	47	82	134	121	126	71	33	9	5	2	1	0	0	0	0	715			
09:00	22	5	7	10	22	48	78	108	100	69	42	16	9	2	1	0	0	0	0	0	539			
10:00	3	1	4	7	25	44	59	71	51	55	56	18	13	4	0	0	0	0	0	0	411			
11:00	16	2	13	12	24	30	48	70	82	67	46	22	9	5	2	0	0	0	0	0	448			
12 PM	10	4	0	2	13	32	80	73	102	71	47	19	18	1	2	0	0	0	0	0	474			
13:00	12	1	6	12	25	55	79	72	81	54	35	11	7	3	1	0	0	0	0	0	454			
14:00	8	3	6	5	17	59	83	89	89	79	46	26	8	2	2	1	0	0	0	0	523			
15:00	5	5	3	9	25	55	79	119	103	87	36	23	6	6	2	1	0	0	0	0	564			
16:00	0	0	0	4	9	35	63	105	128	112	54	28	11	2	6	0	0	0	0	1	558			
17:00	0	0	0	1	13	27	82	117	143	125	80	40	17	7	4	1	0	0	0	0	657			
18:00	0	0	2	3	7	16	43	57	95	93	64	41	17	3	2	1	0	0	0	0	444			
19:00	0	0	0	0	4	6	14	38	39	53	33	26	11	5	3	1	1	1	0	0	235			
20:00	0	0	3	1	5	13	22	33	44	52	19	16	4	1	0	0	0	0	0	0	213			
21:00	0	0	0	2	2	17	23	36	24	21	6	18	2	1	0	1	0	0	0	0	153			
22:00	0	0	1	0	2	5	14	18	12	13	13	13	4	3	3	1	0	0	0	0	102			
23:00	0	1	0	2	1	8	5	5	8	3	6	4	5	0	1	2	0	0	0	0	51			
Total	105	43	77	120	257	559	1001	1340	1533	1369	831	490	231	74	50	16	5	1	0	2	8104			

Percentage	1.3%	0.5%	1.0%	1.5%	3.2%	6.9%	12.4%	16.5%	18.9%	16.9%	10.3%	6.0%	2.9%	0.9%	0.6%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%
Statistic																					

15th Percentile : 46 MPH  
50th Percentile : 50 MPH  
85th Percentile : 55 MPH  
95th Percentile : 57 MPH  
  
Mean Speed(Average) : 50 MPH  
10 MPH Pace Speed : 46-55 MPH  
Number in Pace : 6074  
Percent in Pace : 75.0%  
Number of Vehicles > 55 MPH : 869  
Percent of Vehicles > 55 MPH : 10.7%

MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY PT. RD.- ROBLAR RD. to SR 116

Site Code: 1  
stony-s

SOUTHBOUND		1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour
Start		35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999	Total
5/14/1		0	0	0	1	0	1	5	8	2	4	2	2	4	3	0	3	1	0	0	0	36
01:00		0	1	0	0	0	0	4	3	1	0	2	2	1	0	1	0	0	0	0	0	15
02:00		0	0	2	0	0	0	1	1	6	2	2	0	0	0	0	0	0	0	0	0	12
03:00		0	0	0	0	0	0	0	5	4	3	3	3	3	1	0	1	2	0	0	0	22
04:00		0	1	0	0	1	2	1	9	13	4	9	6	7	2	2	0	1	0	0	0	58
05:00		0	0	0	1	2	7	10	20	27	33	22	15	10	9	5	3	1	1	0	0	166
06:00		11	8	6	24	20	30	33	61	69	73	56	27	15	8	5	3	3	0	1	0	453
07:00		20	1	6	17	17	34	79	124	143	104	74	44	10	4	1	2	2	0	0	0	682
08:00		37	3	9	20	35	60	80	127	111	82	59	17	9	1	1	0	0	0	0	0	651
09:00		21	11	15	21	25	59	66	88	71	44	27	14	5	0	2	0	0	0	0	0	469
10:00		11	8	13	17	27	48	80	89	82	44	20	11	4	0	0	0	1	0	0	0	455
11:00		7	3	7	15	12	47	81	79	98	56	38	19	4	4	3	0	0	0	0	1	474
12 PM		11	4	3	8	20	54	83	106	89	62	45	14	11	2	0	1	0	0	0	1	514
13:00		8	5	11	16	40	69	85	96	100	58	22	16	5	1	2	0	0	0	0	0	534
14:00		36	8	11	12	25	60	85	116	122	54	33	20	9	3	1	1	0	0	0	0	596
15:00		3	4	2	11	28	43	92	128	117	103	40	22	12	2	2	0	0	0	0	1	610
16:00		0	4	2	14	48	56	90	118	136	119	47	29	9	8	4	1	0	0	0	0	685
17:00		0	0	3	7	20	54	106	121	126	107	59	35	11	3	2	0	0	0	0	0	654
18:00		1	1	0	4	10	23	65	70	88	93	48	39	16	3	2	2	0	0	0	0	465
19:00		0	0	1	0	3	18	37	50	69	59	30	23	6	1	1	1	0	0	0	0	299
20:00		2	0	0	4	11	10	30	44	30	45	20	15	7	1	0	0	0	0	0	0	219
21:00		0	0	0	4	7	10	12	25	38	29	18	1	2	2	0	2	0	0	0	0	179
22:00		0	1	0	2	6	8	16	23	32	26	14	6	4	0	1	0	0	0	0	0	139
23:00		0	1	0	2	2	4	6	18	9	10	7	3	6	2	2	0	0	0	0	0	72
Total		168	64	95	203	362	699	1160	1541	1569	1218	697	383	168	59	38	21	9	1	1	3	8459

Percentage	2.0%	0.8%	1.1%	2.4%	4.3%	8.3%	13.7%	18.2%	18.5%	14.4%	8.2%	4.5%	2.0%	0.7%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%
Statistic																				

15th Percentile : 45 MPH  
50th Percentile : 49 MPH  
85th Percentile : 54 MPH  
95th Percentile : 57 MPH

Mean Speed(Average) : 49 MPH  
10 MPH Pace Speed : 44-53 MPH  
Number in Pace : 6187  
Percent in Pace : 73.1%  
Number of Vehicles > 55 MPH : 682  
Percent of Vehicles > 55 MPH : 8.1%

## MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY PT. RD.- ROBLAR RD. to SR 116

SOUTHBOUND		Site Code: stony-s																							
		1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour			
Start Time	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999	Total				
5/15/1	0	0	0	2	1	3	1	9	11	5	5	3	0	2	0	1	0	0	0	0	43				
01:00	0	0	0	4	3	2	3	4	4	2	4	2	1	2	0	2	0	0	0	0	33				
02:00	0	0	0	1	3	1	1	6	0	1	3	1	1	0	1	1	0	0	0	0	20				
03:00	0	0	1	0	0	0	2	2	2	3	2	2	2	0	1	0	0	0	0	0	17				
04:00	0	0	0	1	0	2	3	4	7	3	2	1	8	2	1	1	0	0	0	0	34				
05:00	0	0	0	0	0	3	9	7	3	8	5	6	3	0	1	0	0	0	0	1	46				
06:00	1	4	6	4	6	10	20	31	27	27	19	6	5	3	0	1	0	0	0	0	170				
07:00	2	2	3	4	11	11	34	32	49	34	26	18	15	6	1	1	0	1	0	0	250				
08:00	1	0	4	8	13	21	41	59	57	55	42	15	8	3	3	0	2	0	0	0	332				
09:00	5	1	10	11	17	31	50	68	66	70	31	22	7	4	0	1	0	0	0	0	394				
10:00	9	6	8	16	23	33	56	86	72	67	55	17	7	7	2	0	1	0	0	0	465				
11:00	12	1	15	18	25	41	76	83	78	82	60	24	11	3	1	3	0	1	0	0	534				
12 PM	0	5	3	4	22	44	70	100	119	104	61	35	13	5	4	1	0	0	0	0	590				
13:00	4	1	7	9	35	60	100	153	130	77	44	13	9	9	1	3	0	0	0	0	655				
14:00	0	1	2	12	30	49	66	106	121	100	63	29	9	5	2	1	0	0	0	0	596				
15:00	9	1	3	6	19	37	55	69	102	93	61	32	22	8	1	4	0	0	0	0	522				
16:00	2	0	0	5	17	35	59	98	76	85	66	36	17	9	2	0	2	0	0	0	509				
17:00	0	0	0	3	8	13	37	60	99	72	50	36	23	7	2	1	0	0	0	0	411				
18:00	1	8	4	3	2	18	38	61	61	63	54	28	9	3	2	3	1	0	0	0	359				
19:00	0	0	0	1	3	14	25	30	35	57	26	18	8	3	3	0	0	0	0	0	223				
20:00	1	0	2	2	8	13	14	31	54	37	19	6	1	2	1	0	1	0	0	0	192				
21:00	0	0	2	3	12	21	29	30	19	23	11	5	3	4	0	0	0	0	0	0	162				
22:00	0	0	0	2	7	17	15	26	18	27	11	7	5	3	1	0	0	0	0	0	139				
23:00	1	0	1	0	2	5	8	13	18	14	14	2	2	1	1	0	0	0	0	1	83				
Total	48	30	71	119	267	484	812	1168	1228	1109	733	371	182	91	31	24	7	2	0	2	6779				





MARKS TRAFFIC DATA

CITY OF PETALUMA  
STONY PT. RD.- ROBLAR RD. to SR 116

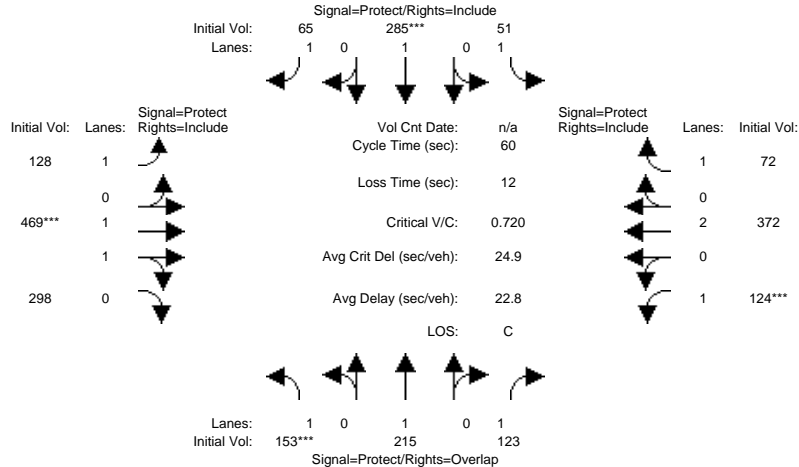
Site Code: 1  
stony-s

SOUTHBOUND																							story
Start Time	1	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	71	Hour Total		
5/17/1	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	70	9999			
0	0	0	0	0	0	0	1	1	3	4	2	2	0	1	0	0	0	0	0	0	14		
01:00	0	0	1	0	0	1	1	1	1	0	2	0	1	0	0	0	0	1	0	1	10		
02:00	0	0	1	0	0	1	0	1	1	3	2	1	0	0	0	0	0	0	0	0	10		
03:00	0	0	0	0	0	2	1	3	2	2	4	1	3	2	0	0	0	0	0	1	21		
04:00	0	0	0	0	0	0	2	4	7	9	4	6	6	0	0	0	0	0	0	0	38		
05:00	1	0	0	0	0	3	13	21	23	45	24	36	15	5	3	3	1	0	0	0	193		
06:00	14	6	17	16	19	19	61	46	64	66	70	30	14	7	3	3	2	0	0	1	458		
07:00	11	6	4	9	26	46	95	137	139	101	51	38	8	2	3	0	0	0	0	0	676		
08:00	12	4	2	10	27	61	98	103	125	86	50	23	7	2	2	1	0	0	0	0	613		
09:00	5	4	5	11	26	54	75	84	59	58	31	16	2	1	2	0	0	0	0	0	433		
10:00	20	8	10	16	39	44	58	80	58	39	21	6	7	1	1	0	0	0	0	0	408		
11:00	14	9	11	12	27	34	67	88	82	38	24	14	10	2	0	1	0	0	0	0	433		
12 PM	9	4	5	10	25	40	72	86	76	69	24	8	5	3	0	1	0	0	0	0	437		
13:00	3	4	19	39	55	57	76	83	66	43	15	7	8	2	1	0	0	0	0	0	478		
14:00	4	3	10	26	36	64	90	112	81	51	33	10	9	3	0	0	0	0	0	0	532		
15:00	6	4	9	12	20	76	71	99	82	65	21	18	2	4	1	0	0	0	0	0	490		
16:00	3	0	1	3	9	44	97	127	146	102	52	24	10	2	1	0	0	0	0	0	621		
17:00	0	0	0	2	17	37	81	127	150	135	69	40	11	6	3	1	0	0	0	0	679		
18:00	0	0	0	3	6	8	37	68	93	95	73	40	13	8	4	4	0	0	0	0	452		
19:00	0	1	1	0	4	13	18	32	49	43	28	14	9	5	0	0	0	0	0	0	217		
20:00	0	0	0	0	1	9	30	40	46	30	17	5	2	1	0	0	0	0	0	0	181		
21:00	0	0	0	2	9	11	17	19	19	7	8	12	3	1	2	0	1	0	0	0	111		
22:00	0	0	0	0	5	6	11	7	11	13	6	6	3	1	1	0	0	0	0	0	70		
23:00	0	0	0	0	0	7	1	3	4	2	5	1	5	0	1	1	0	0	0	0	30		
Total	102	53	96	171	351	637	1073	1372	1387	1106	636	358	153	59	28	15	4	1	0	3	7605		
Percentage	1.3%	0.7%	1.3%	2.2%	4.6%	8.4%	14.1%	18.0%	18.2%	14.5%	8.4%	4.7%	2.0%	0.8%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%			
Statistic																							
C																							
Total	1767	632	1011	1739	3518	6875	11937	17205	19485	17644	11650	6717	2977	1344	554	259	108	53	8	51	10553		
																				4			

Central Site Alternative  
Mecham Road  
With PCE

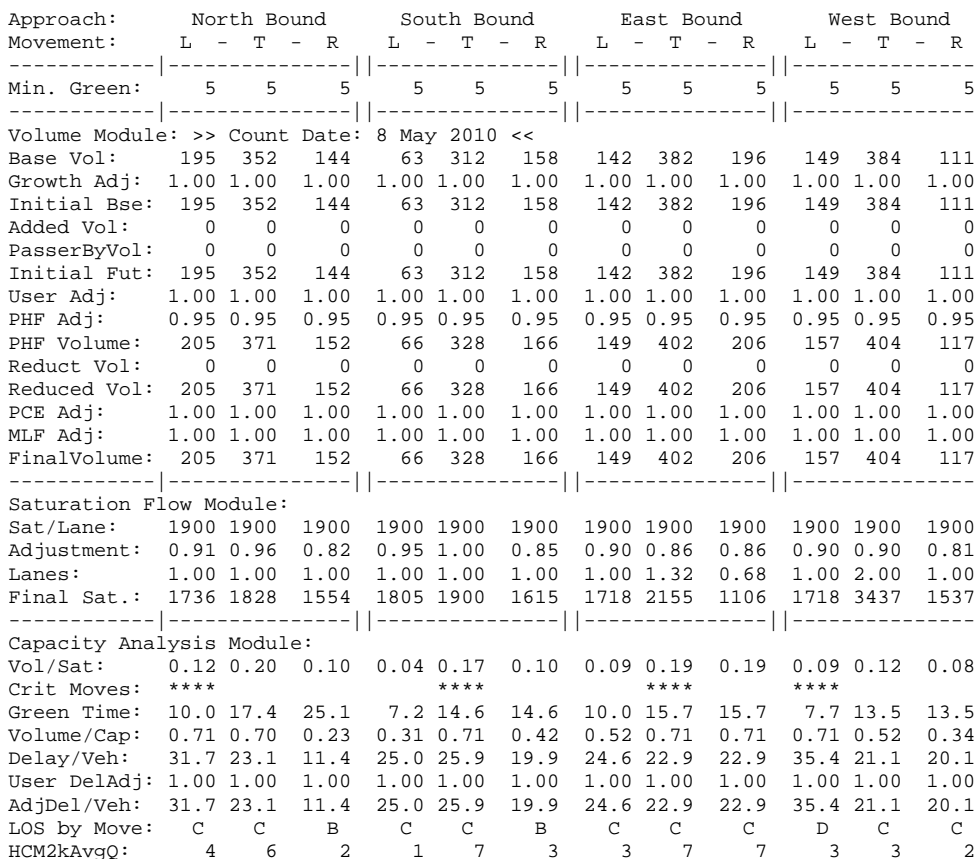
Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
AM Existing

Intersection #101: Stony Point at SR 116



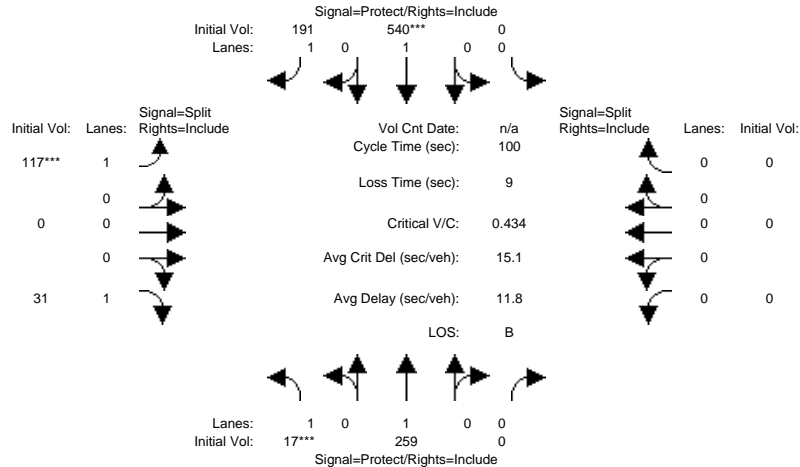
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Volume Module:												
Base Vol:	153	215	123	51	285	65	128	469	298	124	372	72
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	153	215	123	51	285	65	128	469	298	124	372	72
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:	153	215	123	51	285	65	128	469	298	124	372	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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	161	226	129	54	300	68	135	494	314	131	392	76
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	161	226	129	54	300	68	135	494	314	131	392	76
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:	161	226	129	54	300	68	135	494	314	131	392	76
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.91	0.96	0.82	0.95	1.00	0.85	0.90	0.85	0.85	0.90	0.90	0.81
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.22	0.78	1.00	2.00	1.00
Final Sat.:	1736	1828	1554	1805	1900	1615	1718	1980	1258	1718	3437	1537
Capacity Analysis Module:												
Vol/Sat:	0.09	0.12	0.08	0.03	0.16	0.04	0.08	0.25	0.25	0.08	0.11	0.05
Crit Moves:	****			****			****			****		
Green Time:	7.7	12.5	18.8	8.4	13.2	13.2	11.5	20.8	20.8	6.3	15.7	15.7
Volume/Cap:	0.72	0.60	0.27	0.21	0.72	0.19	0.41	0.72	0.72	0.72	0.44	0.19
Delay/Veh:	35.9	24.0	15.7	23.3	27.7	19.4	22.1	19.4	19.4	39.1	18.8	17.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	35.9	24.0	15.7	23.3	27.7	19.4	22.1	19.4	19.4	39.1	18.8	17.5
LOS by Move:	D	C	B	C	C	B	C	B	B	D	B	B
HCM2kAvgQ:	3	4	2	1	7	1	3	8	8	3	3	1

## Intersection #101: Stony Point at SR 116



Central Site Alternative  
Mecham Road  
With PCE  
Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
AM Existing

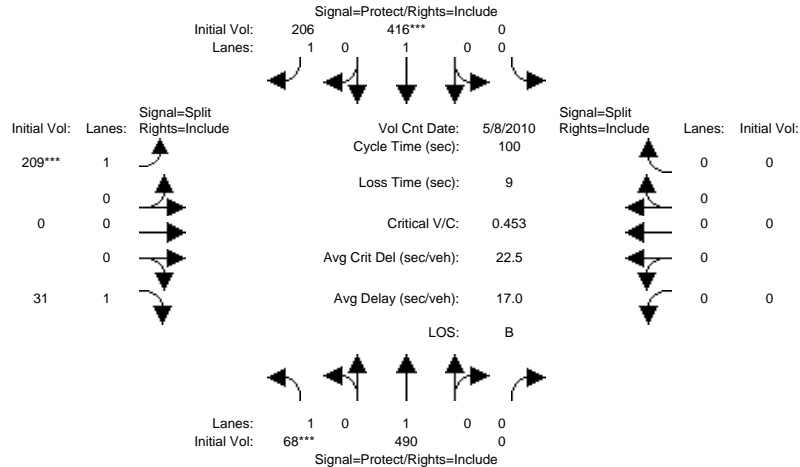
## Intersection #106: Stony Point at Mecham



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	0	0	10	10	10	0	10	0	0	0
Volume Module:												
Base Vol:	17	259	0	0	540	191	117	0	31	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:	17	259	0	0	540	191	117	0	31	0	0	0
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:	17	259	0	0	540	191	117	0	31	0	0	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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	18	273	0	0	568	201	123	0	33	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	273	0	0	568	201	123	0	33	0	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
Final Volume:	18	273	0	0	568	201	123	0	33	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.91	0.96	1.00	1.00	0.96	0.82	0.88	1.00	0.79	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1736	1828	0	0	1828	1554	1671	0	1495	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.01	0.15	0.00	0.00	0.31	0.13	0.07	0.00	0.02	0.00	0.00	0.00
Crit Moves:	****			****			****					
Green Time:	10.0	75.5	0.0	0.0	65.5	65.5	15.5	0.0	15.5	0.0	0.0	0.0
Volume/Cap:	0.10	0.20	0.00	0.00	0.47	0.20	0.47	0.00	0.14	0.00	0.00	0.00
Delay/Veh:	41.2	3.6	0.0	0.0	8.9	6.9	39.9	0.0	36.8	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	41.2	3.6	0.0	0.0	8.9	6.9	39.9	0.0	36.8	0.0	0.0	0.0
LOS by Move:	D	A	A	A	A	A	D	A	D	A	A	A
HCM2kAvgQ:	0	2	0	0	8	2	4	0	1	0	0	0

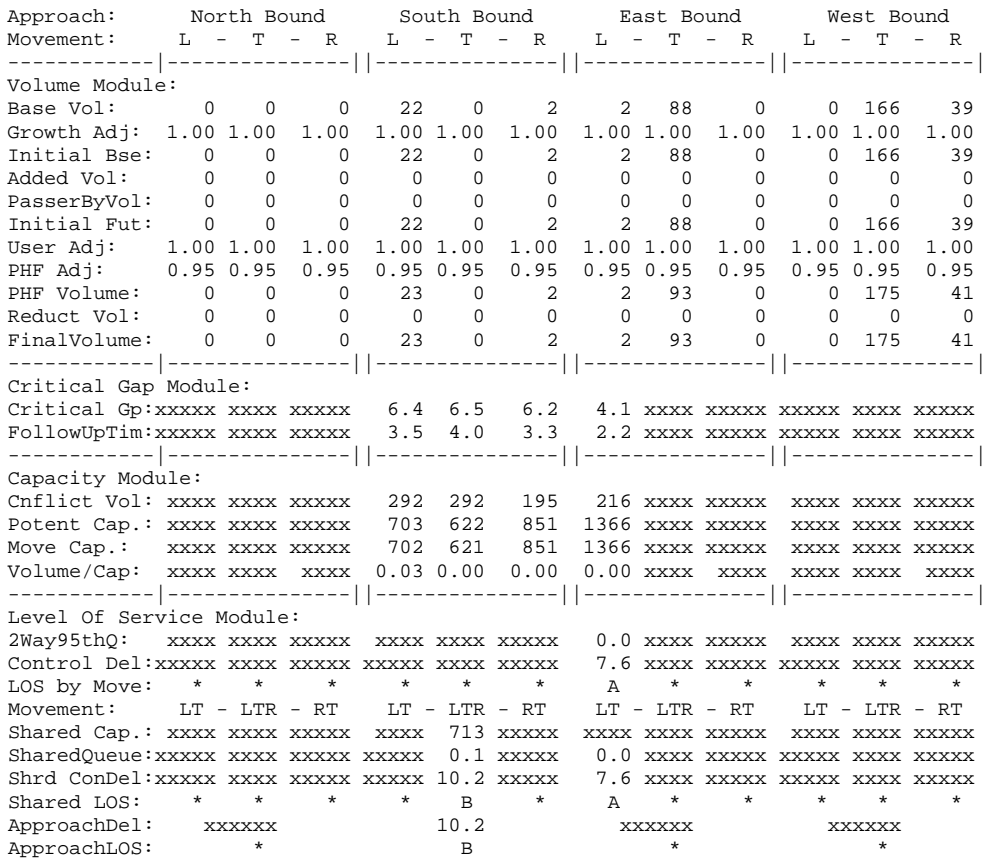
Central Site Alternative  
Mecham Road  
With PCE  
Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
SAT Existing

## Intersection #106: Stony Point at Mecham



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	0	0	10	10	10	0	10	0	0	0
Volume Module: >> Count Date: 8 May 2010 <<												
Base Vol:	68	490	0	0	416	206	209	0	31	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:	68	490	0	0	416	206	209	0	31	0	0	0
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:	68	490	0	0	416	206	209	0	31	0	0	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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	72	516	0	0	438	217	220	0	33	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	72	516	0	0	438	217	220	0	33	0	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
Final Volume:	72	516	0	0	438	217	220	0	33	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.91	0.96	1.00	1.00	0.96	0.82	0.88	1.00	0.79	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1736	1828	0	0	1828	1554	1671	0	1495	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.04	0.28	0.00	0.00	0.24	0.14	0.13	0.00	0.02	0.00	0.00	0.00
Crit Moves:	****			****			****					
Green Time:	10.0	62.3	0.0	0.0	52.3	52.3	28.7	0.0	28.7	0.0	0.0	0.0
Volume/Cap:	0.41	0.45	0.00	0.00	0.46	0.27	0.46	0.00	0.08	0.00	0.00	0.00
Delay/Veh:	43.8	10.2	0.0	0.0	15.3	13.4	29.9	0.0	26.0	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	43.8	10.2	0.0	0.0	15.3	13.4	29.9	0.0	26.0	0.0	0.0	0.0
LOS by Move:	D	B	A	A	B	B	C	A	C	A	A	A
HCM2kAvgQ:	2	8	0	0	8	3	6	0	1	0	0	0

## Intersection #114: Mecham at Site Access



## Intersection #114 Mecham at Site Access

Future Volume Alternative: Peak Hour Warrant NOT Met

Licensed to ESA, SAN FRANCISCO

Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	0 0 1! 0 0	0 1 0 0 0	0 0 0 1 0
Initial Vol:	0 0 0	22 0 2	2 88 0	0 166 39
ApproachDel:	xxxxxx	10.2	xxxxxx	xxxxxx

Approach[southbound][lanes=1][control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.1]

FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=24]

FAIL - Approach volume less than 100 for one lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=319]

FAIL - Total volume less than 650 for intersection  
with less than four approaches.

#### SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

#### Peak Hour Volume Signal Warrant Report [Rural]

\*\*\*\*\*

Intersection #114 Mecham at Site Access

\*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	0 0 1! 0 0	0 1 0 0 0	0 0 0 1 0
Initial Vol:	0 0 0	22 0 2	2 88 0	0 166 39

Major Street Volume: 295

Minor Approach Volume: 24

Minor Approach Volume Threshold: 297

#### SIGNAL WARRANT DISCLAIMER

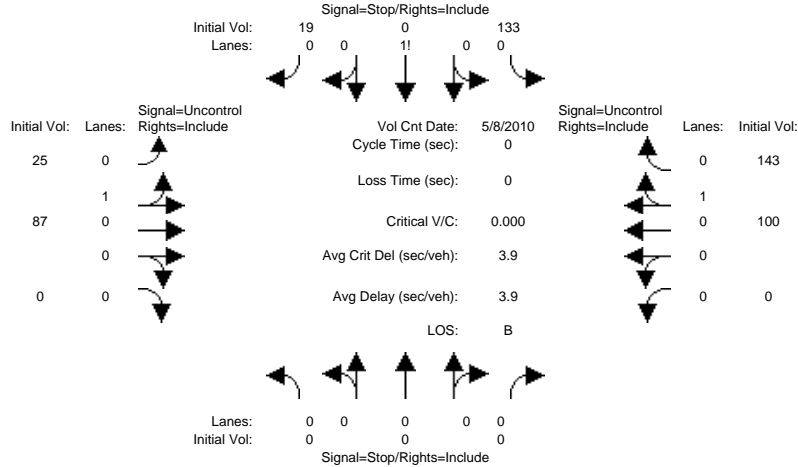
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Central Site Alternative  
Mecham Road  
With PCE

Level Of Service Computation Report  
2000 HCM Unsignalized (Future Volume Alternative)  
SAT Existing

Intersection #114: Mecham at Site Access



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module: >> Count Date: 8 May 2010 <<												
Base Vol:	0	0	0	133	0	19	25	87	0	0	100	143
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	133	0	19	25	87	0	0	100	143
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:	0	0	0	133	0	19	25	87	0	0	100	143
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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	140	0	20	26	92	0	0	105	151
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	140	0	20	26	92	0	0	105	151
Critical Gap Module:												
Critical Gp:xxxxxx	xxxxxx	xxxxxx	xxxxxx	6.4	6.5	6.2	4.1	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
FollowUpTim:xxxxxx	xxxxxx	xxxxxx	xxxxxx	3.5	4.0	3.3	2.2	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Capacity Module:												
Cnflct Vol:	xxxxxx	xxxxxx	xxxxxx	325	325	181	256	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Potent Cap.:	xxxxxx	xxxxxx	xxxxxx	673	596	867	1321	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Move Cap.:	xxxxxx	xxxxxx	xxxxxx	663	584	867	1321	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Volume/Cap:	xxxxxx	xxxxxx	xxxxxx	0.21	0.00	0.02	0.02	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Level Of Service Module:												
2Way95thQ:	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	0.1	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Control Del:xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	7.8	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxxxx	xxxxxx	xxxxxx	xxxxxx	683	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
SharedQueue:xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	0.9	xxxxxx	0.1	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Shrd ConDel:xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	11.9	xxxxxx	7.8	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx				11.9		xxxxxx			xxxxxx		
ApproachLOS:	*				B		*			*		

Peak Hour Delay Signal Warrant Report

\*\*\*\*\*

Intersection #114 Mecham at Site Access

\*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		



Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	0 0 1! 0 0	0 1 0 0 0	0 0 0 1 0
Initial Vol:	0 0 0	133 0 19	25 87 0	0 100 143
ApproachDel:	xxxxxx	11.9	xxxxxx	xxxxxx

Approach[southbound][lanes=1][control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.5]

FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=152]

SUCCEED - Approach volume greater than or equal to 100 for one lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=507]

FAIL - Total volume less than 650 for intersection  
with less than four approaches.

#### SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

#### Peak Hour Volume Signal Warrant Report [Rural]

\*\*\*\*\*  
Intersection #114 Mecham at Site Access  
\*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant NOT Met

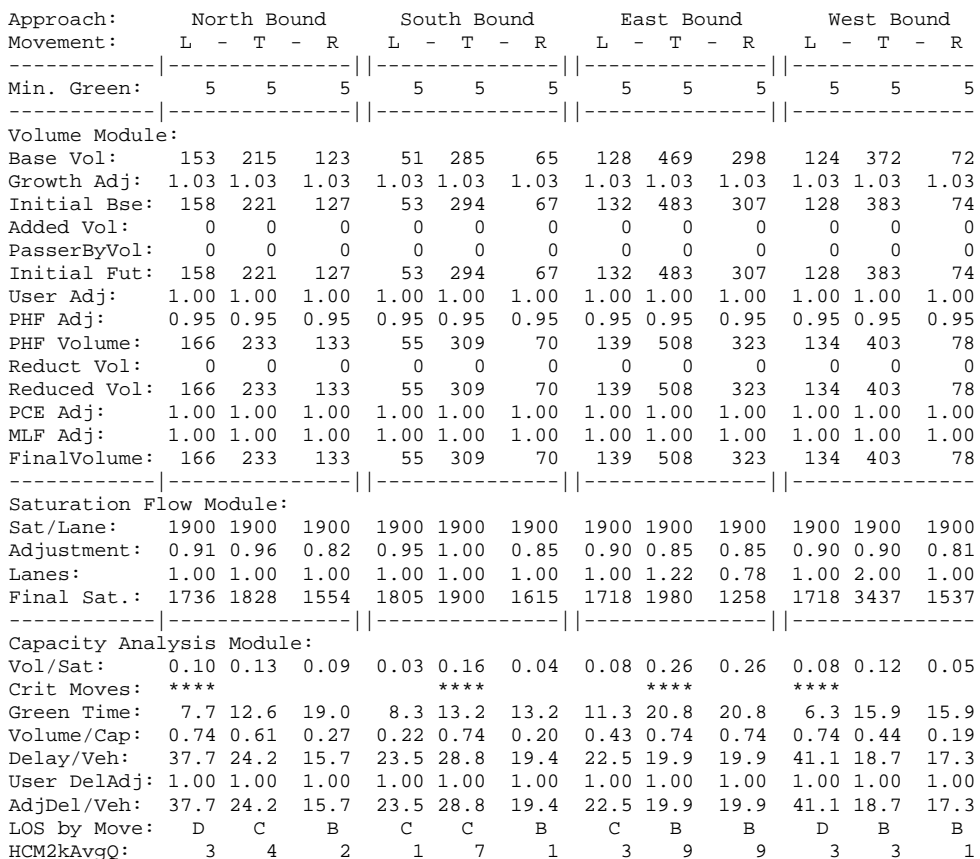
Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	0 0 1! 0 0	0 1 0 0 0	0 0 0 1 0
Initial Vol:	0 0 0	133 0 19	25 87 0	0 100 143
Major Street Volume:	355			
Minor Approach Volume:	152			
Minor Approach Volume Threshold:	266			

#### SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

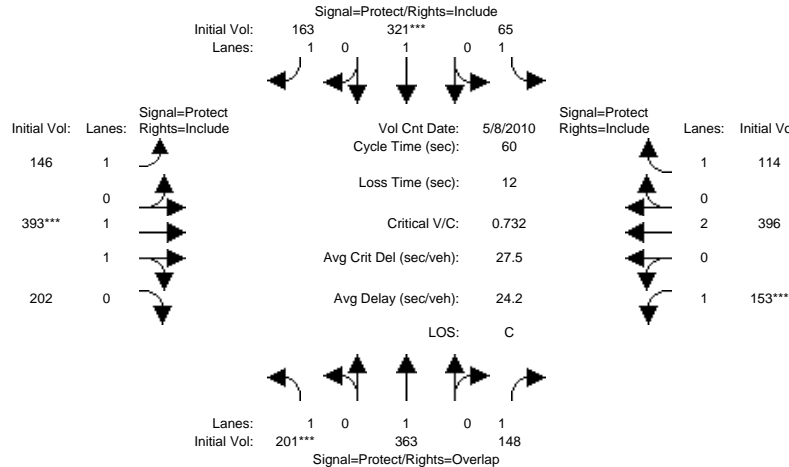
The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

## Intersection #101: Stony Point at SR 116



Central Site Alternative  
Mecham Road  
With PCE  
Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
SAT 2011

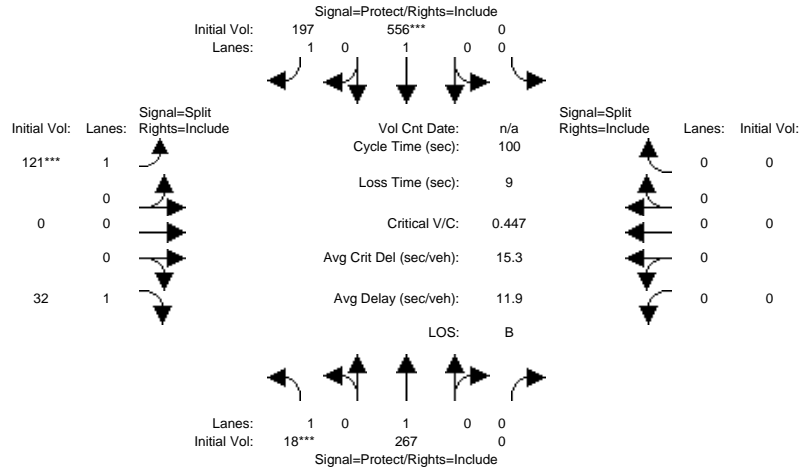
## Intersection #101: Stony Point at SR 116



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Volume Module: >> Count Date: 8 May 2010 <<												
Base Vol:	195	352	144	63	312	158	142	382	196	149	384	111
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	201	363	148	65	321	163	146	393	202	153	396	114
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:	201	363	148	65	321	163	146	393	202	153	396	114
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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	211	382	156	68	338	171	154	414	213	162	416	120
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	211	382	156	68	338	171	154	414	213	162	416	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
Final Volume:	211	382	156	68	338	171	154	414	213	162	416	120
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.91	0.96	0.82	0.95	1.00	0.85	0.90	0.86	0.86	0.90	0.90	0.81
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.32	0.68	1.00	2.00	1.00
Final Sat.:	1736	1828	1554	1805	1900	1615	1718	2155	1106	1718	3437	1537
Capacity Analysis Module:												
Vol/Sat:	0.12	0.21	0.10	0.04	0.18	0.11	0.09	0.19	0.19	0.09	0.12	0.08
Crit Moves:	****			****			****			****		
Green Time:	10.0	17.6	25.3	7.0	14.6	14.6	10.0	15.7	15.7	7.7	13.5	13.5
Volume/Cap:	0.73	0.71	0.24	0.32	0.73	0.44	0.54	0.73	0.73	0.73	0.54	0.35
Delay/Veh:	33.0	23.5	11.4	25.2	26.9	20.0	25.0	23.5	23.5	37.1	21.3	20.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	33.0	23.5	11.4	25.2	26.9	20.0	25.0	23.5	23.5	37.1	21.3	20.2
LOS by Move:	C	C	B	C	C	C	C	C	C	D	C	C
HCM2kAvgQ:	4	6	2	2	8	3	3	7	7	3	4	2

Central Site Alternative  
Mecham Road  
With PCE  
Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
AM 2011

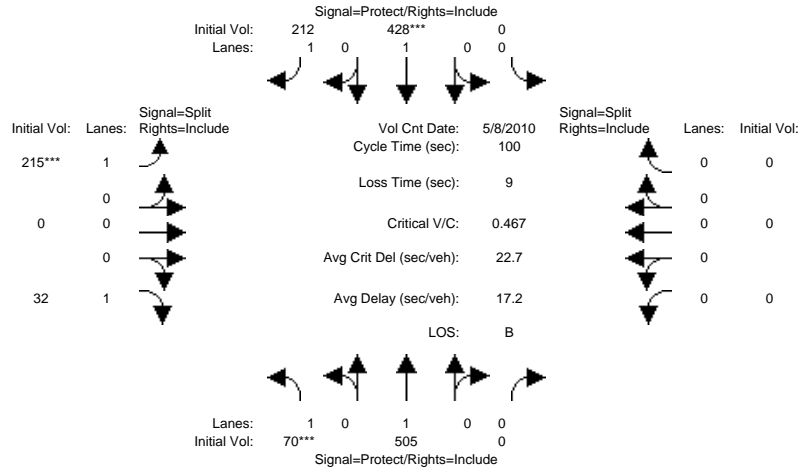
## Intersection #106: Stony Point at Mecham



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	0	0	10	10	10	0	10	0	0	0
Volume Module:												
Base Vol:	17	259	0	0	540	191	117	0	31	0	0	0
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	18	267	0	0	556	197	121	0	32	0	0	0
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:	18	267	0	0	556	197	121	0	32	0	0	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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	18	281	0	0	585	207	127	0	34	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	281	0	0	585	207	127	0	34	0	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
Final Volume:	18	281	0	0	585	207	127	0	34	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.91	0.96	1.00	1.00	0.96	0.82	0.88	1.00	0.79	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1736	1828	0	0	1828	1554	1671	0	1495	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.01	0.15	0.00	0.00	0.32	0.13	0.08	0.00	0.02	0.00	0.00	0.00
Crit Moves:	****			****			****					
Green Time:	10.0	75.5	0.0	0.0	65.5	65.5	15.5	0.0	15.5	0.0	0.0	0.0
Volume/Cap:	0.11	0.20	0.00	0.00	0.49	0.20	0.49	0.00	0.14	0.00	0.00	0.00
Delay/Veh:	41.2	3.6	0.0	0.0	9.1	7.0	40.1	0.0	36.8	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	41.2	3.6	0.0	0.0	9.1	7.0	40.1	0.0	36.8	0.0	0.0	0.0
LOS by Move:	D	A	A	A	A	A	D	A	D	A	A	A
HCM2kAvgQ:	0	2	0	0	9	2	4	0	1	0	0	0

Central Site Alternative  
Mecham Road  
With PCE  
Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
SAT 2011

## Intersection #106: Stony Point at Mecham

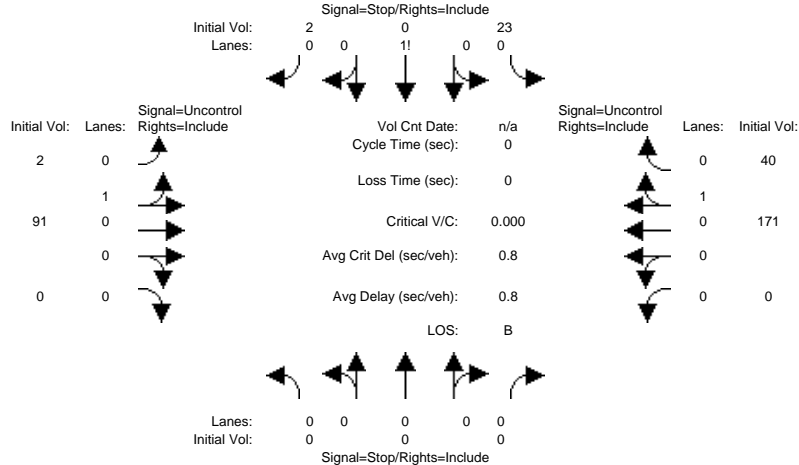


Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	0	0	10	10	10	0	10	0	0	0
Volume Module: >> Count Date: 8 May 2010 <<												
Base Vol:	68	490	0	0	416	206	209	0	31	0	0	0
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	70	505	0	0	428	212	215	0	32	0	0	0
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:	70	505	0	0	428	212	215	0	32	0	0	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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	74	531	0	0	451	223	227	0	34	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	74	531	0	0	451	223	227	0	34	0	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
Final Volume:	74	531	0	0	451	223	227	0	34	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.91	0.96	1.00	1.00	0.96	0.82	0.88	1.00	0.79	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1736	1828	0	0	1828	1554	1671	0	1495	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.04	0.29	0.00	0.00	0.25	0.14	0.14	0.00	0.02	0.00	0.00	0.00
Crit Moves:	****			****			****					
Green Time:	10.0	62.3	0.0	0.0	52.3	52.3	28.7	0.0	28.7	0.0	0.0	0.0
Volume/Cap:	0.42	0.47	0.00	0.00	0.47	0.27	0.47	0.00	0.08	0.00	0.00	0.00
Delay/Veh:	44.0	10.3	0.0	0.0	15.5	13.5	30.1	0.0	26.1	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	44.0	10.3	0.0	0.0	15.5	13.5	30.1	0.0	26.1	0.0	0.0	0.0
LOS by Move:	D	B	A	A	B	B	C	A	C	A	A	A
HCM2kAvgQ:	2	9	0	0	8	4	6	0	1	0	0	0

Central Site Alternative  
Mecham Road  
With PCE

Level Of Service Computation Report  
2000 HCM Unsignalized (Future Volume Alternative)  
AM 2011

Intersection #114: Mecham at Site Access



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module:												
Base Vol:	0	0	0	22	0	2	2	88	0	0	166	39
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	0	0	0	23	0	2	2	91	0	0	171	40
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:	0	0	0	23	0	2	2	91	0	0	171	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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	24	0	2	2	95	0	0	180	42
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	24	0	2	2	95	0	0	180	42
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflct Vol:	xxxx	xxxx	xxxxx	301	301	201	222	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	695	615	845	1359	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	694	614	845	1359	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.03	0.00	0.00	0.00	xxxx	xxxx	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	705	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	10.3	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxxx			10.3			xxxxxxx			xxxxxxx		
ApproachLOS:	*			B			*			*		

Peak Hour Delay Signal Warrant Report

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Intersection #114 Mecham at Site Access

\*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
-----------	-------------	--	--	-------------	--	--	------------	--	--	------------	--	--

Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	1	0	0	0	1	0	0
Initial Vol:	0	0	0	23	0	2	2	91	0	0	171	40
ApproachDel:	xxxxxx			10.3			xxxxxx			xxxxxx		

Approach[southbound][lanes=1][control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.1]

FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=25]

FAIL - Approach volume less than 100 for one lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=329]

FAIL - Total volume less than 650 for intersection  
with less than four approaches.

#### SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

#### Peak Hour Volume Signal Warrant Report [Rural]

\*\*\*\*\*

Intersection #114 Mecham at Site Access

\*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0	0	0	0	0	1	0	0	0	0	0	1
Initial Vol:	0	0	0	23	0	2	2	91	0	0	171	40
Major Street Volume:	304											
Minor Approach Volume:	25											
Minor Approach Volume Threshold:	292											

#### SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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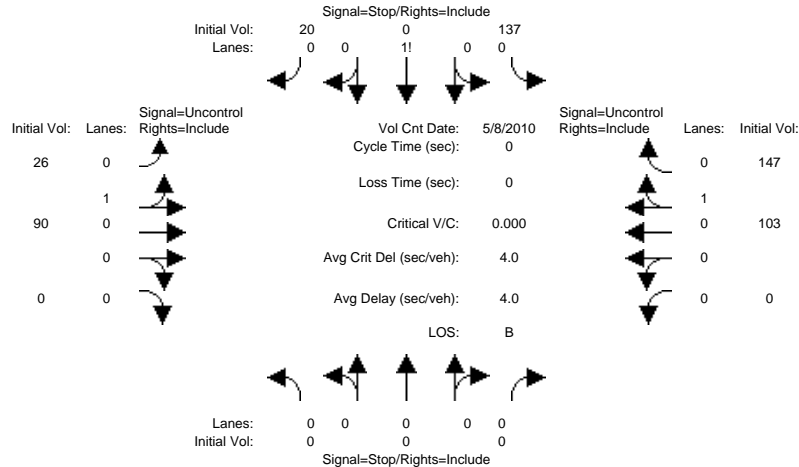
Central Site Alternative  
Mecham Road  
With PCE

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Level Of Service Computation Report  
2000 HCM Unsignalized (Future Volume Alternative)  
SAT 2011

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## Intersection #114: Mecham at Site Access



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module: >> Count Date: 8 May 2010 <<												
Base Vol:	0	0	0	133	0	19	25	87	0	0	100	143
Growth Adj:	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Initial Bse:	0	0	0	137	0	20	26	90	0	0	103	147
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:	0	0	0	137	0	20	26	90	0	0	103	147
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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	144	0	21	27	94	0	0	108	155
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	144	0	21	27	94	0	0	108	155
Critical Gap Module:												
Critical Gp:xxxxxx	xxxxxx	xxxxxx	xxxxxx	6.4	6.5	6.2	4.1	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
FollowUpTim:xxxxxx	xxxxxx	xxxxxx	xxxxxx	3.5	4.0	3.3	2.2	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Capacity Module:												
Cnflict Vol:	xxxxxx	xxxxxx	xxxxxx	334	334	186	263	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Potent Cap.:	xxxxxx	xxxxxx	xxxxxx	665	589	861	1312	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Move Cap.:	xxxxxx	xxxxxx	xxxxxx	654	577	861	1312	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Volume/Cap:	xxxxxx	xxxxxx	xxxxxx	0.22	0.00	0.02	0.02	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Level Of Service Module:												
2Way95thQ:	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	0.1	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Control Del:xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	7.8	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxxxx	xxxxxx	xxxxxx	xxxxxx	674	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
SharedQueue:xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	1.0	xxxxxx	0.1	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Shrd ConDel:xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx	12.1	xxxxxx	7.8	xxxxxx	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			12.1			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

## Peak Hour Delay Signal Warrant Report

Intersection #114 Mecham at Site Access

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
-----------	-------------	-------------	------------	------------



Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	0 0 1! 0 0	0 1 0 0 0	0 0 0 1 0
Initial Vol:	0 0 0	137 0 20	26 90 0	0 103 147
ApproachDel:	xxxxxx	12.1	xxxxxx	xxxxxx

Approach[southbound][lanes=1][control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.5]

FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=157]

SUCCEED - Approach volume greater than or equal to 100 for one lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=522]

FAIL - Total volume less than 650 for intersection  
with less than four approaches.

#### SIGNAL WARRANT DISCLAIMER

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#### Peak Hour Volume Signal Warrant Report [Rural]

\*\*\*\*\*  
Intersection #114 Mecham at Site Access  
\*\*\*\*\*

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 0 0 0	0 0 1! 0 0	0 1 0 0 0	0 0 0 1 0
Initial Vol:	0 0 0	137 0 20	26 90 0	0 103 147
Major Street Volume:	366			
Minor Approach Volume:	157			
Minor Approach Volume Threshold:	261			

#### SIGNAL WARRANT DISCLAIMER

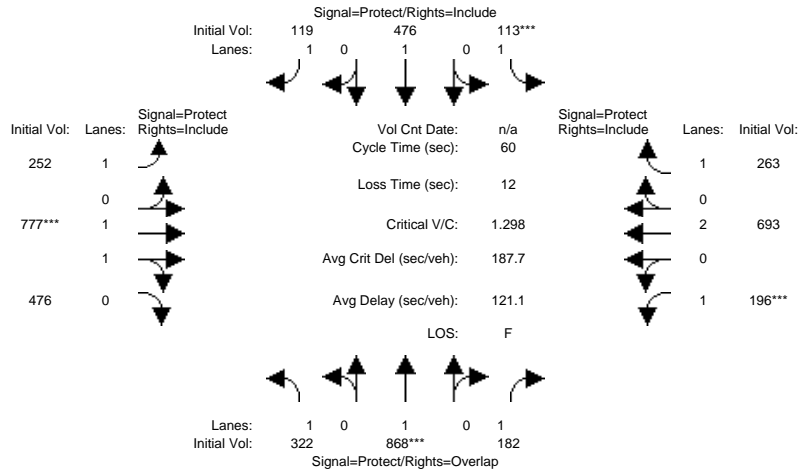
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Central Site Alternative  
Mecham Road  
With PCE

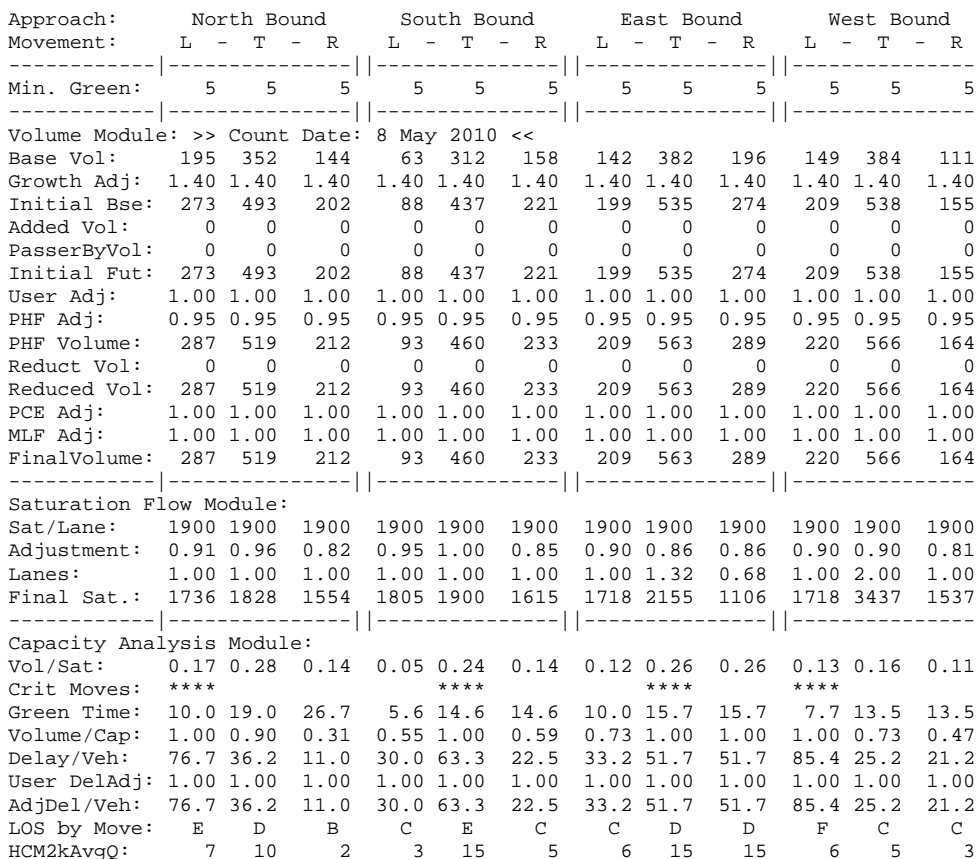
Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
AM Cum

## Intersection #101: Stony Point at SR 116



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Volume Module:												
Base Vol:	230	620	130	81	340	85	180	555	340	140	495	188
Growth Adj:	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Initial Bse:	322	868	182	113	476	119	252	777	476	196	693	263
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:	322	868	182	113	476	119	252	777	476	196	693	263
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:	322	868	182	113	476	119	252	777	476	196	693	263
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	322	868	182	113	476	119	252	777	476	196	693	263
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:	322	868	182	113	476	119	252	777	476	196	693	263
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.91	0.96	0.82	0.95	1.00	0.85	0.90	0.85	0.85	0.90	0.90	0.81
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.24	0.76	1.00	2.00	1.00
Final Sat.:	1736	1828	1554	1805	1900	1615	1718	2010	1231	1718	3437	1537
Capacity Analysis Module:												
Vol/Sat:	0.19	0.47	0.12	0.06	0.25	0.07	0.15	0.39	0.39	0.11	0.20	0.17
Crit Moves:	****			****			****			****		
Green Time:	11.0	20.9	26.0	5.0	14.9	14.9	9.3	17.0	17.0	5.0	12.8	12.8
Volume/Cap:	1.01	1.36	0.27	0.75	1.01	0.30	0.95	1.36	1.36	1.36	0.95	0.80
Delay/Veh:	77.1	192	11.2	46.1	66.2	18.7	65.9	191	191.1	228.2	44.5	35.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	77.1	192	11.2	46.1	66.2	18.7	65.9	191	191.1	228.2	44.5	35.8
LOS by Move:	E	F	B	D	E	B	E	F	F	F	D	D
HCM2kAvgQ:	8	44	2	4	16	2	9	36	36	10	8	5

## Intersection #101: Stony Point at SR 116



Central Site Alternative  
Mecham Road  
With PCE

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #101 Stony Point at SR 116  
\*\*\*\*\*

Cycle (sec): 60 Critical Vol./Cap.(X): 1.324  
Loss Time (sec): 12 Average Delay (sec/veh): 127.4  
Optimal Cycle: 120 Level Of Service: F  
\*\*\*\*\*

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:	Ovl			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	0	1	0	1	1	0	1	0	2

Volume Module:

Base Vol:	230	620	130	81	340	85	180	555	340	140	495	188
Growth Adj:	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Initial Bse:	322	868	182	113	476	119	252	777	476	196	693	263
Added Vol:	0	0	25	0	0	0	0	0	0	36	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	322	868	207	113	476	119	252	777	476	232	693	263
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:	322	868	207	113	476	119	252	777	476	232	693	263
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	322	868	207	113	476	119	252	777	476	232	693	263
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:	322	868	207	113	476	119	252	777	476	232	693	263

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.91	0.96	0.82	0.95	1.00	0.85	0.90	0.85	0.85	0.90	0.90	0.81
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.24	0.76	1.00	2.00	1.00
Final Sat.:	1736	1828	1554	1805	1900	1615	1718	2010	1231	1718	3437	1537

Capacity Analysis Module:

Vol/Sat:	0.19	0.47	0.13	0.06	0.25	0.07	0.15	0.39	0.39	0.14	0.20	0.17
Crit Moves:	****			****			****			****		
Green Time:	10.8	20.5	26.3	5.0	14.6	14.6	9.5	16.7	16.7	5.8	13.0	13.0
Volume/Cap:	1.03	1.39	0.30	0.75	1.03	0.30	0.93	1.39	1.39	1.39	0.93	0.79
Delay/Veh:	82.3	205	11.2	46.1	71.3	18.9	60.9	204	204.2	235.2	40.9	34.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	82.3	205	11.2	46.1	71.3	18.9	60.9	204	204.2	235.2	40.9	34.0
LOS by Move:	F	F	B	D	E	B	E	F	F	F	D	C
HCM2kAvgQ:	9	46	2	4	16	2	9	37	37	12	8	5

Note: Queue reported is the number of cars per lane.

Central Site Alternative  
Mecham Road  
With PCE

## Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #101 Stony Point at SR 116

Cycle (sec): 60 Critical Vol./Cap. (X): 1.035  
Loss Time (sec): 12 Average Delay (sec/veh): 49.8  
Optimal Cycle: 120 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:	Ovl			Include			Include			Include		
Min. Green:	5	5	5	5	5	5	5	5	5	5	5	5
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	0	1	0	1	1	0	1	0	2

Volume Module: >> Count Date: 8 May 2010 <<

Base Vol:	195	352	144	63	312	158	142	382	196	149	384	111
Growth Adj:	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Initial Bse:	273	493	202	88	437	221	199	535	274	209	538	155
Added Vol:	0	0	46	0	0	0	0	0	0	51	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	273	493	248	88	437	221	199	535	274	260	538	155
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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	287	519	261	93	460	233	209	563	289	273	566	164
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	287	519	261	93	460	233	209	563	289	273	566	164
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
Final Volume:	287	519	261	93	460	233	209	563	289	273	566	164

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.91	0.96	0.82	0.95	1.00	0.85	0.90	0.86	0.86	0.90	0.90	0.81
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.32	0.68	1.00	2.00	1.00
Final Sat.:	1736	1828	1554	1805	1900	1615	1718	2155	1106	1718	3437	1537

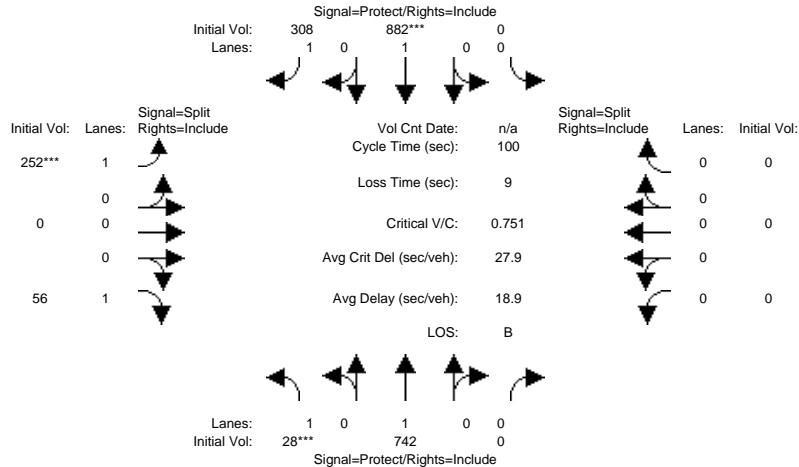
Capacity Analysis Module:

Vol/Sat:	0.17	0.28	0.17	0.05	0.24	0.14	0.12	0.26	0.26	0.16	0.16	0.11
Crit Moves:	****			****			****			****		
Green Time:	9.6	18.3	27.5	5.4	14.0	14.0	10.4	15.1	15.1	9.2	14.0	14.0
Volume/Cap:	1.03	0.93	0.37	0.58	1.03	0.62	0.71	1.03	1.03	1.03	0.71	0.46
Delay/Veh:	88.5	43.0	10.9	31.2	74.9	23.6	30.9	63.1	63.1	90.0	24.0	20.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	88.5	43.0	10.9	31.2	74.9	23.6	30.9	63.1	63.1	90.0	24.0	20.6
LOS by Move:	F	D	B	C	E	C	C	E	E	F	C	C
HCM2kAvgQ:	8	11	3	3	16	5	5	16	16	8	5	3

Note: Queue reported is the number of cars per lane.

Central Site Alternative  
Mecham Road  
With PCE  
Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
AM Cum

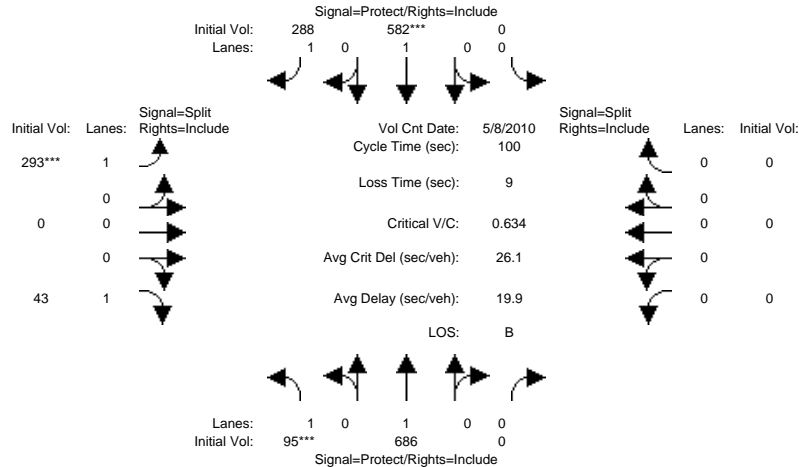
## Intersection #106: Stony Point at Mecham



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	0	0	10	10	10	0	10	0	0	0
Volume Module:												
Base Vol:	20	530	0	0	630	220	180	0	40	0	0	0
Growth Adj:	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Initial Bse:	28	742	0	0	882	308	252	0	56	0	0	0
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:	28	742	0	0	882	308	252	0	56	0	0	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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	29	781	0	0	928	324	265	0	59	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	29	781	0	0	928	324	265	0	59	0	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
Final Volume:	29	781	0	0	928	324	265	0	59	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.91	0.96	1.00	1.00	0.96	0.82	0.88	1.00	0.79	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1736	1828	0	0	1828	1554	1671	0	1495	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.02	0.43	0.00	0.00	0.51	0.21	0.16	0.00	0.04	0.00	0.00	0.00
Crit Moves:	****			****			****					
Green Time:	10.0	71.7	0.0	0.0	61.7	61.7	19.3	0.0	19.3	0.0	0.0	0.0
Volume/Cap:	0.17	0.60	0.00	0.00	0.82	0.34	0.82	0.00	0.20	0.00	0.00	0.00
Delay/Veh:	41.7	7.7	0.0	0.0	19.9	9.5	54.3	0.0	34.3	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	41.7	7.7	0.0	0.0	19.9	9.5	54.3	0.0	34.3	0.0	0.0	0.0
LOS by Move:	D	A	A	A	B	A	D	A	C	A	A	A
HCM2kAvgQ:	1	12	0	0	20	4	10	0	2	0	0	0

Central Site Alternative  
Mecham Road  
With PCE  
Level Of Service Computation Report  
2000 HCM Operations (Future Volume Alternative)  
SAT Cum

## Intersection #106: Stony Point at Mecham



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	0	0	10	10	10	0	10	0	0	0
Volume Module: >> Count Date: 8 May 2010 <<												
Base Vol:	68	490	0	0	416	206	209	0	31	0	0	0
Growth Adj:	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Initial Bse:	95	686	0	0	582	288	293	0	43	0	0	0
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:	95	686	0	0	582	288	293	0	43	0	0	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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	100	722	0	0	613	304	308	0	46	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	100	722	0	0	613	304	308	0	46	0	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
Final Volume:	100	722	0	0	613	304	308	0	46	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.91	0.96	1.00	1.00	0.96	0.82	0.88	1.00	0.79	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1736	1828	0	0	1828	1554	1671	0	1495	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.06	0.40	0.00	0.00	0.34	0.20	0.18	0.00	0.03	0.00	0.00	0.00
Crit Moves:	****			****			****					
Green Time:	10.0	62.3	0.0	0.0	52.3	52.3	28.7	0.0	28.7	0.0	0.0	0.0
Volume/Cap:	0.58	0.63	0.00	0.00	0.64	0.37	0.64	0.00	0.11	0.00	0.00	0.00
Delay/Veh:	47.7	12.9	0.0	0.0	18.6	14.4	34.1	0.0	26.3	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	47.7	12.9	0.0	0.0	18.6	14.4	34.1	0.0	26.3	0.0	0.0	0.0
LOS by Move:	D	B	A	A	B	B	C	A	C	A	A	A
HCM2kAvgQ:	3	14	0	0	12	5	9	0	1	0	0	0

Central Site Alternative  
Mecham Road  
With PCE

Level Of Service Computation Report  
2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #106 Stony Point at Mecham  
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.780  
Loss Time (sec): 9 Average Delay (sec/veh): 20.7  
Optimal Cycle: 64 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			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	0	0	10	10	10	0	10	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	0	0	1	0	0	0	1	0	0

Volume Module:

Base Vol:	20	530	0	0	630	220	180	0	40	0	0	0
Growth Adj:	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Initial Bse:	28	742	0	0	882	308	252	0	56	0	0	0
Added Vol:	17	0	0	0	0	36	25	0	12	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	45	742	0	0	882	344	277	0	68	0	0	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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	47	781	0	0	928	362	292	0	72	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	47	781	0	0	928	362	292	0	72	0	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:	47	781	0	0	928	362	292	0	72	0	0	0

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.91	0.96	1.00	1.00	0.96	0.82	0.88	1.00	0.79	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1736	1828	0	0	1828	1554	1671	0	1495	0	0	0

Capacity Analysis Module:

Vol/Sat:	0.03	0.43	0.00	0.00	0.51	0.23	0.17	0.00	0.05	0.00	0.00	0.00
Crit Moves:	****			****		****						
Green Time:	10.0	70.3	0.0	0.0	60.3	60.3	20.7	0.0	20.7	0.0	0.0	0.0
Volume/Cap:	0.27	0.61	0.00	0.00	0.84	0.39	0.84	0.00	0.23	0.00	0.00	0.00
Delay/Veh:	42.5	8.6	0.0	0.0	22.0	10.5	54.9	0.0	33.4	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	42.5	8.6	0.0	0.0	22.0	10.5	54.9	0.0	33.4	0.0	0.0	0.0
LOS by Move:	D	A	A	A	C	B	D	A	C	A	A	A
HCM2kAvgQ:	1	12	0	0	21	5	11	0	2	0	0	0

Note: Queue reported is the number of cars per lane.



Central Site Alternative  
Mecham Road  
With PCE

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #106 Stony Point at Mecham  
\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap. (X): 0.683  
Loss Time (sec): 9 Average Delay (sec/veh): 22.6  
Optimal Cycle: 49 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			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	10	10	0	0	10	10	10	0	10	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	0	0	1	0	0	0	1	0	0

Volume Module: >> Count Date: 8 May 2010 <<

Base Vol:	68	490	0	0	416	206	209	0	31	0	0	0
Growth Adj:	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Initial Bse:	95	686	0	0	582	288	293	0	43	0	0	0
Added Vol:	25	0	0	0	0	51	46	0	23	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	120	686	0	0	582	339	339	0	66	0	0	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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	127	722	0	0	613	357	356	0	70	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	127	722	0	0	613	357	356	0	70	0	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
Final Volume:	127	722	0	0	613	357	356	0	70	0	0	0

Saturation Flow Module:

Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.91	0.96	1.00	1.00	0.96	0.82	0.88	1.00	0.79	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1736	1828	0	0	1828	1554	1671	0	1495	0	0	0

Capacity Analysis Module:

Vol/Sat:	0.07	0.40	0.00	0.00	0.34	0.23	0.21	0.00	0.05	0.00	0.00	0.00
Crit Moves:	****			****		****						
Green Time:	10.7	59.8	0.0	0.0	49.1	49.1	31.2	0.0	31.2	0.0	0.0	0.0
Volume/Cap:	0.68	0.66	0.00	0.00	0.68	0.47	0.68	0.00	0.15	0.00	0.00	0.00
Delay/Veh:	53.1	14.9	0.0	0.0	21.7	17.3	33.8	0.0	25.0	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	53.1	14.9	0.0	0.0	21.7	17.3	33.8	0.0	25.0	0.0	0.0	0.0
LOS by Move:	D	B	A	A	C	B	C	A	C	A	A	A
HCM2kAvgQ:	4	15	0	0	13	7	11	0	2	0	0	0

\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.

Central Site Alternative  
Mecham Road  
With PCE

## Level Of Service Computation Report

## 2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*  
Intersection #114 Mecham at Site Access  
\*\*\*\*\*

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B[ 12.3]

\*\*\*\*\*  
Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R  
-----|-----|-----|-----|  
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled  
Rights: Include Include Include Include  
Lanes: 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 1 0  
-----|-----|-----|-----|

## Volume Module:

Base Vol: 0 0 0 22 0 2 2 155 0 0 198 39  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.40 1.00 1.00 1.40 1.00  
Initial Bse: 0 0 0 22 0 2 2 217 0 0 277 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: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 0 0 23 0 2 2 228 0 0 292 41  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
FinalVolume: 0 0 0 23 0 2 2 228 0 0 292 41  
-----|-----|-----|-----|

## Critical Gap Module:

Critical Gp:xxxxx xxxx xxxxx 6.4 6.5 6.2 4.1 xxxx xxxxx xxxxx xxxx xxxxx  
FollowUpTim:xxxxx xxxx xxxxx 3.5 4.0 3.3 2.2 xxxx xxxxx xxxxx xxxx xxxxx  
-----|-----|-----|-----|

## Capacity Module:

Cnflct Vol: xxxx xxxx xxxxx 545 545 312 333 xxxx xxxxx xxxxx xxxx xxxxx  
Potent Cap.: xxxx xxxx xxxxx 503 449 733 1238 xxxx xxxxx xxxxx xxxx xxxxx  
Move Cap.: xxxx xxxx xxxxx 502 448 733 1238 xxxx xxxxx xxxxx xxxx xxxxx  
Volume/Cap: xxxx xxxx xxxxx 0.05 0.00 0.00 0.00 xxxx xxxxx xxxxx xxxx xxxxx  
-----|-----|-----|-----|

## Level Of Service Module:

2Way95thQ: xxxx xxxx xxxxx xxxx xxxx xxxxx 0.0 xxxx xxxxx xxxxx xxxx xxxxx  
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx 7.9 xxxx xxxxx xxxxx xxxx xxxxx  
LOS by Move: \* \* \* \* \* A \* \* \* \* \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxx xxxx xxxxx xxxx 516 xxxxx xxxx xxxxx xxxxx xxxx xxxxx  
SharedQueue:xxxxx xxxx xxxxx xxxxx 0.2 xxxxx 0.0 xxxx xxxxx xxxxx xxxx xxxxx  
Shrd ConDel:xxxxx xxxx xxxxx xxxxx 12.3 xxxxx 7.9 xxxx xxxxx xxxxx xxxx xxxxx  
Shared LOS: \* \* \* \* \* B \* A \* \* \* \* \*  
ApproachDel: xxxxxx 12.3 xxxxxx xxxxxx  
ApproachLOS: \* B \* \* \*  
-----|-----|-----|-----|

\*\*\*\*\*  
Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Central Site Alternative  
Mecham Road  
With PCE

## Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

\*\*\*\*\*  
Intersection #114 Mecham at Site Access  
\*\*\*\*\*

Average Delay (sec/veh): 3.7 Worst Case Level Of Service: B[ 12.8]  
\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0	0	0	0	0	1	0	0	0	0	0	1

Volume Module: >> Count Date: 8 May 2010 <<	North Bound			South Bound			East Bound			West Bound		
Base Vol:	0	0	0	133	0	19	25	87	0	0	100	143
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.40	1.00	1.00	1.40	1.00
Initial Bse:	0	0	0	133	0	19	25	122	0	0	140	143
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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	140	0	20	26	128	0	0	147	151
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	140	0	20	26	128	0	0	147	151

## Critical Gap Module:

Critical Gp:xxxxx xxxxx xxxxx	6.4	6.5	6.2	4.1	xxxxx xxxxx xxxxx xxxxx xxxxx
FollowUpTim:xxxxx xxxxx xxxxx	3.5	4.0	3.3	2.2	xxxxx xxxxx xxxxx xxxxx xxxxx

## Capacity Module:

Cnflct Vol: xxxxx xxxxx xxxxx	403	403	223	298	xxxxx xxxxx xxxxx xxxxx xxxxx
Potent Cap.: xxxxx xxxxx xxxxx	607	539	822	1275	xxxxx xxxxx xxxxx xxxxx xxxxx
Move Cap.: xxxxx xxxxx xxxxx	597	528	822	1275	xxxxx xxxxx xxxxx xxxxx xxxxx
Volume/Cap: xxxxx xxxxx xxxxx	0.23	0.00	0.02	0.02	xxxxx xxxxx xxxxx xxxxx xxxxx

## Level Of Service Module:

2Way95thQ: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx	0.1	xxxxx xxxxx xxxxx xxxxx xxxxx
Control Del:xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx	7.9	xxxxx xxxxx xxxxx xxxxx xxxxx
LOS by Move: * * *	A * *	
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT		
Shared Cap.: xxxxx xxxxx xxxxx xxxxx 618 xxxxx xxxxx xxxxx xxxxx xxxxx		
SharedQueue:xxxxx xxxxx xxxxx xxxxx 1.0 xxxxx 0.1 xxxxx xxxxx xxxxx xxxxx xxxxx		
Shrd ConDel:xxxxx xxxxx xxxxx xxxxx 12.8 xxxxx 7.9 xxxxx xxxxx xxxxx xxxxx xxxxx		
Shared LOS: * * *	B * A * *	
ApproachDel: xxxxxx 12.8 xxxxxx xxxxxx		
ApproachLOS: * B *		

Note: Queue reported is the number of cars per lane.  
\*\*\*\*\*

Central Site Alternative  
Mecham Road  
With PCE

Level Of Service Computation Report  
2000 HCM Unsignalized Method (Future Volume Alternative)

\*\*\*\*\*  
Intersection #114 Mecham at Site Access  
\*\*\*\*\*

Average Delay (sec/veh): 1.3 Worst Case Level Of Service: B[ 13.5]  
\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0	0	0	0	0	1	0	0	0	0	0	1

Volume Module:

Base Vol:	0	0	0	22	0	2	2	155	0	0	198	39
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.40	1.00	1.00	1.40	1.00
Initial Bse:	0	0	0	22	0	2	2	217	0	0	277	39
Added Vol:	0	0	0	37	0	0	0	0	0	0	0	53
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	59	0	2	2	217	0	0	277	92
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:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	62	0	2	2	228	0	0	292	97
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Volume:	0	0	0	62	0	2	2	228	0	0	292	97

Critical Gap Module:

Critical Gp:	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx

Capacity Module:

Cnflct Vol:	xxxx	xxxx	xxxxx	573	573	340	389	xxxx	xxxxx	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	484	432	707	1181	xxxx	xxxxx	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	484	432	707	1181	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	0.13	0.00	0.00	0.00	xxxx	xxxx	xxxx	xxxx	xxxx

Level Of Service Module:

2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	A	*	*	*	*	*
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	489	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	0.4	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	13.5	xxxxx	8.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	B	*	A	*	*	*	*	*
ApproachDel:	xxxxxx			13.5			xxxxxx			xxxxxx		
ApproachLOS:	*			B			*			*		

Note: Queue reported is the number of cars per lane.

Central Site Alternative  
Mecham Road  
With PCE

## Level Of Service Computation Report

## 2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #114 Mecham at Site Access

Average Delay (sec/veh): 4.9 Worst Case Level Of Service: C[ 15.3]

Approach: North Bound South Bound East Bound West Bound  
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Uncontrolled Uncontrolled  
Rights: Include Include Include Include  
Lanes: 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 1 0

Volume Module: >> Count Date: 8 May 2010 <<  
Base Vol: 0 0 0 133 0 19 25 87 0 0 100 143  
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.40 1.00 1.00 1.40 1.00  
Initial Bse: 0 0 0 133 0 19 25 122 0 0 140 143  
Added Vol: 0 0 0 69 0 0 0 0 0 0 0 76  
PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0  
Initial Fut: 0 0 0 202 0 19 25 122 0 0 140 219  
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: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95  
PHF Volume: 0 0 0 213 0 20 26 128 0 0 147 231  
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0  
Final Volume: 0 0 0 213 0 20 26 128 0 0 147 231

Critical Gap Module:  
Critical Gp:xxxxx xxxx xxxxx 6.4 6.5 6.2 4.1 xxxx xxxxx xxxxx xxxx xxxxx  
FollowUpTim:xxxxx xxxx xxxxx 3.5 4.0 3.3 2.2 xxxx xxxxx xxxxx xxxx xxxxx

Capacity Module:  
Cnflct Vol: xxxx xxxx xxxxx 443 443 263 378 xxxx xxxxx xxxx xxxx xxxxx  
Potent Cap.: xxxx xxxx xxxxx 576 512 781 1192 xxxx xxxxx xxxx xxxx xxxxx  
Move Cap.: xxxx xxxx xxxxx 566 500 781 1192 xxxx xxxxx xxxx xxxx xxxxx  
Volume/Cap: xxxx xxxx xxxx 0.38 0.00 0.03 0.02 xxxx xxxx xxxx xxxx xxxxx

Level Of Service Module:  
2Way95thQ: xxxx xxxx xxxxx xxxx xxxx xxxxx 0.1 xxxx xxxxx xxxx xxxx xxxxx  
Control Del:xxxxx xxxx xxxxx xxxxx xxxxx xxxxx 8.1 xxxx xxxxx xxxxx xxxx xxxxx  
LOS by Move: \* \* \* \* \* A \* \* \* \* \*  
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT  
Shared Cap.: xxxx xxxx xxxxx xxxx 579 xxxxx xxxx xxxx xxxxx xxxx xxxx xxxxx  
SharedQueue:xxxxx xxxx xxxxx xxxxx 1.9 xxxxx 0.1 xxxx xxxxx xxxxx xxxx xxxxx  
Shrd ConDel:xxxxx xxxx xxxxx xxxxx 15.3 xxxxx 8.1 xxxx xxxxx xxxxx xxxx xxxxx  
Shared LOS: \* \* \* \* \* C A \* \* \* \* \*  
ApproachDel: xxxxxx 15.3 xxxxxx xxxxxx  
ApproachLOS: \* C \* \*

Note: Queue reported is the number of cars per lane.